

SECTION 01 11 00 - Summary of Work

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 WORK INCLUDED IN THE CONTRACT

- A. Work Included in the Contract: All construction and services required for a [BRIEF_PROJECT_DESCRIPTION], California Building Code (CBC) Type [] construction, of approximately [] sf floor area, including:

THE FOLLOWING ARE EXAMPLES ONLY. EDIT TO SUIT PROJECT REQUIREMENTS.

1. Site preparation.
2. Site utilities.
3. Site paving.
4. Landscape irrigation system and landscape planting.
5. Site fencing and site appurtenances.
6. New [FACILITY_DESCRIPTION].
7. Plumbing and heating, ventilating and air conditioning systems.
8. Wet-pipe fire suppression (sprinkler) system, to be provided on a design/build basis, with deferred approval by Code authority having jurisdiction, to suit the requirements of the facility and conforming applicable Codes, ordinances and standards of authorities having jurisdiction.
 - a. Private fire service main shall be provided as indicated on Civil Drawings.
 - b. Details of connections to private fire service main shall be included according to approved design/build wet-pipe fire suppression system.
9. Electrical power, lighting and signal systems.
10. Coordination of work being performed by others under separate contracts with University, described in Article below titled "CONCURRENT WORK UNDER SEPARATE CONTRACTS."
11. Additional general information concerning the Project is provided on the Architectural Drawings.

1.3 CONCURRENT WORK UNDER SEPARATE CONTRACTS

- A. Work Under Separate Contracts: University may award separate design and construction contracts concurrent with this Contract and in the future, as determined by the University, for work listed below and for other work as University may determine. Such work under separate contracts may be indicated on the Drawings and in the Specifications as "Not in Contract", "NIC", "Future" or "Under Separate Contract".

1. [*DESCRIPTION* – Typically list furniture, emergency generators, utility work by campus, or other work that will take place on site that is not the responsibility of the contractor.].
 2. [*DESCRIPTION*].
 3. [*DESCRIPTION*].
- B. Relationship to Work Under the Contract: Work under the Contract shall include all provisions necessary to make such concurrent work under separate contracts complete in every respect and fully functional, including field finishing. Provide necessary backing, supports, piping, conduit, conductors and other such provisions from point of service to point of connection, as shown on Drawings and specified herein. See [Section 01 31 00 - Project Management and Coordination](#) for additional requirements.
- C. Documents for Work Under Separate Contracts: University's Representative will make available, in a timely manner, drawings and specifications of work under separate contracts for coordination and further description of that work.
1. If available, such information will include drawings, specifications, product data, lists and construction schedules for such work.
 2. Information concerning work under separate contracts or directly by University will be provided for convenience only and shall not to be considered Contract Documents.
- D. Permits, Notices and Fees for Work under Separate Contracts: Notices required by and approvals required of, authorities having jurisdiction over work under separate contracts and related fees, will be solely the responsibility of University.

1.4 PROTECT THE WORK FROM VANDALISM

- A. DURING WORK HOURS. PROTECT THE WORK FROM THEFT, VANDALISM, AND UNAUTHORIZED ENTRY. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY FOR JOB SITE SECURITY. REFER TO SPECIFICATION 01 54 01 – SECURITY FOR ADDITIONAL INFORMATION
- B. DURING OFF-WORK HOURS. DURING ALL HOURS THAT WORK IS NOT BEING PROSECUTED AND AT THE CONTRACTOR'S DISCRETION, FURNISH SUCH WATCHMAN'S SERVICES AS CONTRACTOR MAY CONSIDER NECESSARY TO SAFEGUARD MATERIALS AND EQUIPMENT IN STORAGE ON THE PROJECT SITE, INCLUDING WORK IN PLACE AND IN PROCESS OF FABRICATION, AGAINST THEFT, ACTS OF MALICIOUS MISCHIEF, VANDALISM, AND OTHER LOSSES OR DAMAGES.

*INCLUDE THIS ARTICLE FOR REMODELING AND RENOVATION PROJECTS. EDIT TO SUIT
PROJECT REQUIREMENTS*

1.5 ALTERATIONS WORK DESCRIPTION

- A. Alterations Work Description: [Remodel] [Renovate] the following areas, complete

including operational mechanical and electrical Work:

1. [DESCRIPTION_].
 2. [DESCRIPTION_].
 3. [DESCRIPTION_].
 4. [DESCRIPTION_].
- B. Refinishing: Refinish all surface areas of the following, as specified:
1. [DESCRIPTION_].
 2. [DESCRIPTION_].
 3. [DESCRIPTION_].
 4. [DESCRIPTION_].
- C. In addition to specified replacement of equipment and fixtures restore existing plumbing, heating, ventilation, air conditioning, electrical, and [_____] systems to full operational condition.

1.5 OWNER-FURNISHED/CONTRACTOR-INSTALLED PRODUCTS

- A. Owner-Furnished/Contractor-Installed (OFICI) Products: University will furnish, for installation by Contractor, products which are identified on the Drawings and in the Specifications as "OFICI (Owner-Furnished/Contractor-Installed)", "installed by General Contractor," or similar terminology. See Drawings for identification of such products. Refer to Section 01 64 00 - Owner-Furnished Products.
- B. Relationship to Work under the Contract: Work under the Contract shall include all provisions necessary to fully incorporate such products into the Work, including, as necessary, fasteners, backing, supports, piping, conduit, conductors and other such provisions from point of service to point of connection, and field finishing, as shown on Drawings and specified herein. See Section 01 64 00 - Owner-Furnished Products for additional requirements.

1.6 PERMITS, LICENSES AND FEES

- A. Permits, Licenses and Fees, General: Refer to Contract General Conditions, Article 4.11.
- B. Licenses: Contractor shall obtain and pay all licenses associated with construction activities, such as business licenses, contractors' licenses and vehicle and equipment licenses. All costs for licenses shall be included in the Contract Amount.
- C. Parking Fees: Contractor shall obtain and pay for all parking permits and fees for all vehicles parked on University property. Refer to Section 01 55 00, Vehicular Access and Parking for additional parking requirements.

1.7 PARTNERING

- A. The Trustees intend to encourage the foundation of a cohesive partnership with the Contractor

and its Subcontractors, the Architect and its consultants, and the Trustees. This partnership will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are effective and efficient Contractor performance, intended to achieve completion within budget, on schedule, and in accordance with the Contract Drawings and Specifications.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION - 01 11 00

SECTION 01 14 00 - Work Restrictions

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Related Sections:
 - 1. Division 02
 - 2. Division 21
 - 3. Division 03
 - 4. Division 14
 - 5. Division 21
 - 6. Division 22
 - 7. Division 23
 - 8. Division 25
 - 9. Division 26
 - 10. Division 27
 - 11. Division 28
 - 12. Division 31
 - 13. Division 32
 - 14. Division 33

1.2 CONTRACTOR'S USE OF PREMISES AND SITE, GENERAL

- A. Contractor's Use of Premises and Site, General: Refer to Contract General Conditions, Article 4.00.
 - 1. Contractor shall at all times perform Work so as to impose no hardship on the Trustees or others engaged in the Trustees' work nor cause unreasonable delays or hindrance thereto.
 - 2. Construction activities shall be scheduled to minimize disruption to the University and to Campus users.
 - 3. Contractor may not interrupt any Campus utilities without prior written permission from the Trustees.
 - 4. Contractor shall leave the site clean and neat each day. See 01 74 00 CLEANING REQUIREMENTS for additional information.

1.3 USE OF PREMISES

- A. Use of Site [*and Existing Building*]: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1. Limits: Confine constructions operations to Project Area indicated on the Drawings. Use of other areas shall be only with the approval of University's Representative. Confine constructions operations to [*Description of areas where Work is permitted*].
 - 2. University Occupancy: Where existing buildings and site areas are indicated for continued use by University, make provisions to continued use by scheduling and sequencing of Work under the Contract. Make provisions for temporary barriers, enclosures, covers, directional signage and other construction facilities and temporary controls to enable continuing use.

1.4 CONTRACTOR'S USE OF PROJECT AREA

- A. Location of Work: The Work shall be accomplished within areas indicated on Drawings as Project Area or, if not indicated, to areas as directed by University's Representative. Use of other areas, including parking areas, shall be subject to approval by University's Representative. Refer to Section 01 52 05 - Construction Staging Areas and Section 01 55 00 - Vehicular Access and Parking for additional requirements.
 - 1. Contractor shall not unreasonably encumber the site with materials or equipment.
 - 2. Contractor shall assume full responsibility for protection and safekeeping of products stored on the premises.
 - 3. Contractor shall move any stored products which interfere with operations of University or contractors performing work under separate contracts for University.
 - 4. Temporary closures or restrictions of use of public thoroughfares, necessary to accomplish the Work, shall be made only as approved in advance by public safety and parking authorities having jurisdiction, as directed in writing by the University's Representative.
 - 5. Additional off-site laydown, staging or parking area may be available for Contractor use. If available, the area may be rented from the University for a fee and shall not be back charged to the University. The Contractor shall coordinate with the University's Representative if additional off-site space is needed.
- B. Contractor's Use of the Project Area: Unless otherwise specified or indicated on the Drawings, during the construction period the Contractor shall have full use of the designated Project Area for construction operations, including use of the site. Contractor's use of Project Area shall be limited only by University's right to perform construction operations with its own forces or to employ separate contractors on

portions of the Project in accordance with the Contract General Conditions.

- C. [FOR RENOVATION PROJECTS] Continued Use of Existing Building: Maintain existing building in a weather tight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.
- D. Protection of Existing Improvements and Facilities: Contractor shall protect property adjacent to the Project Area and all existing improvements and facilities within the Project Area, including paving and landscaping indicated to remain.
 - 1. All existing improvements and facilities, except those specifically indicated for removal or reconstruction, shall be protected with temporary barriers, enclosures and passageways. Refer to additional requirements specified in Section 01 56 00 - Temporary Barriers and Enclosures.
 - 2. After completion of Work, existing improvements and facilities shall be restored to original condition and location. Project Area shall be cleaned and restored to presentable condition, equivalent to or better than the condition prior to start of Work.
 - 3. Should existing improvements and facilities be damaged or soiled beyond renovation or repair, new products shall be provided by Contractor equivalent to existing products, as directed by University's Representative.
- E. Project Area Access: Limit access to the site to routes and access points as indicated. If routes and access points are not indicated, access shall be as approved and as directed by University's Representative. Do not restrict access to adjacent facilities and do not restrict access for those performing work under separate contracts for University.
 - 1. Access to and egress from Project Area shall be in strict conformance to prearranged routes approved by University's Representative, with the understanding that curtailment of construction traffic or revision of access routes may be required on short notice if University's operations mandate such changes because of excessive noise or problems of safety, service or supply.
 - 2. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to service and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances. Deliveries shall be restricted to certain times through each work day. Refer to section 1.5 below.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- F. Emergency Access: Provide pathways, drives, gates, directional signage and other

provisions as required by authorities having jurisdiction for emergency access to Project Area and adjoining campus facilities.

- G. Emergency Egress: Maintain all pathways, drives, gates, and other means of egress during construction as required by public safety authorities having jurisdiction.

1.5 TIME RESTRICTIONS

- A. Contractor's Work Hours: Work shall be limited to Monday through Friday, except University-observed holidays and periods when classes are not in session, during hours of 7:00am to 5:00pm.
1. Work on other days and at other hours shall be permitted only with written approval of University's Representative.
 2. Prior to start of construction: Obtain a calendar from the Trustees indicating major campus events, study and examination periods, holidays and quarter breaks. See Exhibit A for 2025 University-observed holidays as of 09/05/2024. Link: https://afd.calpoly.edu/hr/docs/work_schedule_2025.pdf
 3. Work during final exam periods at ends of class sessions shall be restricted to minimize noise, vibrations and other distracting and inhibiting activities. For additional details regarding the academic calendar, please visit <https://registrar.calpoly.edu>.
 4. The Contractor may be asked to suspend work during the following or similar University events:

THE FOLLOWING IS AN EXAMPLE ONLY. EDIT TO SUIT PROJECT REQUIREMENTS. WORK IN CLOSE PROXIMITY TO HOUSING MAY REQUIRE ALTERNATE WORK HOURS, TYPICALLY NOT ALLOWED TO START UNTIL 10AM. CONFIRM WITH HOUSING.

Commencement: (NO WORK)	Generally the third Saturday in June Generally the third Saturday in December
Open House: (NO deliveries allowed)	Generally the third Friday and Saturday in April
Residence Hall Move-in: (NO Deliveries allowed)	Generally weekend before Fall Quarter
Finals Weeks: (noise restrictions in place)	Generally the third week in March The week before June commencement The week before December commencement

5. If it becomes necessary to perform Work on weekends and holidays, in order

to meet milestone and final completion dates, Work shall be performed at no change in Contract Amount unless authorized by written Change Order or Field Instruction.

- B. Utility Outages and Shutdown: Schedule work to minimize outages. For utility outages and connections required during the execution of work that affects existing systems, schedule outside the regular working hours or on weekends, as approved by the University's Representative. Schedule utility outages and connections to minimize disruptions to the campus. Schedule utility outages and shutdowns to nights, weekends, school holidays, or times and dates acceptable to and approved by the University's Representative. No additional payment will be provided for utility outages and connections required to be performed outside the regular work hours.
1. Time and duration of outages and shutdowns shall not hinder normal campus activities except as authorized in writing by the University's Representative.
 2. Submit requests for utility outages and connections in writing in accordance with 01 33 00 to the University's Representative for review and approval at least seven (7) calendar days' notice for all utility outages and shutdowns. In each request, describe the work to be performed, state the system involved, the area involved, which utilities will be interrupted and time and duration of the interruption, the approximate duration of the outage, and the nature of the work involved.
 3. Contractor shall provide temporary utilities to occupied facilities and adjacent properties when utilities must be interrupted for more than two hours, unless otherwise directed by University's Representative.
 4. Power interruptions beyond the authorized time shall be subject to liquidated damages in the amount of \$1,000 per day.
 5. Refer also to requirements for temporary utilities specified in Section 01510, Temporary Utilities.

1.6 NOISE AND VIBRATION RESTRICTIONS

- A. Noise Restrictions: These requirements are in addition to Article 35.03 of the Contract General Conditions. Minimize noise from construction activities. Limit loud construction activities to times when classes are not in session in adjacent [*LIST FACILITIES*] [*LIST SPACES, ROADS OR OTHER SIMILAR AREAS*].
1. Maximum noise levels within 1,000 feet of classroom, laboratory, residence, business, adjacent buildings, or other populated area for:
 - a. Trenchers, pavers, graders and trucks: 90 dBA maximum at 50 feet as measured under the noisiest operating conditions.
 - b. Other equipment: 85 dBA at 50 feet as measured under the noisiest operating conditions.
 2. Equipment:

- A. JACKHAMMERS: EQUIP WITH EXHAUST MUFFLERS AND STEEL MUFFLING SLEEVES.
 - B. AIR COMPRESSORS: QUIET TYPE SUCH AS A "WHISPERIZED" COMPRESSOR. KEEP HOODS CLOSED WHILE EQUIPMENT IS IN OPERATION.
 - C. PORTABLE NOISE BARRIERS: PROVIDE AROUND JACK HAMMERING OR SIMILAR CONSTRUCTION; 3/4-INCH PLYWOOD LINED WITH 1-INCH THICK FIBERGLASS ON THE WORK SIDE AT A SUFFICIENT HEIGHT AND WIDTH TO REDUCE NOISE TO ACCEPTABLE LIMITS.
3. Operations:
- a. Keep noisy equipment as far as possible from noise-sensitive site boundaries.
 - b. Do not leave machines idling.
 - c. Use electric power in lieu of internal combustion engine power wherever possible.
 - d. Maintain equipment properly to reduce noise from excessive vibration, faulty mufflers, or other sources.
 - e. Engines shall have properly functioning mufflers.
4. Scheduling:
- a. Schedule noisy operations to minimize their duration, and disruption to the adjoining users.
 - b. Notify the Trustees Representative of seven (7) calendar days minimum in advance of performing work creating unusual noise.
 - c. Schedule work at mutually agreeable times.
5. Do not play radios, tape recorders, televisions, and similar items at construction site.
6. When work occurs in or near occupied buildings, keep noise associated with construction activities to a minimum. Noisy operations that may disrupt academic or residential activities shall be scheduled after normal work hours.
7. ALL NOISY WORK WITHIN THE AREA OF RESIDENCE HALLS AND OTHER CAMPUS RESIDENCES SHALL BE RESTRICTED BETWEEN THE HOURS OF 10:00 AM TO 10:00 PM SEVEN (7) DAYS PER WEEK, THROUGHOUT THE YEAR. NO WORK WILL BE ALLOWED IN RESIDENCE HALLS ON CAMPUS RESIDENCES DURING FINALS WEEK.
8. TRUSTEES RESERVE THE RIGHT TO STOP CONSTRUCTION WORK, INCLUDING BUT NOT LIMITED TO NOISY WORK, DURING THE FOLLOWING EVENTS: COMMENCEMENT, OPEN HOUSE, FINALS WEEK, RESIDENCE HALL MOVE-IN, WEEK-OF-WELCOME, OR AT OTHER TIMES THAT MAY BE IDENTIFIED BY THE TRUSTEES. TRUSTEES RESERVE THE RIGHT TO STOP NOISY WORK WHEN SAID WORK DISRUPTS CLASSES OR RESIDENTIAL AREAS. REFER TO SECTION 01 11 00 - SUMMARY OF WORK.

- B. Vibration Restrictions: Do not perform activities that cause vibrations in adjacent occupied spaces, including spaces above and below location where Work is performed. If vibrations transmit through structure, perform Work at times when University activities are not being conducted. Work may proceed with written authorization from University representative.

1.7 UNIVERSITY RESTRICTIONS

- A. Grand Avenue, Perimeter Road, Highland Drive, or California Boulevard: No large or slow-moving vehicles between the hours of 7:30 a.m. and 8:30 a.m., Monday through Friday, when school is in session.
 - a. Clearance is restricted to 12 feet-6 inches under train trestle on Highland Drive.
 - b. Construction Traffic is restricted to exit campus on Grande Ave. only.
- B. The use of the surrounding residential streets for any contractor use is not allowed.
 - a. Observe all traffic laws on and off campus at all times.
- C. Temporary traffic control and temporary traffic signs:
 - a. Follow Caltrans guidelines and regulations.
 - b. Large equipment working in and around pedestrian areas shall require a spotter when backing up. Back up beepers are not sufficient.
 - c. Drivers of the equipment or back-up alarms are not considered "spotters."
 - d. Large equipment includes, but is not limited to, backhoes, dump trucks, concrete trucks and delivery trucks.
- E. FLAG PERSONS: PROVIDE TRAINED AND EQUIPPED FLAG PERSONS TO REGULATE TRAFFIC WHEN CONSTRUCTION OPERATIONS OR TRAFFIC ENCROACH ON PUBLIC TRAFFIC LANES.
- F. FLARES AND LIGHTS: USE FLARES AND/OR LIGHTS DURING HOURS OF LOW VISIBILITY TO DELINEATE TRAFFIC LANES AND TO GUIDE TRAFFIC.

1.8 LOCATION OF UNDERGROUND UTILITIES

- A. It is the sole responsibility of the contractor to perform a third-party utility locate. It is the sole responsibility of the Contractor to protect the underground utilities. Obtain digging permits prior to the start of excavation and comply with campus requirements for locating and marking underground utilities. Verify existing utility locations indicated on contract drawings, within the area of work. Identify and mark findings on the surface with marking paint at the time of scanning all utilities. Scan the construction site with Ground Penetrating Radar (GPR), electromagnetic, or sonic equipment, and mark the surface of the ground, building floor, or paved surface where existing underground utilities or utilities encased in structures are discovered. Verify the elevations of existing piping, utilities, and any type of underground or encased obstruction not indicated, or specified to be removed, that is indicated or discovered during scanning, in locations to be traversed by piping, ducts, and other work to be conducted or installed. Verify elevations before installing new work closer to the nearest manhole or other structure at which an adjustment in grade can be made.

The campus will additionally locate and mark existing utilities. Campus location and

marking are to complement the Contractor's locate. The Campus locate and marking shall not be used for design nor verification that utilities are/or are not present. The sole responsibility for the protection of existing utilities shall be the Contractor. The Contractor shall not delegate this responsibility to a subcontractor.

1. Notification Prior to Excavation: Notify the University's Representative at least 15 calendar days prior to starting excavation work, in writing in accordance with 01 33 00.
 - a.) Initial Actions: After conducting a site visit, define the limits of the excavation site, prepare/acquire the Dig Permit, and mark out the site to be surveyed.
 - b.) Utility Permit Procedure:
 - i. Ensure the job site has been scoped and dig permits are issued and displayed prior to digging.
 - ii. Verify the location of any utilities through the Contractor's Utility Locate and Campus Locate. Any excavation within 2 feet of utilities shall be dug by hand using nonconductive tools when electrical hazards or sparks may be produced working around electrical or gas utilities. Verification applies even if the excavation is to be manually done.
 - iii. Dig permits shall be obtained anytime the soil is going to be disturbed by hand (6 inches or more) or power machinery for a trench, excavation, hole, footing, etc.
 - iv. Utility Color Codes using APWA uniform Color Codes:
 - RED-Electrical power lines, cables, conduits, and lighting cables
 - BLUE-Water line (additional colors for HHW/CW, other can be applied)
 - YELLOW-Natural gas, oil, steam, petroleum or other gaseous/flammable
 - GREEN-Sewer and drain lines
 - PINK-Temporary survey markings, unknown/unidentified facilities
 - ORANGE-Telecommunications, alarms or signal lines, cables or conduits
 - WHITE: Used for marking outer limits of trenching boundary in lieu of, or in conjunction with, grade stakes/strings.
2. The Contractors Utility Locate Findings will be submitted to the University's Representative in in accordance with 01 33 00. The Contractors Utility Locate Findings shall include the following.
 - a.) Written Report. Basic report of findings with photos and example data.

- b.) GPS. Findings will be collected with GPS handheld unit and added to a Google Earth KMZ files.
- c.) Findings will be added as a layer to an existing CAD drawing and added to an aerial image background.

1.9 UNIVERSITY'S USE OF SITE AND PREMISES

- A. University's Use of Site and Premises: The University reserves the right to occupy and to place and install equipment in completed or partially completed areas of buildings and site. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
- 2. Full University Occupancy: The University will occupy the site [*and existing building*] during the entire construction period. Cooperate with the University during construction operations to minimize conflicts and facilitate University usage. Perform the Work so as not to interfere with the University's operations.
- 3. Partial University Occupancy: The University reserves the right to occupy and to place and install equipment in completed areas of the building provided such occupancy does not interfere with the completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
- 4. Before partial University occupancy, mechanical and electrical systems shall be fully operational and required tests and inspections shall be successfully completed. Unless otherwise agreed, the University will provide operation and maintenance of mechanical and electrical systems in portions of the building used by the University. Unless otherwise agreed in writing by the University, warrantee periods shall not begin until the date established by the Notice of Completion filed at Contract closeout.
- 5. Upon occupancy, the University will assume responsibility for maintenance and custodial service for occupied portions of building.

PART 2 - PRODUCTS

Not Applicable to this Section

PART 3 – EXECUTION

Not Applicable to this Section

01 14 00 Exhibit A - 2025 University-observed Holidays

The below schedule lists approved 2025 University-observed Holidays for Cal Poly State Employees, as of 09/05/2024.

January 1, 2025	New Year's Day holiday
January 20, 2025	Martin Luther King, Jr., holiday
March 31, 2025	Cesar Chavez Day holiday
May 26, 2025	Memorial Day holiday
June 19, 2025	Juneteenth
July 4, 2025	Independence Day holiday
September 1, 2025	Labor Day holiday
November 11, 2025	Veterans' Day holiday
November 27 - November 28, 2025	November 27 - Thanksgiving Day holiday November 28 - Lincoln's Birthday observed (2/12/25)
December 25 - December 31, 2025	December 25 - Christmas Day holiday observed December 26 - Washington's Birthday observed (2/17/25) December 29 - California Admission Day observed (9/9/25) December 30 - Indigenous Peoples' Day observed (10/13/25) December 31 - Campus closed (anticipated Governor/President holiday)
January 1, 2026	New Year's Day holiday
January 19, 2026	Martin Luther King, Jr., holiday

01 14 00 Exhibit B - Underground Survey Requests (USR)_Rev2_2025



Facilities Procedural Guidelines

Underground Survey Requests

Creation Date: 10/14/2024

This procedure outlines Cal Poly's process to ensure proper management, control and verification of Underground Survey Requests (USR) requests:

Scope

This procedure provides controls for excavation/trenching activities which are to be followed in order to:

- Ensure the safety of personnel that may encounter underground hazards (e.g., contact with underground utilities) or that may be exposed to hazards during excavation (e.g., cave-ins).
- Prevent damage to underground components, utilities and structures.
- Ensure protection of Archaeological, Cultural and Historical (AC&H) resources found as a result of ground moving, excavation and trenching activities.

This procedure is applicable for all activities at Cal Poly State University performed by staff or contracted personnel. **Specific activities covered by this procedure include:**

- Pole erections; post/rod driving; Augering; trenching; tunneling or boring; grading deeper than 6 inches; grade stakes for flatwork; asphalt cutting or demolition that goes deeper than 6 inches; any other piercing of the ground deeper than 6 inches.

This procedure does **not apply to:**

- Landscaping, providing that the landscaper is NOT using any mechanical digging equipment.
 - Mechanical digging equipment includes trenchers, augers, excavation/earth moving equipment, assisted manual digging tools (ie weighted shovels, sharpshooters, pick mattocks, digging bars)
- Pavement/asphalt removal, and replacement of any existing pavement, provided no removal or excavation of sub-surface soil/gravel is required to a depth greater than six inches
- Maintenance replacements of visible surface features in the same location, depth, and size as the items being replaced (i.e., sign posts, bollards, poles).

Responsibilities

The PM or requesting Shop Supervisor / Lead is directly responsible for:

- Inputting the survey request matching Example USR format located in Appendix
 - Incorrectly Formatted USRs will be rejected
 - Key Components of Survey Request:



- Title: USR: PJ#xxx, Project Name, Location and. Work Performed: Excavation, Stake Holing, Trenching
- Copy of Utility Atlas detail with corresponding markings detailed in the Project Related section of this document. Zoom must be 200% or greater. If the area is larger than what 200% can cover, a additional USRs would need to be submitted.
- Landscapes should be grubbed out before requesting the USR provided work does not exceed 6 inches of depth.
- Picture of USR area after it is marked
- Verifying all surveys have been completed prior to any digging or excavations by verifying all USR work orders are complete and the proposed excavation / dig site is properly marked. This includes any outside utility requests.
- Review Utility Atlas for potential underground utilities and buried commodities in addition to performing the underground surveys.
- Review this procedure in its entirety with the contractor PRIOR to performing the excavation
- Supervision / oversight of the excavation activity to ensure:
 - Overall safety of workers at the excavation site.
 - OSHA compliance at the excavation site.
 - Verify water accumulation in and around the trench/excavation does not change the classification of the soil and that corrective action is taken to ensure employee safety.
 - Maintaining proper access/egress for employees and equipment
 - Ensuring that a safe zone of at least two feet is maintained around the trench/excavation.
- All required postings, walkways, covers, boxes/ shoring, bridges or crossings are in place. Daily inspections should be performed to ensure safety measures remain on place.
- Requesting Facility Operations Work Center (WC) or Finance to initiate a WOs requesting USR markings to the following trades (PL, EL, CP, and Land).
- ITS and Ag Operations shall be communicated with separately. If they have utilities in the proposed area the requesting Shop Supervisor or PM should capture this in separate WO's as well.
 - This can be using one parent WO with multiple child WO's (ALL ABOVE LISTED GROUPS MUST BE INCLUDED; Ag OPS and ITS as needed based on consultation with the requestor)
 - Use 811 for others as necessary (SoCal Gas, Sprint, PG&E, SLO City)
- Utility vaults, manholes, valve/pull/meter/comm/electrical/irrigation boxes are to be brought back to grade, uncovered and accessible after project



Procedure: Utility Locating, Potholing Services

USR Request and Site Identification

Project Related:

- PM shall request Facility Operations Finance to initiate a WOs to ALL of the following trades (PL, EL, CP, ITS, AG OPS and Land) requesting USR markings;
 - The PM will contact ITS and Ag. Ops to inform them of the WO assignment and assist as necessary to update / process the work order request.
- PM should provide a scope of work including reference drawings and specific location in the requesting Work Order, including the expected depths, means and methods of digging or excavating.
- PM shall mark the proposed digging/excavation area per standard APWA Guidelines link located in Appendix. Common examples of marking are: white full line outline around the physical excavation area, white center point with radius for stake holing, white dash line for trench lines White whisker anchors and flags can be substituted for white paint. See pictures in Example USR in Appendix.

Maintenance Related:

- Trade Supervisor or Lead shall request Facility Operations Work Center (WC) to initiate WOs requesting USR markings to ALL of the following (PL, EL, CP, ITS, AG OPS and Land) requesting USR markings;
 - The trade supervisor will contact ITS and Ag. Ops to inform them of the WO assignment and assist as necessary to update / process the work order request.
 -
- Requesting Trade should provide a scope of work including reference drawings and specific location in the requesting Work Order including the expected depths, means and methods of digging or excavating.
- Requesting Trade shall mark the proposed digging/excavation area with a white outline around the physical area per standard APWA guidelines.

Locating / Trade Shop Responsibilities

- All trades shall conduct surveys and markings in the time frame specified in the WO (2 weeks non-emergency).
- The “locate” will be conducted using any and all conventional means to complete the utility markings in the proposed area using APWA uniform Color Codes:
 - RED-Electrical power lines, cables, conduits, and lighting cables
 - BLUE-Water line (additional colors for HHW/CW, other can be applied)
 - YELLOW-Natural gas, oil, steam, petroleum or other gaseous/flammable



- GREEN-Sewer and drain lines
 - PINK-Temporary survey markings, unknown/unidentified facilities
 - ORANGE-Telecommunications, alarms or signal lines, cables or conduits
 - WHITE: Used for marking outer limits of trenching boundary in lieu of, or in conjunction with, grade stakes/strings.
- Completion of ALL markings (Campus / External) shall be annotated in the Communication Log and titled by corresponding shop in the requesting WO by the performing group as well as within the actual site survey boundary area. If no utilities are found in the survey the statement “no utilities were identified for XXX utility” shall be stated in the work order AND denoted on site following standard locating procedures (painting next to white boundary marks that no XXX etc. is found).
 - Note: Communication Log is only location to add annotations that will be visible by all shops
 - The PM or requesting Shop Supervisor/lead SHALL confirm by WO review and site inspection that all trade shop markings, as well as, any external agency or entity markings have been completed PRIOR to starting work.
 - The PM or requesting Shop Supervisor/Lead will take a picture of the site marking for future reference should an underground utility be encountered in an unmarked area.

Precautions

- Underground and above ground utilities, adjacent structures, retaining walls, spoil layout, truck routes, and emergency procedures must be identified before excavation begins. If any trade shop could not locate a particular utility, but the utility is shown on the utility atlas, mechanical digging shall NOT occur until the specific utility is located using sluicing or other non-mechanical means,
- Coordinate with shop(s) owning utility that could not be located to sluice or other non-mechanical means to locate the utility (utilities)
- Coordinate with shop(s) owning utility that are within two (2) feet of each known cable and active utility in the excavation, stake hole or trench area to sluice or other non-mechanical means to locate the utility (utilities)
- Work will stop if excavation reveals utilities that were not detected prior to digging. A qualified person will determine whether electrical cable(s) are energized
- Excavation will stop two (2) feet (High Risk Activity) from the appropriate location of each known cable and active utility, and then proceed only per the following conditions:
 - Sluice, vacuum, or hand dig using non-conductive tools such as fiberglass-handled shovels and appropriate personal protective equipment.
 - Nonconductive tools and electrical-insulated PPE will be approved for the expected voltage.



- When warranted by job site conditions the PM/IOB or responsible Shop Supervisor / Lead should implement appropriate protective systems such as sloping, benching or shoring measures.
- Personnel digging by shovel within two (2) feet (High Risk Activity) of electrical cables will be instructed to use only their hands on the shovel, not feet or other unprotected parts of the body, to drive the shovel into the ground. The use of weighted shovels, sharpshooters, pick mattocks and digging bars is NOT permitted.
- All low-voltage (from 50V to 600V) energized conduits exposed during excavation will be covered with approved electrical insulating material, or de-energized, to prevent contact or damage. High voltage cables (operating at more than 600 V) exposed during excavation will be de-energized before continuing. All exposed utilities will be protected, removed, or as otherwise directed by the PM or responsible Shop Supervisor.
- All excavations of energized or de-energized utilities will be hand dug or excavated by use of non-destructive methods (Jet Tracking, Vacuuming) and not by mechanical powered tools. Exceptions allowing the use of mechanical tools will be on a case-by-case basis with concurrence from the PM or responsible Shop Supervisor.
- If an unanticipated item is uncovered during excavation, workers shall stop work and inform the PM or responsible Shop Supervisor.
- Notify trade when utility is exposed and before being covered, to assess condition

NOTES:

1. Sufficient time should be provided to the shops to schedule the UUS markings request **(2 week minimum for non-urgent requests)**
2. The Title of the WO requesting USR Markings should be standard so that they stand out and are easily found through WO searches.

[USR: Trade shop] - Short Location Description] [USR: PJ# - Project Name – Location – Work Performed]

Examples

[USR: Electric - Parking Lot A1] or [USR: MJ0064 -ENGINEERING PROJ CNTR-MCNALLY-EXCAVATION]

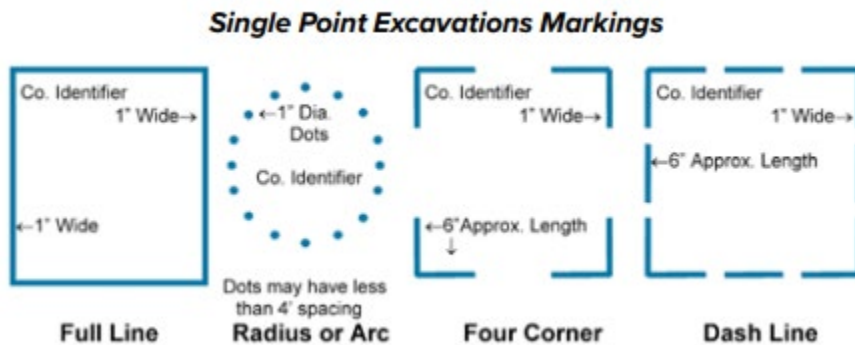
3. Utility changes should be documented and utility atlas / plan-room



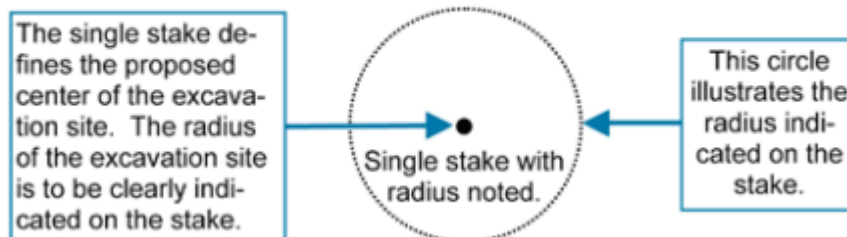
APPENDIX

APWA Guidelines Link - <https://www.usanorth811.org/images/pdfs/CA-LAW-2018.pdf>

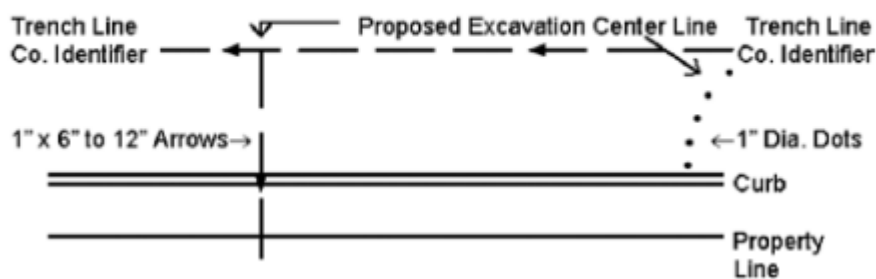
APWA Guidelines Marking Reference



Single Stake Marking Center Point of Excavation Site



Trenching, Boring, or Other Continuous-Type Excavations

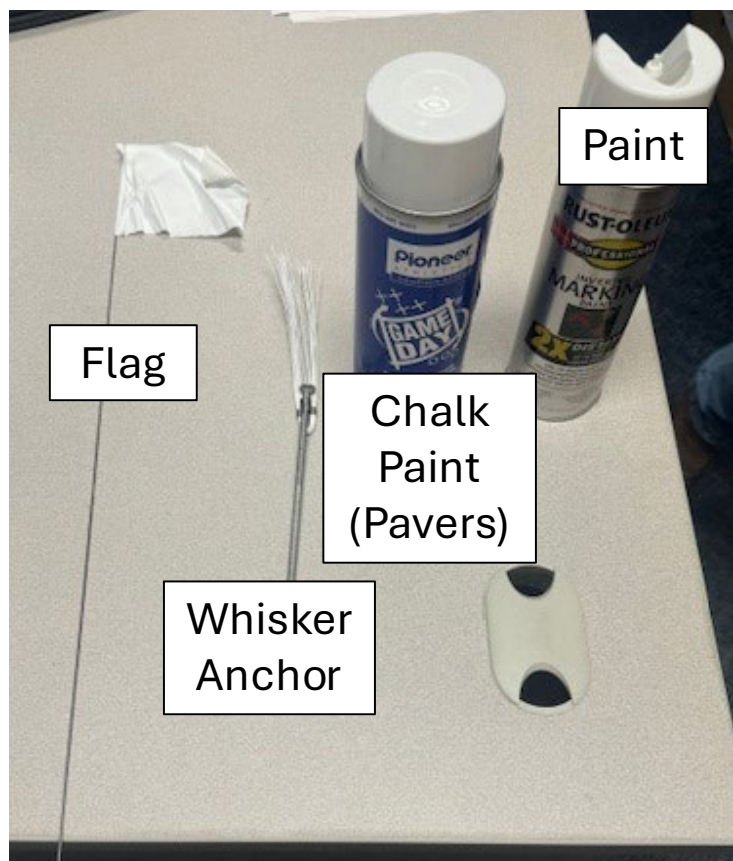




Color Code Identifiers

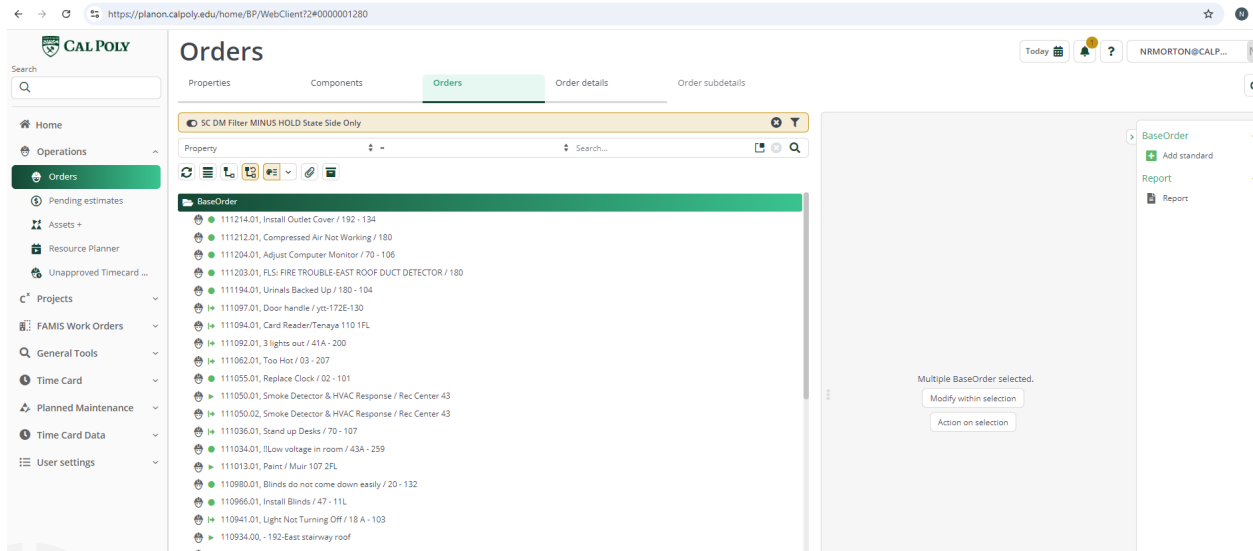
White	Proposed Excavation
Pink	Central Plant
Red	Electric Power Lines, Cables, Conduit, and Lighting Cables
Yellow	Gas, Oil, Steam, Petroleum, or Gaseous Materials
Orange	Communication, Alarm or Signal Lines, Cables, or Conduit
Blue	Potable Water
Purple	Reclaimed Water, Irrigation, and Slurry Lines
Green	Sewers and Drain Lines

Marking Tools



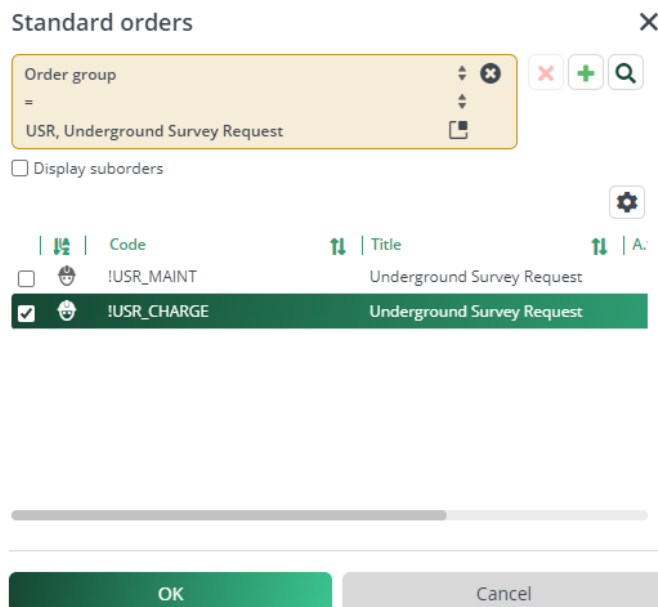


USR Example:



Order, Add Standard, Search Order Group USR and click OK.

Maintenance for Fac Ops, Charge for Projects





USR, PJ#, Property, Type of Dig, Add brief detail in Detailed Description

General

Dates

Financial

Internal notes

Miscellaneous

Communication logs

Audit info

General

* Order number

FAMIS WO number

* User-defined type

Work order

Order data

Title

USR: PJ 9999 Rodeo Stake Holing

Detailed description

Area Location / Scope:

A USR has been requested for stake holing around pasture

Completion of ALL survey markings (Campus/External Agency) shall be annotated in the requesting WO by the performing group

1034 characters remaining (2000 maximum)

Standard order

!USR_CHARGE, Underground Survey Reque

* Order group

USR, Underground Survey Request

* Billing Type

CB-Overhead, Chargeback with Overhead



Go to order Details to add pictures. Attach only one picture per field

The screenshot shows a web form with two tabs: "General" (selected) and "Audit info".

General

* Code: 555251

Name:

* Start date/time: 10/14/2024 12:07 PM

End date-time:

Type: Communication log

Attachment details

Document reference: Drop file or Browse

Document (secure): Drop file or Browse

Drop file or Browse

URL:

Version:

Individual responsible

Responsible person (Personnel):

Responsible contact (Addresses):

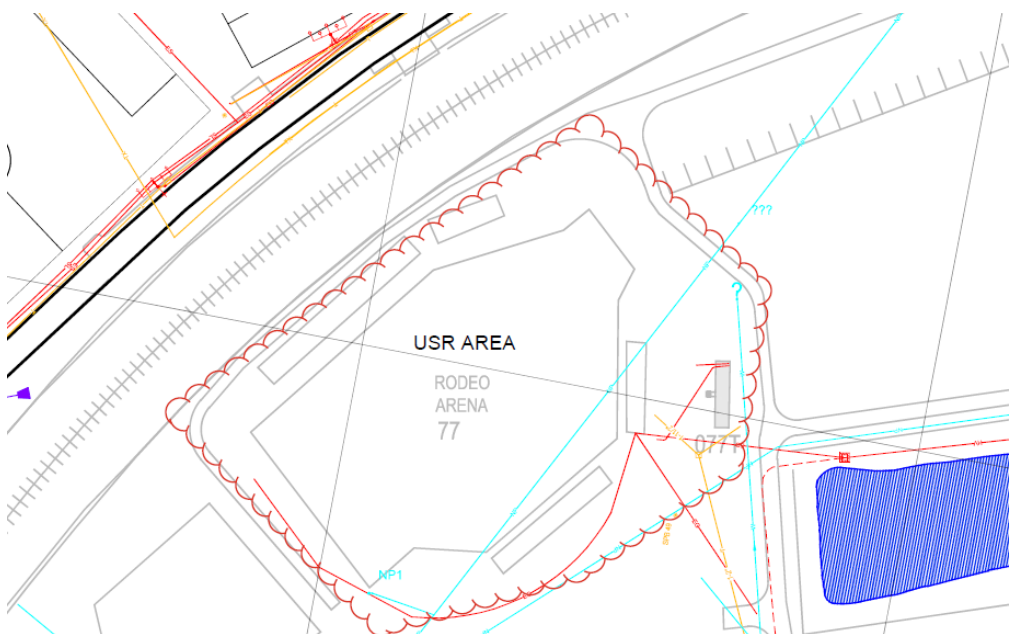
Communication owner

Description:

A callout box with the text "Only One Picture per line" has three arrows pointing to the "Drop file or Browse" links in the "Attachment details" section.



Pictures to be saved as PDF for marking. Mark area on both pictures with bubble



Save to create order. Final Step: Email to all parties (supervisors, IT and Ag Ops) attaching both E_Atlas and Google Earth images

END OF SECTION - 01 14 00



Facilities Procedural Guidelines

Underground Survey Requests

Creation Date: 10/14/2024

This procedure outlines Cal Poly's process to ensure proper management, control and verification of Underground Survey Requests (USR) requests:

Scope

This procedure provides controls for excavation/trenching activities which are to be followed in order to:

- Ensure the safety of personnel that may encounter underground hazards (e.g., contact with underground utilities) or that may be exposed to hazards during excavation (e.g., cave-ins).
- Prevent damage to underground components, utilities and structures.
- Ensure protection of Archaeological, Cultural and Historical (AC&H) resources found as a result of ground moving, excavation and trenching activities.

This procedure is applicable for all activities at Cal Poly State University performed by staff or contracted personnel. **Specific activities covered by this procedure include:**

- Pole erections; post/rod driving; Augering; trenching; tunneling or boring; grading deeper than 6 inches; grade stakes for flatwork; asphalt cutting or demolition that goes deeper than 6 inches; any other piercing of the ground deeper than 6 inches.

This procedure does **not apply to:**

- Landscaping, providing that the landscaper is NOT using any mechanical digging equipment.
 - Mechanical digging equipment includes trenchers, augers, excavation/earth moving equipment, assisted manual digging tools (ie weighted shovels, sharpshooters, pick mattocks, digging bars)
- Pavement/asphalt removal, and replacement of any existing pavement, provided no removal or excavation of sub-surface soil/gravel is required to a depth greater than six inches
- Maintenance replacements of visible surface features in the same location, depth, and size as the items being replaced (i.e., sign posts, bollards, poles).

Responsibilities

The PM or requesting Shop Supervisor / Lead is directly responsible for:

- Inputting the survey request matching Example USR format located in Appendix
 - Incorrectly Formatted USRs will be rejected
 - Key Components of Survey Request:



- Title: USR: PJ#xxx, Project Name, Location and. Work Performed: Excavation, Stake Holing, Trenching
- Copy of Utility Atlas detail with corresponding markings detailed in the Project Related section of this document. Zoom must be 200% or greater. If the area is larger than what 200% can cover, a additional USRs would need to be submitted.
- Landscapes should be grubbed out before requesting the USR provided work does not exceed 6 inches of depth.
- Picture of USR area after it is marked
- Verifying all surveys have been completed prior to any digging or excavations by verifying all USR work orders are complete and the proposed excavation / dig site is properly marked. This includes any outside utility requests.
- Review Utility Atlas for potential underground utilities and buried commodities in addition to performing the underground surveys.
- Review this procedure in its entirety with the contractor PRIOR to performing the excavation
- Supervision / oversight of the excavation activity to ensure:
 - Overall safety of workers at the excavation site.
 - OSHA compliance at the excavation site.
 - Verify water accumulation in and around the trench/excavation does not change the classification of the soil and that corrective action is taken to ensure employee safety.
 - Maintaining proper access/egress for employees and equipment
 - Ensuring that a safe zone of at least two feet is maintained around the trench/excavation.
- All required postings, walkways, covers, boxes/ shoring, bridges or crossings are in place. Daily inspections should be performed to ensure safety measures remain on place.
- Requesting Facility Operations Work Center (WC) or Finance to initiate a WOs requesting USR markings to the following trades (PL, EL, CP, and Land).
- ITS and Ag Operations shall be communicated with separately. If they have utilities in the proposed area the requesting Shop Supervisor or PM should capture this in separate WO's as well.
 - This can be using one parent WO with multiple child WO's (ALL ABOVE LISTED GROUPS MUST BE INCLUDED; Ag OPS and ITS as needed based on consultation with the requestor)
 - Use 811 for others as necessary (SoCal Gas, Sprint, PG&E, SLO City)
- Utility vaults, manholes, valve/pull/meter/comm/electrical/irrigation boxes are to be brought back to grade, uncovered and accessible after project



Procedure: Utility Locating, Potholing Services

USR Request and Site Identification

Project Related:

- PM shall request Facility Operations Finance to initiate a WOs to ALL of the following trades (PL, EL, CP, ITS, AG OPS and Land) requesting USR markings;
 - The PM will contact ITS and Ag. Ops to inform them of the WO assignment and assist as necessary to update / process the work order request.
- PM should provide a scope of work including reference drawings and specific location in the requesting Work Order, including the expected depths, means and methods of digging or excavating.
- PM shall mark the proposed digging/excavation area per standard APWA Guidelines link located in Appendix. Common examples of marking are: white full line outline around the physical excavation area, white center point with radius for stake holing, white dash line for trench lines White whisker anchors and flags can be substituted for white paint. See pictures in Example USR in Appendix.

Maintenance Related:

- Trade Supervisor or Lead shall request Facility Operations Work Center (WC) to initiate WOs requesting USR markings to ALL of the following (PL, EL, CP, ITS, AG OPS and Land) requesting USR markings;
 - The trade supervisor will contact ITS and Ag. Ops to inform them of the WO assignment and assist as necessary to update / process the work order request.
 -
- Requesting Trade should provide a scope of work including reference drawings and specific location in the requesting Work Order including the expected depths, means and methods of digging or excavating.
- Requesting Trade shall mark the proposed digging/excavation area with a white outline around the physical area per standard APWA guidelines.

Locating / Trade Shop Responsibilities

- All trades shall conduct surveys and markings in the time frame specified in the WO (2 weeks non-emergency).
- The “locate” will be conducted using any and all conventional means to complete the utility markings in the proposed area using APWA uniform Color Codes:
 - RED-Electrical power lines, cables, conduits, and lighting cables
 - BLUE-Water line (additional colors for HHW/CW, other can be applied)
 - YELLOW-Natural gas, oil, steam, petroleum or other gaseous/flammable



- GREEN-Sewer and drain lines
 - PINK-Temporary survey markings, unknown/unidentified facilities
 - ORANGE-Telecommunications, alarms or signal lines, cables or conduits
 - WHITE: Used for marking outer limits of trenching boundary in lieu of, or in conjunction with, grade stakes/strings.
- Completion of ALL markings (Campus / External) shall be annotated in the Communication Log and titled by corresponding shop in the requesting WO by the performing group as well as within the actual site survey boundary area. If no utilities are found in the survey the statement “no utilities were identified for XXX utility” shall be stated in the work order AND denoted on site following standard locating procedures (painting next to white boundary marks that no XXX etc. is found).
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Precautions

- Underground and above ground utilities, adjacent structures, retaining walls, spoil layout, truck routes, and emergency procedures must be identified before excavation begins. If any trade shop could not locate a particular utility, but the utility is shown on the utility atlas, mechanical digging shall NOT occur until the specific utility is located using sluicing or other non-mechanical means,
- Coordinate with shop(s) owning utility that could not be located to sluice or other non-mechanical means to locate the utility (utilities)
- Coordinate with shop(s) owning utility that are within two (2) feet of each known cable and active utility in the excavation, stake hole or trench area to sluice or other non-mechanical means to locate the utility (utilities)
- Work will stop if excavation reveals utilities that were not detected prior to digging. A qualified person will determine whether electrical cable(s) are energized
- Excavation will stop two (2) feet (High Risk Activity) from the appropriate location of each known cable and active utility, and then proceed only per the following conditions:
 - Sluice, vacuum, or hand dig using non-conductive tools such as fiberglass-handled shovels and appropriate personal protective equipment.
 - Nonconductive tools and electrical-insulated PPE will be approved for the expected voltage.



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- Personnel digging by shovel within two (2) feet (High Risk Activity) of electrical cables will be instructed to use only their hands on the shovel, not feet or other unprotected parts of the body, to drive the shovel into the ground. The use of weighted shovels, sharpshooters, pick mattocks and digging bars is NOT permitted.
- All low-voltage (from 50V to 600V) energized conduits exposed during excavation will be covered with approved electrical insulating material, or de-energized, to prevent contact or damage. High voltage cables (operating at more than 600 V) exposed during excavation will be de-energized before continuing. All exposed utilities will be protected, removed, or as otherwise directed by the PM or responsible Shop Supervisor.
- All excavations of energized or de-energized utilities will be hand dug or excavated by use of non-destructive methods (Jet Tracking, Vacuuming) and not by mechanical powered tools. Exceptions allowing the use of mechanical tools will be on a case-by-case basis with concurrence from the PM or responsible Shop Supervisor.
- If an unanticipated item is uncovered during excavation, workers shall stop work and inform the PM or responsible Shop Supervisor.
- Notify trade when utility is exposed and before being covered, to assess condition

NOTES:

1. Sufficient time should be provided to the shops to schedule the UUS markings request **(2 week minimum for non-urgent requests)**
2. The Title of the WO requesting USR Markings should be standard so that they stand out and are easily found through WO searches.

[USR: Trade shop] - Short Location Description] [USR: PJ# - Project Name – Location – Work Performed]

Examples

[USR: Electric - Parking Lot A1] or [USR: MJ0064 -ENGINEERING PROJ CNTR-MCNALLY-EXCAVATION]

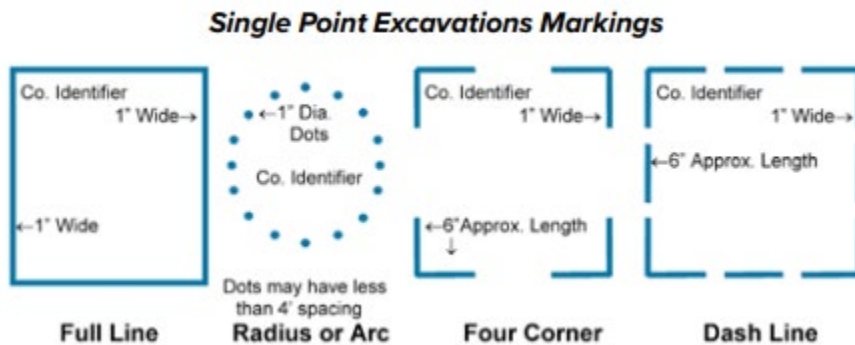
3. Utility changes should be documented and utility atlas / plan-room



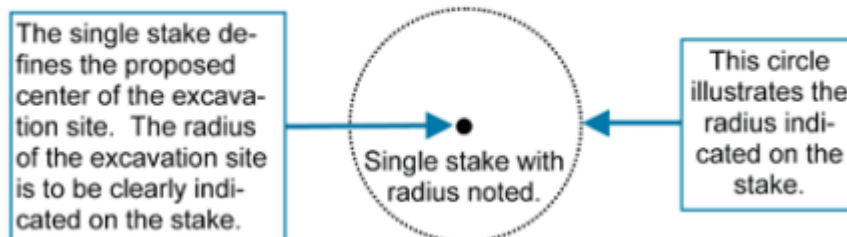
APPENDIX

APWA Guidelines Link - <https://www.usanorth811.org/images/pdfs/CA-LAW-2018.pdf>

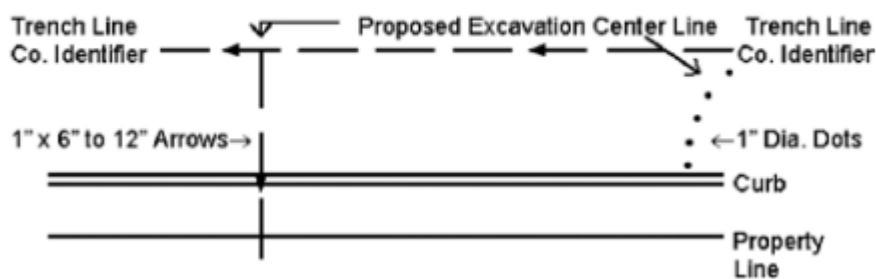
APWA Guidelines Marking Reference



Single Stake Marking Center Point of Excavation Site



Trenching, Boring, or Other Continuous-Type Excavations

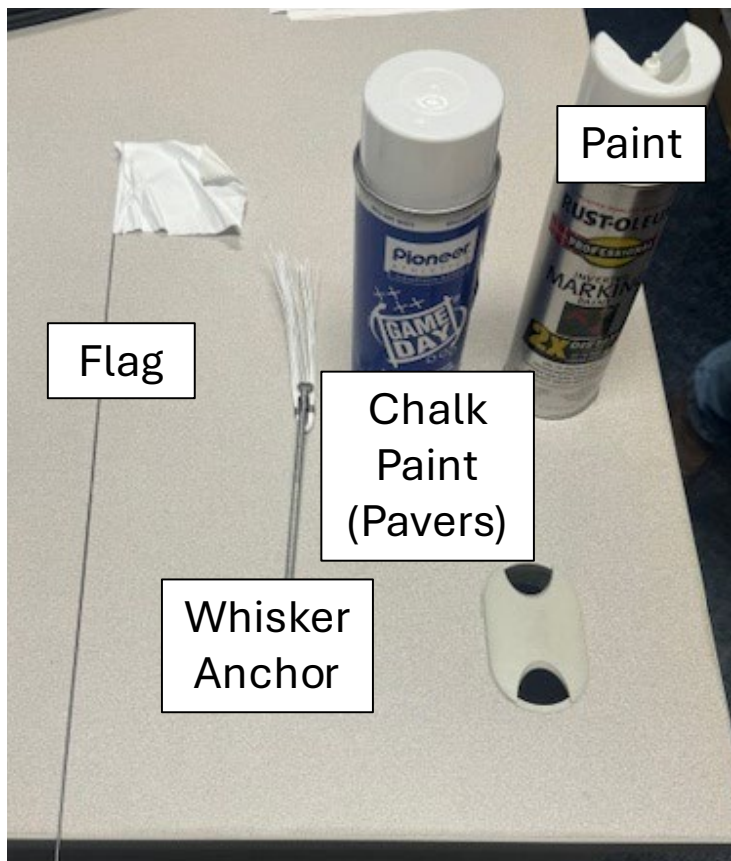




Color Code Identifiers

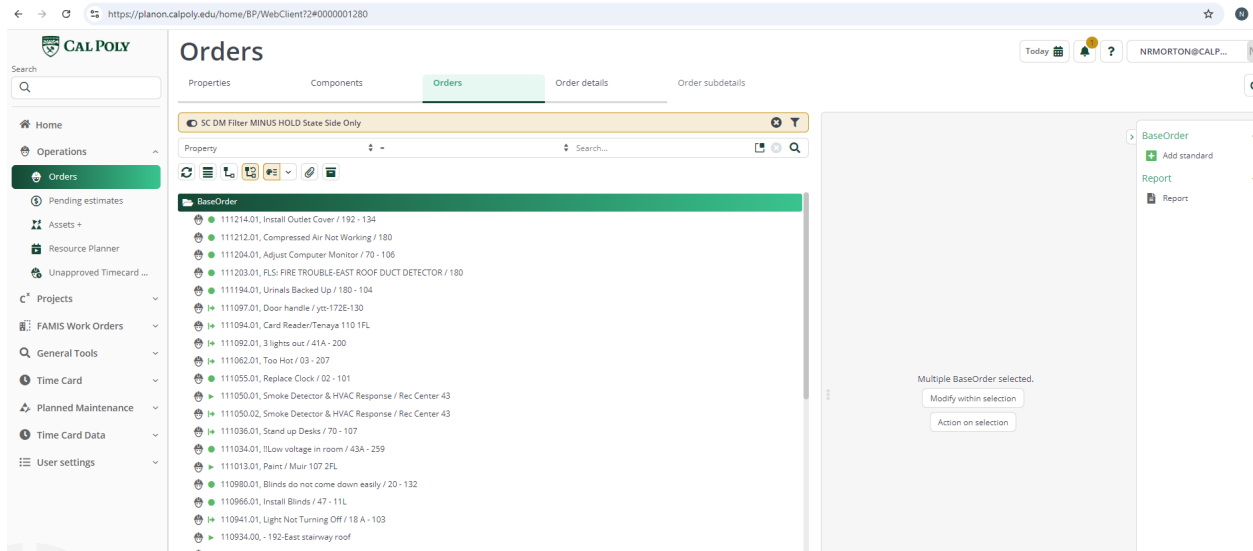
White	Proposed Excavation
Pink	Central Plant
Red	Electric Power Lines, Cables, Conduit, and Lighting Cables
Yellow	Gas, Oil, Steam, Petroleum, or Gaseous Materials
Orange	Communication, Alarm or Signal Lines, Cables, or Conduit
Blue	Potable Water
Purple	Reclaimed Water, Irrigation, and Slurry Lines
Green	Sewers and Drain Lines

Marking Tools



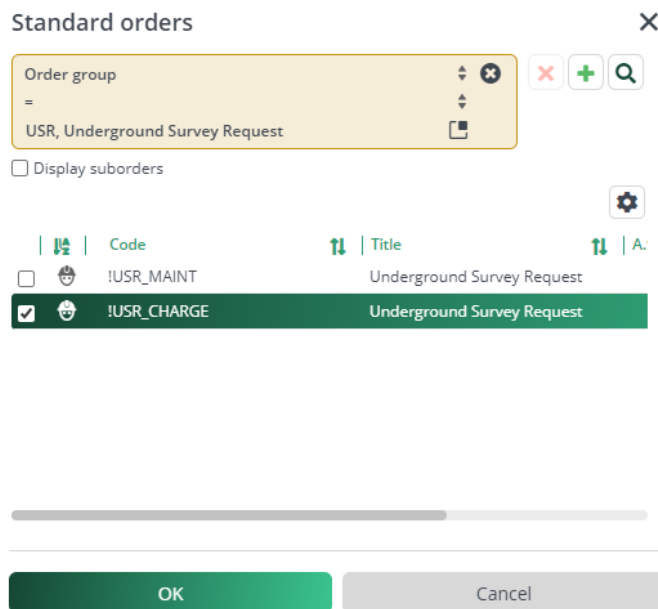


USR Example:



Order, Add Standard, Search Order Group USR and click OK.

Maintenance for Fac Ops, Charge for Projects





USR, PJ#, Property, Type of Dig, Add brief detail in Detailed Description

General

Dates

Financial

Internal notes

Miscellaneous

Communication logs

Audit info

General

* Order number

FAMIS WO number

* User-defined type

Work order

Order data

Title

USR: PJ 9999 Rodeo Stake Holing

Detailed description

Area Location / Scope:

A USR has been requested for stake holing around pasture

Completion of ALL survey markings (Campus/External Agency) shall be annotated in the requesting WO by the performing group

1034 characters remaining (2000 maximum)

Standard order

!USR_CHARGE, Underground Survey Reque

* Order group

USR, Underground Survey Request

* Billing Type

CB-Overhead, Chargeback with Overhead



Go to order Details to add pictures. Attach only one picture per field

General Audit info

General

* Code: 555251

Name:

* Start date/time: 10/14/2024 12:07 PM

End date-time:

Type: Communication log

Attachment details

Document reference: Drop file or Browse

Document (secure): Drop file or Browse

Drop file or Browse

URL:

Version:

Individual responsible

Responsible person (Personnel):

Responsible contact (Addresses):

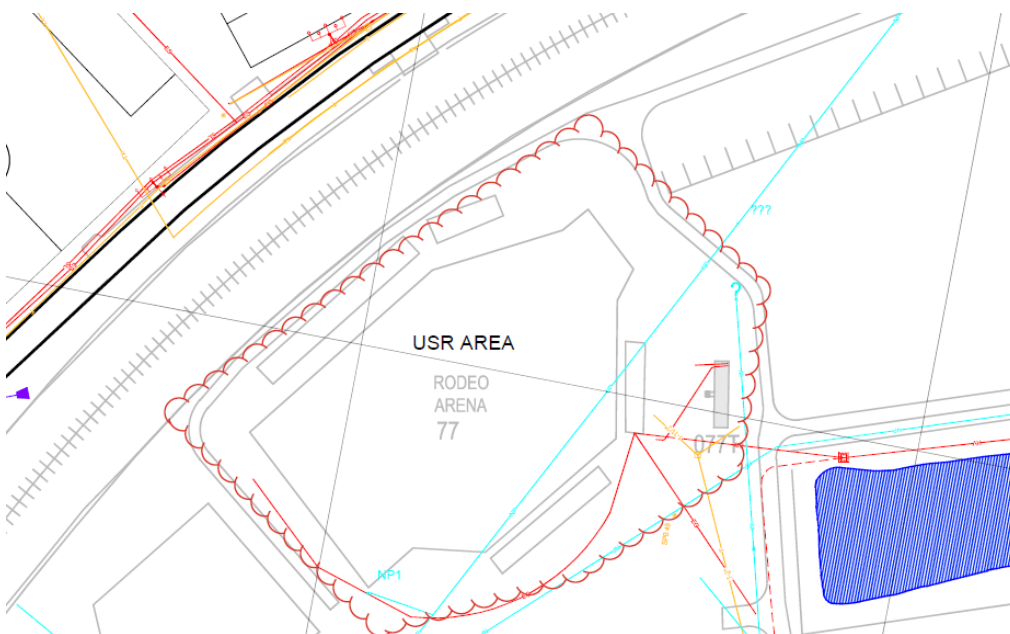
Communication owner

Description:

Only One Picture per line



Pictures to be saved as PDF for marking. Mark area on both pictures with bubble



Save to create order. Final Step: Email to all parties (supervisors, IT and Ag Ops) attaching both E_Atlas and Google Earth images

SECTION 01 15 01 – Construction Demo Recycling Requirements

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes: Requirements and procedures for ensuring optimal diversion of construction and demolition (C&D) waste materials generated by the Work from landfill disposal within the limits of the Construction Schedule and Contract Sum.
 - 1. California State law (Assembly Bill 75), requires the California State University to develop source reduction, re-use, recycling, and composting programs, to reduce the tonnage of solid waste disposed in landfills 50% by the year 2004. Construction waste materials generated by the Work are targeted to achieve these diversion rates.
 - 2. The Work of this Contract requires that a minimum of 85% by weight of the construction and demolition materials generated in the Work is diverted from landfill disposal through a combination of re-use and recycling activities.
 - 3. For LEED® projects, requirements for submittal of LEED documentation in compliance with Materials and Resources Credit 2.1 and Materials or Resources Credit 2.2, Construction Waste Management.
 - 3. Requirements for submittal of Contractor's Construction Waste and Recycling Plan prior to the commencement of the Work.
 - 4. Contractor's quantitative reports for construction waste materials as a condition of approval of the third progress payment. For contracts of shorter duration, this requirement will be enforced as determined by University Representative.

1.2 DEFINITIONS

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations. A Class III landfill must have a solid waste facilities permit from the California Integrated Waste Management Board (CIWMB) and is regulated by the Enforcement Agency (EA).
- B. Construction and Demolition Debris: Building materials and solid waste resulting from construction, remodeling, repair, cleanup, or demolition operations that are not hazardous as defined in California Code of Regulations, Title 22, Section 66261.3 et seq. This term includes, but is not limited to, asphalt concrete, Portland cement concrete, brick, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, plastic pipe, and steel. The

debris may be commingled with rock, soil, tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction or land development projects.

- C. C&D Recycling Center. A facility that receives only C&D material that has been separated for reuse prior to receipt, in which the residual (disposed) amount of waste in the material is less than 10% of the amount separated for reuse by weight.
- D. Disposal. Final deposition of construction and demolition or inert debris into land, including stockpiling onto land of construction and demolition debris that has not been sorted for further processing or resale, if such stockpiling is for a period of time greater than 30 days; and construction and demolition debris that has been sorted for further processing or resale, if such stockpiling is for a period of time greater than one year, or stockpiling onto land of inert debris that is for a period of time greater than one year.
- E. Enforcement Agency. Enforcement agency as defined [i.e. in Public Resources Code 40130].
- F. Inert Disposal Facility or Inert Waste Landfill: A disposal facility that accepts only inert waste such as soil and rock, fully cured asphalt paving, uncontaminated concrete (including fiberglass or steel reinforcing rods embedded in the concrete), brick, glass, and ceramics, for land disposal.
- G. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- H. Mixed Debris Recycling Facility: A processing facility that accepts loads of commingled construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing the non-recyclable residual materials.
- I. Recycling: The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
- J. Reuse. The use, in the same or similar form as it was produced, of a material which might otherwise be discarded.
- K. Separated for Reuse. Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream for the purpose of additional sorting or processing those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw material for new,

reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace, and includes materials that have been "source separated."

- L. Solid Waste: All putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes. "Solid waste" does not include hazardous waste, radioactive waste, or medical waste as defined or regulated by State law.
- M. Source-Separated: Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream at the point of generation for the purpose of additional sorting or processing of those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.
- N. Waste Hauler: A company that possesses a valid permit from the local waste management authority to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal in the locality.

1.3 SUBMITTALS

- A. Contractor's Construction Waste and Recycling Plan
 - 1. Review Contract Documents and estimate the types and quantities of materials under the Work that are anticipated to be feasible for on-site processing, source separation for re-use or recycling. Indicate the procedures that will be implemented in this program to effect jobsite source separation, such as, identifying a convenient location where dumpsters would be located, putting signage to identify materials to be placed in dumpsters, etc.
 - 2. Prior to commencing the Work and within ten (10) calendar days from the date of the Notice to Proceed, submit Contractor's Construction Waste and Recycling Plan. Submit in format provided (Section 01 15 01A). The Plan must include, but is not limited to the following:
 - a. Contractor's name and project identification information;
 - b. Procedures to be used;
 - c. Materials to be re-used and recycled;
 - d. Estimated quantities of materials;
 - e. Names and locations of re-use and recycling facilities/sites;

- f. Tonnage calculations that demonstrate that Contractor will re-use and recycle a minimum 85% by weight of the construction waste materials generated in the Work.
 3. Contractor's Construction Waste and Recycling Plan must be approved by the Construction Administrator prior to the start of Work.
 4. Contractor's Construction Waste and Recycling Plan will not otherwise relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures.
- B. Contractor's Reuse, Recycling, and Disposal Report
Submit Contractor's Reuse, Recycling, and Disposal Report on the form provided (Section 01 15 01B) with each application for progress payment. Failure to submit the form and its supporting documentation will render the application for progress payment incomplete and delay progress payments. If applicable, include manifests, weight tickets, receipts, and invoices specifically identifying the Project for re-used and recycled materials:
 1. Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick).
 2. Salvaging building materials or salvage items at an off-site salvage or reuse center (i.e. lighting, fixtures).
 3. Recycling source separated materials on site (i.e. crushing asphalt/ concrete for base course, or grinding for mulch).
 4. Recycling source separated material at an off-site recycling center (i.e. scrap metal or green materials).
 5. Use of material as Alternative Daily Cover (ADC) at landfills.
 6. Delivery of soils or mixed inerts to an inerta landfill for disposal (inert fill).
 7. Disposal at a landfill or transfer station (where no recycling takes place).
 8. Other (describe).

Contractor's Reuse, Recycling, and Disposal Report must quantify all materials generated in the Work, disposed in [Class III] landfills, or diverted from disposal through recycling. Indicate zero (0) if there is no quantity to report for a type of material.

As indicated on the form:

1. Report disposal or recycling either in tons or in cubic yards: if scales are available at disposal or recycling facility, report in tons; otherwise, report in cubic yards. Report in units for salvage items when no tonnage or cubic yard measurement is feasible.
2. Indicate locations to which materials are delivered for reuse, salvage,

recycling, accepted as daily cover, inert backfill, or disposal in landfills or transfer stations.

3. Provide legible copies of weigh tickets, receipts, or invoices that specifically identify the project generating the material. Said documents must be from recyclers and/or disposal site operators that can legally accept the materials for the purpose of re-use, recycling, or disposal.

Indicate project title, project number, progress payment number, name of the company completing the Contractor's Report and compiling backup documentation, the printed name, signature, and daytime phone number of the person completing the form, the beginning and ending dates of the period covered on the Contractor's Report, and the date that the Contractor's Report is completed.

- C. For LEED Projects, LEED Letter Template: Materials and Resources Credit [2.1 or 2.2] Construction Waste Management

Complete and sign LEED Letter Template in format provided under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. Prepare Letter Template on company letterhead.

1. CERTIFY THAT THE PROJECT HAS COMPLETED A WASTE MANAGEMENT PLAN AND DIVERTED CONSTRUCTION, DEMOLITION, AND LAND CLEARING WASTE TO USES OTHER THAN LANDFILL.
2. Provide quantities of diverted materials and means of diversion in the table provided in the LEED Letter Template.
3. Indicate how and where waste was diverted.
4. Indicate quantities of waste diverted in tons [or cubic yards].
5. Letter Template will calculate: Total quantity of diverted waste, total quantity of waste, and the percentage of waste diverted.
6. For projects where 50% of waste is diverted, one LEED credit will be achieved; where 75% is diverted, two LEED credits will be achieved.
7. Include name, organization, role in project, provide signature and date completed.

PART 2 PRODUCTS

2.1 GUIDE TO LOCAL COMPANIES

- A. Guide to construction and demolition recycling and disposal - the following list is not an exhaustive list and it is the contractors responsibility to verify the information:

CONSTRUCTION AND DEMOLITION RECYCLING GUIDE

			Cardboard	Drywall	Plastic	Asphalt	Scrap Metals	Wood & Pallets	Green Waste	Scrap Metals	Concrete &
RECYCLING COMPANIES THAT ACCEPT C & D MATERIALS											
A-1 Metals & Salvage	238-3545	Paso Robles					●				
Bedford Metals	922-4977	Santa Maria	●				●				
Heilman Salvage	466-4893	Atascadero					●				
Paso Robles Recycling	238-4678	Paso Robles	●		●						
Zanker Landfill	408/263-2384	Gilroy		●		●					

CONSTRUCTION AND DEMOLITION RECYCLING GUIDE

			Cardboard	Drywall	Plastic	Asphalt	Scrap Metals	Wood & Pallets	Green Waste	Scrap Metals	Concrete &
ROLL-OFF COMPANIES											
★ Note: These companies accept mixed boxes for recycling											
American Equip Svc.	489-9521	Arroyo Grande	●				●	●			
API Roll-Off Services★	928-8689	Santa Maria	●				●	●			
Coastal Roll-Off★	543-0473	San Luis Obispo	●				●	●			
Have Bins	466-3636	Atascadero	●				●	●			
Mid-State Solid Waste	434-9112	Templeton	●				●	●			
Paso Robles Roll-off	238-2385	Paso Robles	●				●	●			
R & R Roll-Off★	929-8000 528-8440	Nipomo	●				●	●			
San Miguel Roll-Off	239-1266	San Miguel	●				●	●			
LAND FILLS & TRANSFER STATIONS											
Chicago Grade Landfill	466-2985	Templeton	●				●	●	●	●	●
Cold Canyon Landfill	549-8332	San Luis Obispo	●				●	●			
Paso Robles Landfill	238-2028	Paso Robles	●				●	●			
Nipomo Transfer Station	922-9255	Nipomo	●				●	●			

PART 3 EXECUTION

3.1 SALVAGE, RE-USE, RECYCLING AND PROCEDURES

- A. Identify re-use, salvage, and recycling facilities.
- B. Develop and implement procedures to re-use, salvage, and recycle new construction and excavation materials, based on the Contract Documents, the Contractor's Construction Waste and Recycling Plan, estimated quantities of available materials, and availability of recycling facilities. Procedures may include on-site recycling, source separated recycling, and/or mixed debris recycling efforts.
 - 1. Identify materials that are feasible for salvage, determine requirements for site storage, and transportation of materials to a salvage facility.
 - 2. Source separate new construction, excavation and demolition materials including, but not limited to the following types:
 - f. Asphalt.
 - g. Concrete, concrete block, slump stone (decorative concrete block), and rocks.
 - c. Drywall.
 - d. Green materials (i.e. tree trimmings and land clearing debris).
 - e. Metal (ferrous and non-ferrous).
 - f. Miscellaneous Construction Debris.
 - g. Paper or cardboard.
 - h. Red Clay Brick.
 - i. Reuse or Salvage Materials
 - j. Soils.
 - k. Wire and Cable.
 - l. Wood.
 - m. Other (describe)
 - 3. Miscellaneous Construction Debris: Develop and implement a program to transport loads of mixed (commingled) new construction materials that cannot be feasibly source separated to a mixed materials recycling facility.

3.2 DISPOSAL OPERATIONS AND WASTE HAULING

- A. Legally transport and dispose of materials that cannot be delivered to a source separated or mixed recycling facility to a transfer station or disposal facility that can legally accept the materials for the purpose of disposal.
- B. Use a permitted waste hauler or Contractor's trucking services and personnel. To confirm valid permitted status of waste haulers, contact the local solid waste authority.

- C. Become familiar with the conditions for acceptance of new construction, excavation and demolition materials at recycling facilities, prior to delivering materials.
- D. Deliver to facilities that can legally accept new construction, excavation and demolition materials for purpose of re-use, recycling, composting, or disposal.
- E. Do not burn, bury or otherwise dispose of waste on the project job-site.

3.3 RE-USE AND DONATION OPTIONS

- A. Implement a re-use program to the greatest extent feasible. Options may include:
 - 1. California Materials Exchange (CAL-MAX) Program is sponsored by the California Integrated Waste Management Board. CAL-MAX is a free service provided by the California Integrated Waste Management Board, designed to help businesses find markets for materials that traditionally would be discarded. The premise of the CAL-MAX Program is that material discarded by one business may be a resource for another business. To obtain a current Materials Listings Catalog, call CAL-MAX/California Integrated Waste Management Board at (916) 255-2369 or send a FAX to (916) 255-2200. The CALMAX Catalog is available through the Internet Site at <http://www.ciwmb/ca.gov/calmax>.

3.4 REVENUE

- A. Revenues or other savings obtained from recycled, re-used, or salvaged materials shall accrue to Contractor unless otherwise noted in the Contract Documents.

END OF SECTION - 01 15 01

SECTION 01 15 01A
CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN
(Submit After Award of Contract and Prior to Start of Work)

Project Title:						
Contract or Work Order No.:						
Contractor's Name:						
Street Address:						
City:			State:		Zip:	
Phone: ()			Fax: ()			
E-Mail Address:						
Prepared by: (Print Name)						
Date Submitted:						
Project Period:		From:			TO:	
Reuse, Recycling or Disposal Processes To Be Used						
Describe the types of recycling processes or disposal activities that will be used for material generated in the project. Indicate the type of process or activity by number, types of materials, and estimated quantities that will be recycled or disposed in the sections below:						
01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)						
02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)						
03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)						
04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green matls)						
05 - Recycling commingled loads of C&D matls at an off site mixed debris recycling center or transfer station						
06 - Recycling material as Alternative Daily Cover at landfills						
07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).						
08 - Disposal at a landfill or transfer station.						
09 - Other (please describe) _____						
Types of Material To Be Generated						
Use these codes to indicate the types of material that will be generated on the project						
A = Asphalt		C = Concrete		M = Metals		I = Mixed Inert G = Green Matls
D = Drywall		P/C=Paper/Cardboard		W/C = Wire/Cable		S= Soils (Non Hazardous)
M/C = Miscellaneous Construction Debris		R = Reuse/Salvage		W = Wood		O = Other (describe)
Facilities Used: Provide Name of Facility and Location (City)						
Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period						
Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).						
SECTION I - RE-USED/RECYCLED MATERIALS						
Include all recycling activities for source separated or mixed material recycling centers where recycling will occur.						
Type of	Type	Facility to be Used,	Total Truck	Total Quantities		
Material	of Activity	Location	Loads	Tons	Cubic YD	Other Wt.
(ex.) M	04	ABC Metals, Los Angeles	24	355		
a. Total Diversion			-	-	-	-

SECTION II - DISPOSED MATERIALS						
Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling will occur.						
Type of Material	Type of Activity	Facility to be Used, Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) D	08	DEF Landfill, Los Angeles	2	35		
b. Total Disposal				-	-	-

This section calculates the total materials to be generated during the project period (Reuse/Recycle + Disposal = Generation)						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				-	-	-
b. Total Disposed				-	-	-
c. Total Generated				-	-	-

Add totals from Section I + Section II				
	Tons	Cubic Yards	Other Wt.	
a. Materials Re-Used and Recycled	-			
b. Materials Disposed	-			
c. Total Materials Generated (a. + b. = c.)	-	-	-	
d. Landfill Diversion Rate (Tons Only)*	#DIV/0!			

Contractor's Comments (Provide any additional information pertinent to planned reuse, recycling, or disposal activities):

Wood Scrap: .16

SECTION 01 15 01B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT
(Submit With Each Progress Payment)

Project Title:						
Contract or Work Order No.:						
Contractor's Name:						
Street Address:						
City:			State:		Zip:	
Phone: ()			Fax: ()			
E-Mail Address:						
Prepared by: (Print Name)						
Date Submitted:						
Period Covered:		From:			To:	
Reuse, Recycling or Disposal Processes Used						
<p><i>Describe the types of recycling processes or disposal activities used for material generated in the project. Indicate the type of process or activity by number, types of materials, and quantities that were recycled or disposed in the sections below:</i></p> <p>01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)</p> <p>02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)</p> <p>03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)</p> <p>04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green matls)</p> <p>05 - Recycling commingled loads of C&D matls at an off site mixed debris recycling center or transfer station</p> <p>06 - Recycling material as Alternative Daily Cover at landfills</p> <p>07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).</p> <p>08 - Disposal at a landfill or transfer station.</p> <p>09 - Other (please describe) _____</p>						
Types of Material Generated						
<p><i>Use these codes to indicate the types of material that were generated on the project</i></p> <p>A = Asphalt C = Concrete M = Metals I = Mixed Inert G = Green Matls</p> <p>D = Drywall P/C=Paper/Cardboard W/C = Wire/Cable S= Soils (Non Hazardous)</p> <p>M/C = Miscellaneous Construction Debris R = Reuse/Salvage W = Wood O = Other (describe)</p>						
Facilities Used: Provide Name of Facility and Location (City)						
Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period						
Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).						
SECTION I - RE-USED/RECYCLED MATERIALS						
<p><i>Include all recycling activities for source separated or mixed material recycling centers where recycling occurred.</i></p>						
Type of Material	Type of Activity	Facilities Used, Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) M	04	ABC Metals, Los Angeles	24	355		
a. Total Diversion			-	-	-	-

[PROJECT TITLE]
[DATE]

Contractor's Reuse, Recycling, and Disposal Report
Section 01 15 01B-1

SECTION 011511B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT
Continued

SECTION II - DISPOSED MATERIALS						
<i>Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling occurred.</i>						
Type of Material	Type of Activity	Facilities Used, Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) D	08	DEF Landfill, Los Angeles	2	35		
b. Total Disposal				-	-	-

SECTION III - TOTAL MATERIALS GENERATED						
<i>This section calculates the total materials generated during the project period (Reuse/Recycle + Disposal = Generation)</i>						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				-	-	-
b. Total Disposed				-	-	-
c. Total Generated				-	-	-

SECTION IV - CONTRACTOR'S LANDFILL DIVERSION RATE CALCULATION						
<i>Add totals from Section I + Section II</i>						
	Tons	Cubic Yards	Other Wt.			
a. Materials Re-Used and Recycled	-					
b. Materials Disposed	-					
c. Total Materials Generated (a. + b. = c.)	-	-	-			
d. Landfill Diversion Rate (Tons Only)*	#DIV/0!					

* Use tons only to calculate recycling percentages: Tons Reused/Recycled/Tons Generated = % Recycled

Contractor's Comments (<i>Provide any additional information pertinent to planned reuse, recycling, or disposal activities</i>):						

Notes:						
1. Section 01 15 01A is a Division 01 General Requirement.						
2. Suggested Conversion Factors: From Cubic Yards to Tons (Use when scales are not available)						
Asphalt: .61 (ex. 1000 CY Asphalt = 610 tons. Applies to broken chunks of asphalt)						
Concrete: .93 (ex. 1000 CY Concrete = 930 tons. Applies to broken chunks of concrete)						
Ferrous Metals: .22 (ex. 1000 CY Ferrous Metal = 220 tons)						
Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons)						
					Drywall Scrap: .20	
					Wood Scrap: .16	

SECTION 01 21 00 - Allowance Procedures

OMIT THIS SECTION IF ALLOWANCES ARE NOT INCLUDED IN THE CONTRACT. IF ALLOWANCES ARE INCLUDED IN THE PROJECT, THE BID PROPOSAL FORM MUST INDICATE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Allowances indicated in the Bid Proposal Form to be included in Contract Amount.
 - 1. Selected materials and equipment, and in some cases, their installation, are shown and specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. Additional requirements, if necessary, will be issued by change order.
 - 2. Allowances may be used in lieu of metering for temporary construction site utility services or to reimburse project related work performed by University forces, for example, keying.

1.3 RELATED SECTIONS

- A. Section 01 51 00 - Temporary Utilities: Coordination with Allowance for temporary power.
- B. Refer to product Specifications Sections identified in Allowance description.

1.4 GENERAL REQUIREMENTS FOR ALLOWANCES

- A. Contractor shall submit cost data and other descriptive data to establish basis used by Contractor for determining costs in Contract Amount attributable to each Allowance.
- B. Any amount not fully consumed shall be adjusted by change order.
 - 1. The Contractor will be credited for his actual cost of labor, materials, and other actual costs WITHOUT mark-up.
 - 2. Any unused allowances shall be returned to the Trustees using a credit change order for the full amount of the value unused plus six (6) percent.
 - 3. Should the Contractor's actual costs exceed the specified allowance, the Contractor's Contract Amount will be adjusted by change order in accordance with Contract General Conditions, Article 6.00.

1.5 ALLOWANCE COSTS FOR CONTRACTOR-PROVIDED PRODUCTS

DELETE THIS ARTICLE IF NOT APPLICABLE

- A. Contractor-Provided Products: Amount for each Allowance, for procurement of products to be selected by University's Representative or Architect after execution of the Agreement, shall include:
 - 1. Net cost of product(s) to Contractor. Trade discounts and rebates shall be included.
 - 2. Delivery to site.
 - 3. Labor, equipment and related consumable products required for application, installation and finishing of product when Allowance is indicated to include costs for incorporation into completed construction.
 - 4. Applicable taxes, permits and fees.
- B. Costs Included in Contract Amount: In addition to amount identified for each Allowance, include in Contract Amount all costs for:
 - 1. Handling and storage at site, including unloading, uncrating, and protective measures.
 - 2. Protection from weather, soiling and physical damage.
 - 3. Labor, equipment and related consumable products necessary for application, installation or finishing, except when Allowance is indicated to include costs for incorporation into completed construction.
 - 4. Contractor's and all subcontractor's field and home office overhead expenses, bonds, insurance and profit.
 - 5. All other costs attributable to incorporation of Allowance into completed construction, such as design fees and reworking of adjoining construction.

1.6 ALLOWANCE COSTS FOR EXECUTION

DELETE THIS ARTICLE IF NOT APPLICABLE

- A. Owner-Furnished/Contractor-Installed (OFICI) Products: Amount for each Allowance, for application, installation and finishing of products provided by University (Owner-Furnished/ Contractor-Installed products), shall include:
 - 1. Delivery to site, unless specifically noted otherwise.
 - 2. Applicable taxes, permits and fees.
 - 3. Handling and storage at site, including unloading, uncrating, and protective measures.
 - 4. Protection from weather, soiling and physical damage.
 - 5. Labor, equipment and related consumable products required for application, installation and finishing of product when Allowance is indicated to include costs for incorporation into completed construction.

6. Contractor's and all subcontractor's field and home office overhead expenses, bonds, insurance and profit.
7. All other costs attributable to incorporation of Allowance into completed construction, such as design fees and reworking of adjoining construction.

PART 2 - PRODUCTS

2.1 LUMP SUM ALLOWANCES

- A. Allowance No. 1 - Temporary Power: Allow sum of [_AMOUNT_WORDS_] (\$[##.##] for charges for serving utility for temporary power consumed during construction. Utility shall be metered by the University.
- B. Allowance No. 2 - Construction Water - Allow sum of [_AMOUNT_WORDS_] (\$[##.##] for charges for serving utility for water consumed during construction. Utility shall be metered by the University.

PART 3 - EXECUTION

3.1 SELECTION OF PRODUCTS

- A. University's Representative and Architect will:
 1. Consult with Contractor for considerations to be given in selection of products, suppliers and qualified installers.
 2. Make selection in consultation with University staff. Obtain written direction by University's Representative designating:
 - a. Product, color, design and finish.
 - b. Accessories and attachments.
 - c. Suppliers and qualified installers, as applicable.
 - d. Allowance amount to be included in Contract Amount.
 - e. Construction Contract warranty and manufacturer's guarantee provisions.
- B. Contractor shall:
 1. Assist University's Representative and Architect in determining qualified suppliers or installers.
 2. Obtain proposals from suppliers and installers when directed by University's Representative.
 3. Make cost and constructability recommendations to University's Representative and Architect for consideration in product, supplier and qualified installer selections.
 4. Notify University's Representative and Architect promptly of:
 - a. Reasonable objections Contractor may have against any supplier or party under consideration for installation.
 - b. Effects on Construction Schedule anticipated by selections under

consideration.

3.2 CONTRACTOR'S RESPONSIBILITIES

- A. Upon notification of selection, Contractor shall execute purchase agreement with designated supplier and enter into contract with designated qualified installer, as applicable. Should a purchase agreement already exist between University and supplier, Contractor shall assume the purchase agreement for the University.
- B. Contractor shall make all arrangements for and submit shop drawings, product data and samples as required.
- C. Contractor shall make all arrangements for pick-up, delivery, handling and storage of products.
- D. Upon delivery, Contractor shall promptly inspect products for damage or defects. Should damage or defects be found, Contractor shall effect return, replacement or repair of products, as appropriate, and process claims for transportation damage.
- E. Contractor shall apply, install and finish products in compliance with requirements of applicable Sections of Specifications.

3.3 ADJUSTMENT COSTS

- A. Should the net cost of the Allowance be more or less than the amount included in the Contract Amount, the Contract Amount shall be adjusted in accordance with provisions of the Contract General Conditions and a Change Order shall be executed.
- B. Adjustment shall be made only for:
 - 1. Increase or decrease in handling costs at site, labor, installation costs, overhead, profit, and other expenses resulting from final selection under Allowance.
 - 2. Increase or decrease in product cost resulting from final selection under Allowance.
 - 3. Increase or decrease in product cost from data provided by University's Representative or Architect and used to determine Allowance product cost.
 - 4. Increase or decrease in product, application, installation and finishing costs resulting from change in quantity stated in Allowance.
- C. Contractor shall submit claim and supporting documentation for cost increase or decrease within ten (10) days of execution of Construction Change Directive. Failure to submit documentation within designated time shall constitute a waiver of claims for additional costs.

END OF SECTION - 01 21 00

SECTION 01 23 00 - Alternate Bid Procedures

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Requirements and descriptions for products and scopes of Work identified as Bid Alternative in the Drawings and Specifications and listed as "Bid Alternative" on the Bid Proposal Form.

1.3 RELATED DOCUMENTS AND SECTIONS

- A. Division 01 through Division 49: Refer to product Specification Sections indicated in Bid Alternative descriptions and as may be affected by alternate products and scope descriptions.

1.4 GENERAL REQUIREMENTS FOR ALTERNATIVES

- A. To enable University to compare total costs where alternative materials and methods might be used or where scope of Work might be altered, Bid Alternative Work items have been established as described in this Section.
 - 1. Unless otherwise specifically provided, the work described in Alternatives shall be completed with no increase in Contract Time.
 - 2. Alternatives will be accepted in ***any*** order listed until the Construction Budget is reached. Additive and deductive alternates will be selected at the discretion of the University.
- B. Contract Amount included in Base Bid and as stated in executed Agreement shall include all costs for Work described in Contract Documents.
- C. Contract Amount shall include all necessary provisions for Work described in alternatives, whether or not Alternatives are accepted. Base Bid specifications shall govern Work of alternatives unless otherwise specified.
- D. Bid Proposal Form or other means prescribed for submission of proposed cost of Work shall include line items for each Alternative described in this Section. No Alternatives other than as described in this Section shall be submitted, except in accordance with product options and substitutions provisions specified in Section 01 61 00, Basic Product Requirements.
- E. Each Alternative is identified herein by number. This identification shall be used

whenever referring to Work described in Alternative and when submitting cost proposals and payment requests.

- F. Alternative construction described in Alternatives and revised scopes of Work shall be performed only when such Alternative is made a part of the Work by specific provision in the University-Contractor Agreement, if selected by University prior to execution of the Agreement, or by Change Order or Change Directive if selected subsequent to execution of the Agreement.
- G. Costs for Alternatives shall be valid for no less than sixty (60) calendar days from date of Agreement, and University may select any or all Alternatives during that time. Once an Alternative is selected and the Contract modified for Work as described in the Alternative, changes to return to original scope of Work will be made only by Change Order or Change Directive in accordance with provisions of the Contract General Conditions for changes.
 - 1. If this time has expired, the bid price also expires for the listed Alternate, unless extended voluntarily by the contractor.
 - 2. If the time limit expires and pricing is not extended voluntarily by the contractor, the cost for the listed Alternate will be re-calculated according to the Change Order process. Refer to Article 6 of the Contract General Conditions for additional information on the Change Order Process.

1.5 PRODUCTS AND EXECUTION

- A. If University elects to proceed on the basis of one or more of the described Alternatives, Contractor shall make all modifications to Work as required to provide products complete, in place and fully functional, including all labor, equipment, services and incidental consumables necessary to apply, install and finish Work described in Alternative in accordance with requirements specified in related product Sections of these Specifications.
- B. Cost for Alternatives shall be complete and include all net increases and decreases in Contract Amount for Work described in Alternative and for all changes in related Work. No claims for additional costs to University will be honored other than as stated in cost proposal for each Alternative.

1.6 ALTERNATIVES *[Titles and descriptions should be developed by the Design Professional in Charge]*

- A. [Additive or Deductive] Alternative Bid No. 1 - [Title].
 - 1. Base Bid condition: [Description].
 - 2. Alternative Bid condition: [Description].
- B. [Additive or Deductive] Alternative Bid No. 2 - [Title].
 - 1. Base Bid condition: [Description].

2. Alternative Bid condition: [*Description*].

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION 01 23 00

SECTION 01 27 00 - Unit Prices

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

COORDINATE UNIT PRICES IDENTIFIED IN THIS SECTION WITH UNIT PRICES STATED ON BID PROPOSAL FORM.

- A. Administrative and procedural requirements for unit prices.

1.3 RELATED SECTIONS

1. VERIFY THAT SECTION TITLES REFERENCED IN THIS SECTION ARE CORRECT FOR THIS PROJECT'S SPECIFICATION; SECTION TITLES MAY HAVE CHANGED.
2. FIRST DIVISION 1 SECTION BELOW CONTAINS REQUIREMENTS THAT RELATE DIRECTLY TO UNIT PRICES.

1. Section 01 21 00 - Allowance Procedures: Procedures for using unit prices to adjust

RETAIN SUBPARAGRAPH 2. BELOW ONLY IF UNIT PRICES MAY BE EMPLOYED AS A RESULT OF SPECIAL TESTING AND INSPECTING PROCEDURES REQUIRED BY LOCAL

quantity allowances.

2. Section 01 45 00 - Quality Control: General testing and inspecting requirements, including those tests and inspections based on unit prices.

EDIT PARAGRAPH BELOW AND ADDITIONAL PARAGRAPHS TO IDENTIFY SECTIONS IN SPECIFICATIONS WHERE UNIT PRICES ARE USED

3. Section *[Number_]* - *[Title_]*: Procedures for measurement and payment for *[Description_of_Work_]*.

REPEAT PARAGRAPH ABOVE AS NECESSARY TO INCLUDE ALL UNIT PRICES REQUIRED FOR PROJECT.

1.4 DEFINITIONS

DEFINITION BELOW ASSUMES THAT CONTRACT DOCUMENTS INDICATE OR PROVIDE ESTIMATED QUANTITIES AND WHERE BIDDERS STATE ON THE BID PROPOSAL FORM UNIT-PRICE AMOUNTS THEY PROPOSE. REVISE IF BIDDERS ARE REQUIRED TO

- A. Unit Price: An amount proposed by Bidder and stated on the Bid Proposal as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.
1. Unit prices quoted in the Bid Proposal are for additions or deletions of approved items of Work.
 2. All unit prices quoted shall be for the items completely installed, furnished, and operable in accordance with the Contract Documents, and shall include profit, overhead, taxes, cost of coordinating the unit price work with adjacent work, compensation for risk of loss or damage to the work regardless of cause, all expenses due to delays in performance, so they are the complete price to the University.
 3. Unit prices shall not apply to work the Contractor elects to do for its own convenience or to correct errors committed by the Contractor.
 4. All unit prices shall remain in effect for the full term of the Contract.
 5. Quantities listed in the Contract Documents are approximate only. Contract Amount shall be adjusted by change order using unit prices listed for actual quantities of Work performed.

1.5 PROCEDURES

USUALLY RETAIN PARAGRAPH BELOW. IT WILL SUFFICE FOR ALL BUT THE MOST COMPLEX PROJECTS. REVISE IF MANY UNIT PRICES ARE ANTICIPATED AND IF METHODS FOR MEASURING WORK-IN-PLACE ARE COMPLEX. A SPECIAL ARTICLE OR ADDITIONAL PARAGRAPHS OUTLINING

- A. Measurement and Payment Procedures: As stated in General Conditions of the Contract. Refer to individual product Specification Sections for Work that requires establishment of unit prices. Basis of each unit price is specified in those Sections.

1. Measure: University reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this Work measured, at University's expense, by an independent surveyor.

RETAIN BELOW AND REVISE TO SUIT SPECIAL PROJECT REQUIREMENTS.

- B. List of Unit Prices: A list of unit prices is included at the end of this Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.
- C. The Trustees are not obligated to use the unit prices.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

IN PARAGRAPH AND SUBPARAGRAPHS BELOW, REMOVE TEXT ENCLOSED IN ANGLE BRACKETS

- A. Unit Price No. [*Number*]: [*Title*].
 1. Description: [*Unit_Price_Description*], according to Section [*Number*] - [*Title*].
 2. Unit of Measurement: [*Description*].

REPEAT ABOVE AS OFTEN AS NECESSARY TO INCLUDE ALL UNIT PRICES REQUIRED FOR

END OF SECTION 01 27 00

SECTION 01 31 00 - Coordination

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Coordination of Work under Contract.

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Various types of Work to be coordinated, including Owner-Furnished/Contractor-Installed products and work under separate Contracts.
- B. Section 01 31 19 – Project Meetings: Schedule appropriate meetings with Sub trades and University Representative for proper coordination.
- C. Section 01 61 00 - Basic Product Requirements: Coordination of products, especially general requirements for system completeness and product substitutions.

1.4 COORDINATION

- A. Coordination, General:
 - 1. Coordinate the Work according to provisions stated in Contract General Conditions. Do not delegate responsibility for coordination to any subcontractor.
 - a. Anticipate the interrelationship of all subcontractors and their relationship with the total work.
 - b. Resolve differences or disputes between subcontractors and materials suppliers concerning coordination, interference, or extent of work between sections. The Contractor's decisions, if consistent with the Contract Documents, shall be final. The Architect and/or University is not required to coordinate work between sections and will not do so.
 - c. Coordinate the work of subcontractors and material suppliers, so that their work is performed in a manner to minimize interference with, and to facilitate the progress of the work.
 - 2. Coordinate Work under the Contract with work under separate contracts by University.
 - 3. Coordinate utility and building services shut-downs and closures of vehicular and pedestrian thoroughfares, including access to buildings and parking areas, to minimize disruption of University activities. Notify the University of all scheduled disruptions a

minimum of fourteen (14) calendar days. For disruptions that may affect other campus buildings or services, notify the University a minimum of twenty one (21) calendar days in advance of the outage.

4. Contractor shall be responsible for providing anchorage, blocking, joining and other detailing as required to provide complete project.
 5. Do not obstruct spaces required by Code in front of electrical equipment, access doors, etc.
 6. Do not cover any piping, wiring, ducts, etc., until properly inspected and approved.
 7. Remove and replace any and all Work under any Section which is not in accordance with the Contract Documents with other materials and Work which is in conformance with the Contract Documents. Repair or replace all other Work damaged by these operations at no additional cost to the University. No additional time will be granted.
 8. This work shall be coordinated with all associated Work in a manner that will insure that all work will be accomplished as rapidly as the progress of the project will permit and so that no work will be delayed for want of associated work.
- B. Coordination of OFCI Products: Contractor shall cooperate with University and others as directed by University's Representative in scheduling and sequencing the incorporation into the Work of Owner Furnished/Contractor Installed (OFCI) products identified in the Contract Drawings and Specifications. Sufficient lead times shall be provided by the contractor and the construction schedule will clearly indicate both lead times and delivery dates.
- C. Relationship of Contract Documents: Drawings, Specifications and other Contract Documents in the Project Manual are intended to be complementary. What is required by one shall be as if required by all. What is shown or required, or may be reasonably inferred to be required, or which is usually and customarily provided for similar work, shall be included in the Work.
- D. Discrepancies in Contract Documents: In the event of error, omission, ambiguity or conflict in Drawings or Specifications, Contractor shall bring the matter to attention of the Architect in a timely manner during the bidding period, for determination and direction by the Architect in accordance with provisions of the Contract General Conditions.
- E. Construction Interfacing and Coordination: Layout, scheduling and sequencing of Work shall be solely the Contractor's responsibility.
1. Contractor shall verify, confirm and coordinate field measurements so that new construction correctly and accurately interfaces with conditions existing prior to construction.

2. Contractor shall bring together the various parts, components, systems and assemblies as required for the correct interfacing and integration of all elements of Work. Contractor shall coordinate Work to correctly and accurately connect abutting, adjoining, overlapping and related elements, including work under separate contracts by University, utility agencies and companies.

1.5 COORDINATION OF SUBCONTRACTS AND SEPARATE CONTRACTS

- A. Superintendence of Work: Contractor shall appoint a field superintendent and a project manager, who shall directly and full time supervise and coordinate all Work of the Contract.
- B. Subcontractors, Trades and Materials Suppliers: Contractor shall require all subcontractors, trades, crafts and suppliers to coordinate their portions of Work with the Contractor's field superintendent to prevent scheduling, sequencing, dimensional and other conflicts and omissions.
- C. Coordination with Work Under Separate Contracts: Contractor shall coordinate and schedule Work under the Contract with work being performed for Project under separate contracts by University, serving utilities and public agencies. Contractor shall make direct contacts with parties responsible for work of the Project under separate contracts, in order to provide timely notifications and to facilitate information exchanges.

1.6 MECHANICAL AND ELECTRICAL COORDINATOR

DELETE THIS ARTICLE IF NOT APPLICABLE

- A. Mechanical and Electrical Coordinator: Contractor shall employ and pay for services of a person, technically qualified and administratively experienced in field coordination for the type of mechanical and electrical Work required for this Project, for the duration of the Work.
 1. Work out all "tight" conditions involving work of various sections in advance before installation. If necessary, and before work proceeds in these areas, prepare supplementary drawings for review showing all work in "tight" areas.
 2. Provide supplementary drawings and additional work necessary to overcome "tight" conditions at no increase in contract price. Refer to Section 01 33 00, "Submittal Procedures."
 3. Coordinated layout shop drawings shall be dimensionally accurate and detailed, giving complete dimensions of all locations, elevations, and clearances. Show exact locations of the following:
 - a. Ductwork
 - b. Piping, including fire protection systems.

- c. Valves and piping specialties, including all air vents and drains.
 - d. Dampers
 - e. Access doors
 - f. Control and electrical panels
 - g. Adjustable frequency controllers
 - h. Motor control centers and transformers
 - i. Disconnect switches
 - j. Elevator equipment
 - k. Electrical cable trays and main conduits
 - l. Owner-furnished, Contractor-installed equipment
 - m. Hand and Tool space for installation and maintenance work including component removal and replacement
 - n. Access to components for installation and maintenance work (ladder, scissor lift access, etc.). Notify University of potential operational conflict for routine maintenance operations based on physical installed location of components.
4. Coordinated layout shop drawings shall show actual architectural and structural constraints and site conditions.
5. Coordination:
- a. Fully coordinate work between all trades with actual architectural, structural, and site conditions.
 - b. Coordinate all adjustments required. Clearly identify by circling these adjustments on the coordinated layout shop drawings.
 - c. If Contractor has specific questions regarding coordination of the installation with structural, architectural and site conditions and work between trades, submit same with appropriate shop drawings documenting areas in question with Contractor's proposed installation.
6. Submission and review of coordinated layout shop drawings:
- a. Prepare reproducible drawings.
 - b. Submit to each trade for review of space allocated to all trades.
 - c. Revise drawings to compensate for review by each trade.
 - d. Review revisions with each trade.
 - e. Submit to Architect for review.
 - f. Review of coordinated layout shop drawings is only for verification that Contractor has performed coordination work as specified herein.
 - (1) Review does not include verification of exact dimensions, clearances, arrangements and/or compliance with codes.
7. Final coordinated layout shop drawings shall show that all trades affected have made reviews and shall be signed by each trade at completion of coordination.
- a. General Contractor is to assure that each trade has coordinated work with other

- trades.
 - b. Include stamp with labeled space for each trade to sign on each submittal indicating that layout shop drawing has been coordinated.
 - c. No layout shop drawing will be reviewed without stamped and signed coordination assurance by General Contractor.
8. Coordinated layout shop drawings showing work of all trades are required. Individual trade layout shop drawings will not be accepted.

1.7 SUBMITTALS

- A. Coordination Documents: Coordinate shop drawings, diagrams and other specified in various product Sections of the Contract Specifications. Submit coordination drawings and schedules as specified below, prior to submitting shop drawings, product data, and samples.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 – EXECUTION

3.1 COORDINATION REQUIRED

- A. Coordinate Work specified in Division 13 - Special Construction, Division 21 – Fire Suppression, Division 22 – Plumbing, Division 23 – Heating, Ventilating, and Air Conditioning (HVAC), Division 25 – Integrated Automation, Division 26 – Electrical, Division 27 – Communications, Division 28 – Electronic Safety and Security, coordinate within each Division, between these Divisions and with Work specified in other Divisions.
- B. Coordinate progress schedules, including dates for submittals and for delivery of products.
- C. Conduct meetings with suppliers, installers and others concerned with the Work including University's Representative, to establish and maintain coordination of layout, sequencing and completion of various elements of Work.
- D. Conduct meetings with installers and others concerned with the Work, to properly integrate various mechanical and electrical systems, to facilitate construction and to provide proper access and work space for maintenance, renovation and improvement of system components. Include participation by representatives of University, including maintenance personnel.
- E. Assist in resolution of conflicts by providing technical advice, coordination drawings and three dimensional representations of integrated system components, including computer and physical models as necessary.

- F. At construction progress meetings, report on progress of Work to be adjusted under coordination requirements and any necessary changes in sequencing and scheduling of Work.
- G. Contractor shall record and transmit minutes of coordination meetings and reports to University's Representative, Architect, Architect's consultants (as applicable) and to meeting participants.

3.2 COORDINATION DOCUMENTS

- A. Coordination Drawings and Models: Contractor shall prepare coordination drawings and three-dimensional models (BIM or similar), in computer form and in physical form as necessary, to organize layout and installation of mechanical and electrical products for efficient use of available space, for proper sequence of installation, for integration with building structure, for future maintenance and renovation, and to identify potential conflicts between systems and elements.
- B. System Services: Contractor shall identify on coordination drawings and models all plumbing and electrical power and signal services required for each component of each system.
 - 1. Contractor shall certify that characteristics of services and controls are correct for each component.
 - 2. Certification shall be in written form and signed by Contractor and mechanical and electrical coordinator.
- C. Responsibility and Services Matrix: Contractor shall prepare a schedule or matrix identifying elements of mechanical and electrical Work requiring coordination, as specified in all Divisions of the Contract Specifications.
 - 1. Include identification of parties having responsibilities related to each element of Work and describe what that responsibility shall be.
 - 2. Include required off-site and on-site tests and inspections for various elements of Work.
 - 3. Include identification of administrative activities related to each element of mechanical and electrical Work, such as product data, shop drawings, coordination drawings, samples, mock-ups, test reports for each element of Work.
 - 4. Include identification of elements of Work requiring temporary services.
- D. Maintenance and Disposition of Coordination Documentation: Maintain coordination documents, including models, for duration of the Work, recording all changes. After review of

original and revised documents and models by University's Representative and Architect, submit documents and models as part of Project record documents. See Section 01 78 39, Project Record Documents.

3.3 COORDINATION OF SUBMITTALS

A. Submittal Reviews by Mechanical and Electrical Coordinator: In addition to specified review actions by Contractor, specified in Section 01 33 00 - Submittals Procedures, all product data, shop drawings and samples shall be reviewed by the mechanical and electrical coordinator for proper coordination of various elements of Work, as described in the preceding Article titled "Coordination Documents."

1. Include Owner-furnished/Contractor-installed (OFICI) products.
2. Include products to be provided (furnished and installed) under separate contracts by University, to the extent that information is provided in the Contract Documents and supplemental instructions from University's Representative.
3. Review by Contractor shall be completed prior to submission of product data, shop drawings and samples to Architect for review.
4. Indicate review actions by Contractor by signed review stamp and other appropriate notations on submittals.
5. Coordinate with other review actions to be taken by Contractor, as specified in Section 01 33 00 - Submittals Procedures.

B. Field Conditions: Contractor shall verify field dimensions and clearances and relationship to available space and anchoring provisions. Report conflicts in writing to the Architect and the University's Representative.

C. Product Characteristics: Contractor shall:

1. Verify compatibility of equipment and other elements requiring plumbing, HVAC and electrical services and signals with services to be provided.
2. Verify motor voltages and control characteristics.
3. Coordinate controls, interlocks, wiring of pneumatic switches, and relays.
4. Coordinate wiring and control diagrams.
5. Review the effect of changes in one element of the Work of other elements of the Work. Identify conflicts and report conflicts in written and graphic form to the Architect

and the University's Representative.

6. Verify information provided in maintenance and operating instructions and coordinate preparation of maintenance and operation data. See Section 01 78 23 - Operation and Maintenance Data.

3.4 COORDINATION OF SUBSTITUTIONS AND MODIFICATIONS

- A. Review of Proposed Substitutions: See Section 01 63 00 - Product Substitution Procedures. Contractor shall review Contractor's proposals and requests for substitution prior to submission to Architect.
 1. Contractor shall verify compliance with Contract Documents and shall certify compatibility with other elements of the Work, including proper integration with building structure, load limitations, operating and maintenance space and accessibility provisions, and suitability for available building services, including plumbing and electrical power and signal systems.
 2. Contractor shall prepare and submit recommendation for action regarding proposals, including identification of related changes in other elements of the Work.

3.5 SYSTEM AND EQUIPMENT START-UP

- A. Observations of System and Equipment Activation and Start-Up: Contractor shall observe activation and start-up of systems and equipment, including all Work specified in Divisions 2 through 49 with connections to utilities, building services and controls.
 1. Contractor shall verify that utilities, building services and control systems are properly connected, complete and functional within criteria of manufacturer and criteria indicated in the Contract Documents.
 2. Contractor shall verify that activated elements are properly anchored and that operating components operate properly according to the component's intended design.
 3. Contractor shall verify that activated elements of the Work are in operable condition according to normal operating characteristics required by the manufacturer and the Contract Documents.
 4. Should adjustments be necessary to activated elements, Contractor shall advise the Architect and University's Representative of necessary actions and shall observe that proper actions are performed to achieve required operating characteristics.
- B. Observations of System and Equipment Demonstrations: Contractor shall observe performance demonstrations including equipment demonstrations to Architect and

University's Representative. Record times and additional information required for operation and maintenance manuals.

- C. Documentation of Observations of Activation, Start-Up, Adjustment and Demonstration: Contractor shall keep written record of activation, start-up, operational tests and inspections and necessary adjustments and re-tests and re-inspections.

1. Documentation shall include record of time and date of activation, start-up, operational tests and inspections and shall include measured results of tests and inspections.
2. Documentation shall be submitted to University's Representative and Architect.

3.6 INSPECTION AND ACCEPTANCE OF EQUIPMENT

- A. Contract Completion Review:

1. Prior to Contract Completion review, Contractor shall verify that each component and system has been properly adjusted, cleaned, lubricated, inspected and tested, and is ready operation and use.

END OF SECTION 01 31 00

SECTION 01 31 19 - Project Meetings

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 REQUIREMENTS INCLUDED

- A. Preconstruction meeting.
- B. Construction progress meetings.
- C. Pre-installation conferences.
 - a) All Definable Features of Work (DFoW) Shall Have a Pre-Installation Conference.

1.3 RELATED REQUIREMENTS

- A. Section 01 31 00 – Coordination: General requirements for coordinating the work, meetings required to properly coordinate the work are defined.
- B. Section 01 32 26 - Construction Progress Reports: General requirements for construction progress reports, to be reviewed at construction progress meetings.
- C. Section 01 33 00 - Submittals Procedures: Status of submittals to be reviewed at construction progress meetings.
- D. Section 01 45 00 - Quality Control: General requirements for construction quality, to be reviewed at construction progress meetings
- E. Section 01 77 00 - Contract Closeout Procedures: Contract closeout meeting.

1.4 PRECONSTRUCTION MEETING

- A. Preconstruction Meeting: University's Representative will administer a preconstruction meeting immediately prior to Contractor mobilization onto the project site.
 - 1. Representatives of the Trustees, the Contractor, Architect, and Architect's Consultants, Special Inspector, Inspector of Record, Commissioning Agent and other campus representatives, as appropriate, will attend.

2. Contractor and first tier subcontractors, as appropriate, shall attend.
- B. Schedule: Schedule preconstruction meeting within fourteen (14) days of construction start date established in the Notice to Proceed.
- C. Location: Preconstruction meeting will be held at a location as directed by the University's Representative.
- D. Agenda: Preconstruction meeting shall cover the following topics as a minimum.
1. Special Project Procedures: Site access restrictions, if any, and requirements to avoid disruption of operations at adjoining facilities. University to present requirements for use of premises.
 2. Designation of Key Personnel: Contractor shall designate key personnel and provide a name and address list that includes the following.
 - a. Contractor: Project Manager and Superintendent.
 - b. Major subcontractors: Principal/Project Manager and Superintendent.
 - c. Major materials suppliers: Contact person.
 - d. After hours or weekend contact
 3. Subcontractors List: Distribute and discuss list of subcontractors and suppliers.
 4. Coordination: Review requirements for Contractor's coordination of Work. Review sequence and schedule for work being performed for University under separate contracts. Discuss coordination of construction to minimize impacts on continuing Campus operations.
 5. Project Communication Procedures: Review requirements and administrative requirements for written and oral communications.
 6. Construction Schedule: Distribute and discuss initial construction schedule and critical work sequencing of major elements of Work, including coordination of Owner-Furnished/Contractor-Installed (OFCI) products and work under separate contracts by serving utility agencies and companies and University.
 7. Campus and Site Security: Review requirements for Contractor to develop and implement site security.
 8. Safety Program: Review requirements for Contractor to develop and implement safety program in compliance with Contract General Conditions.

9. Site Access by University's Representative and Architect: Review requirements and administrative procedures Contractor may wish to institute for identification and reporting purposes.
10. Permits and Fees: Review Contract requirements and review schedule and process for obtaining any required permits and paying fees. (Parking permits)
11. Project Layout: Review requirements for laying out of Work, including surveying requirements.
12. Construction Facilities: Designate storage and staging areas, construction office areas and parking areas and review site access requirements.
13. Temporary Utilities: Requirements for establishing and paying for temporary water, power, lighting and other utility services during construction, including metering and allowances. Refer to Section 01 51 00 - Temporary Utilities.
14. Construction Progress Schedules: Review requirements for preparation and updating of construction progress and submittals schedules.
15. Payment Procedures: Review requirements for preparation and submission of applications for progress payments and for final payment.
16. Change Procedures: Review requirements and administrative procedures for Change Orders, Field Instructions and Contractor's Requests for Interpretation (RFI).
17. Submittals Administration: Review administrative procedures for shop drawings, product data and samples submittals and review of preliminary Submittals Schedule.
18. Materials and Equipment: Review substitution or equal product requirements; review schedule for major equipment purchases and deliveries; review materials and equipment to be provided by University (OFCI products).
19. Testing and Inspection: Review tests and inspections to be performed by the following.
 - a. Independent testing and inspection agency.
 - b. Manufacturers and installers.
 - c. Serving utilities and public agencies.
 - d. Authorities having jurisdiction.
 - e. Commissioning Agent
20. Operation and Maintenance Data: Format and content of operation and maintenance manuals. Refer to Section 01 78 23 - Operation and Maintenance Data.

21. Instruction of University's Personnel: Review requirements and scheduling of instruction of personnel specified in Section 01 79 00 - Demonstration and Training and in various Sections through all Divisions of the Specifications.
22. Starting and Adjusting Procedures: Review requirements of starting and adjusting operating components. Refer to Section 01 75 00 - Starting and Adjusting Procedures.
23. Project Record Documents: Review requirements and procedures for preparing, reviewing and submitting project record drawings and specifications in Section 01 78 39.
24. Construction Cleaning: Review requirements for progress and final cleaning specified in Section 01 74 00 - Cleaning Requirements.
25. Contract Closeout: Review requirements specified in Section 01 77 00 - Contract Closeout Procedures, including procedures for filing of Notice of Completion, final payment and submittals.
26. Refer to 01_31_19.13_ Exhibit A - Preconstruction Meeting Agenda.

1.5 CONSTRUCTION PROGRESS MEETINGS

- A. Construction Progress Meetings: Meetings will be held to review progress and quality of construction. The essence of the discussion of each meeting shall be entered into the written record (minutes) of the meeting by the Architect or the University Representative designee.
- B. Schedule: Construction progress meetings shall be periodically scheduled throughout progress of the Work. Frequency shall be as determined necessary for progress of Work. Generally, it is intended that construction progress meetings be held at weekly intervals.
- C. Administration: Architect shall make physical arrangements for meetings. Architect shall prepare agenda with copies for participants, preside at meetings, record minutes and distribute copies within two working days to University's Representative, Contractor, participants and those affected by decisions made at meetings. Each discussion item at construction progress meetings shall be numerically identified and carried through subsequent meeting minutes until resolved.
- D. Attendance: Contractor's project manager and jobsite superintendent shall attend each meeting. Contractor's subcontractors and suppliers may attend as appropriate to subject under discussion. University's Representative will attend each meeting. Architect's consultants will also attend, as appropriate to agenda topics for each meeting and as provided in University-Architect Agreement.
- E. Suggested Agenda for Each Construction Progress Meeting:

1. Meeting Minutes: Review and correct, if necessary, minutes of previous meeting.
 - a. Unless published minutes are challenged in writing prior to the next regularly scheduled progress meeting, they will be accepted as properly stating the activities and decisions of the meeting.
 - b. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.
 - c. Challenge to minutes shall be settled as priority portions of "old business" at the next regularly scheduled meeting.
2. Old Business: Active discussion topics carried over from previous meetings.
3. Progress of the Work: Since last meeting and proposed progress.
 - a. Identify potential problems which might impede progress. This shall include upcoming University Holidays or University required alternate work schedules.
 - b. Develop corrective measures and procedures, including but not necessarily limited to additional manloading to regain planned schedule.
 - c. Review three-week "look ahead" construction schedule, including identification of conflicts and delays.
4. Ordering Status: Review status of long-lead time equipment and materials delivery affecting construction progress.
5. RFI Status: Review status of Requests for Interpretation (RFI) status.
6. Submittals Status: Review shop drawings, product data and samples submission and review status.
7. Contract Modifications: Pending Change Orders and Field Orders. Review status of proposed substitutions.
8. New Business: New topics of discussion affecting construction progress and quality.
 - a. Inspections – Both outstanding issues to discuss and upcoming inspections to be scheduled.
3. Quality Control: Review maintenance of quality standards and identification of non-conforming Work, including proposed remedial measures to be taken by Contractor.
4. Project Record Documents: Status of project record drawings and specifications.
5. Environmental and Safety Issues.
 - a. SWPPP controls and measures
 - b. Air Pollution issues
 - c. Noise Controls

- d. Site Safety
 - e. Public Pedestrian and Traffic Control Measures
- 6. Other items affecting progress and quality of the Work.
- F. Meeting Time and Location: As mutually agreed by the Architect, the Contractor, and the University's Representative at on-site location. Typically held weekly at the beginning or end of each week.
- G. Special Meetings: As necessary, the Architect, the Contractor, or the University's Representative may convene special meetings to discuss specific construction issues in detail and to plan specific activities.

1.6 PRE-INSTALLATION CONFERENCES

- A. Pre-Installation Conferences: All Definable Features of Work (DFoW) Shall Have a Pre-Installation Conference. Note additional Pre-Installation Conferences requirements/agenda when specified in individual product specification Sections, convene a pre-installation conference prior to commencing Work specified in individual product Sections.
 - 1. Require attendance by representatives of firms whose activities directly affect or are affected by Work specified in the Section.
 - 2. Review conditions of installation, preparation and installation procedures and coordination with related Work and work under separate contracts.
 - 3. Contractor shall use the Pre-Installation Conferences template included in 01 31 19 Exhibit B - Pre-Installation Conference Meeting Checklist.

1.7 CONTRACT COMPLETION MEETING

- A. Contract Closeout Meeting: As specified in Section 01 77 00 - Contract Closeout Procedures.
 - a. It is recommended that this meeting be scheduled four (4) to six (6) weeks prior to the scheduled contract completion date. Refer to Section 01 77 00 for additional information on Punch List meetings, final completion submittals and final payments.

PART 2 - PRODUCTS

- A. Contractor shall provide all necessary products as necessary to facilitate a productive meeting. This shall include any product samples, manufacture's literature, mockups, details, or any similar item.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION 01 31 19

01 31 19 Exhibit B - Pre-Installation Conference Meeting Checklist

PREINSTALLATION CONFERENCE CHECKLIST (CONTINUED ON SECOND PAGE)		SPEC SECTION	DATE
CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
PERSONNEL PRESENT	CAL POLY REP NOTIFIED _____ HOURS IN ADVANCE: YES <input type="checkbox"/> NO <input type="checkbox"/>		
	NAME	POSITION	COMPANY/CAL POLY
SUBMITTALS	REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES <input type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED? _____		
	ARE ALL MATERIALS ON HAND? YES <input type="checkbox"/> NO <input type="checkbox"/>		
	IF NO, WHAT ITEMS ARE MISSING? _____		
RFIS	ARE THERE RFI'S ASSOCIATED WITH DFOV? YES <input type="checkbox"/> NO <input type="checkbox"/>		
	LIST RFI'S AND REVIEW: _____		
SPECIFICATIONS	REVIEW EACH PARAGRAPH OF SPECIFICATIONS. _____		
	DISCUSS THE PROCEDURE FOR ACCOMPLISHING THE WORK. _____		
	CLARIFY ANY DIFFERENCES. _____		
PRELIMINARY WORK & INSPECTIONS	ENSURE PRELIMINARY WORK IS CORRECT AND INSPECTIONS ARE UP TO DATE.		
	IF NOT, WHAT ACTION IS TAKEN? _____		

PREINSTALLATION CONFERENCE CHECKLIST		SPEC SECTION	DATE
(CONTINUED FROM FIRST PAGE)			
CONTRACT NO	DEFINABLE FEATURE OF WORK	SCHEDULE ACT NO.	INDEX #
TESTING	IDENTIFY TEST TO BE PERFORMED, FREQUENCY, AND BY WHOM. _____		

	WHEN REQUIRED? _____		

	WHERE REQUIRED? _____		

SAFETY	REVIEW APPLICABLE SAFETY PROCEDURES AND CONCERNS. _____		

MEETING COMMENTS	CAL POLY COMMENTS DURING MEETING.		

OTHER ITEMS OR REMARKS	OTHER ITEMS OR REMARKS:		

01 31 19.13 Exhibit A - Preconstruction Meeting Agenda

SECTION 01 31 19.13 - Exhibit A - Preconstruction Meeting Agenda

PRECONSTRUCTION MEETING AGENDA

Project Name _____

Contract No.

Project No.

Date

Time

Attendees:

See Attached*

Location

1. **Project Scope** (PM)
2. **Introductions** (PM)
3. **Review Contract Requirements** (PM/SBS)
 - a. Inspection procedures (IOR; Div 1 Spec)
 - b. Testing procedures labs & special tests (IOR)
 - c. Progress schedule (PM)
 - d. Submittals and approvals (various)
 - e. Routing of correspondence (various)
 - f. Changes, disputes, complaints, claims, etc. (SBS/PM)
 - g. Prevailing wage, CSU Labor Compliance Program (if applicable), EEO, Preliminary Notices, & Insurance (SBS)
 - h. Payment procedure & bid cost breakdown (SBS; Forms 702.12, 702.17 and 702.21)
 - i. Change Order procedure (SBS/PM)
 - j. Field Instructions (PM; Form 702.22)
 - k. Shop drawings (PM)
 - l. Check and final inspections (IOR; Punch List form 702.07)
 - m. Guarantee (PM; Form 702.19)
 - n. As-built plans, turn-over items, & balance report (PM/IOR)
 - o. Notice of Completion (PM/IOR/SBS)
 - p. Retention payment (PM/SBS/CBS)
4. **Project Specific Review** (PM)
 - a. Definable features of work (PM)

- b. ITS
 - c. Access and Specifics (PM; Division 1: 013505, 011400, 015500)
 - d. Restrictions of contract operations, if any (PM)
 - e. Use of State property (PM)
 - f. Demolition work (PM/EHS)
 - g. Safety (EHS)
 - h. Environmental (EHS)
 - i. Utilities and shut down of utilities. (PM/EHS)
 - j. LEED or Equiv (Chad)
 - k. CEQA (Scott)
 - l. Commissioning (Chad)
5. **Confirm** (PM)
- a. Existing Condition Report (SBS; CGCs; Division information)
 - b. Survey benchmarks and their location, and critical layout control (PM)
 - c. Points of tie-in to existing utilities (PM)
 - d. Existing condition of site and adjacent areas and structures (PM; Site Survey Form 702.08)
 - e. Source of temporary utilities (PM)
6. **Determine** (PM)
- a. Contractor's plan of operation
 - b. Campus Notifications (PM)
 - c. Field office location
 - d. Project Manager (PM) Contact Number
 - e. Superintendent Contact Number
 - f. Contractor's off-hours in case of emergency Contact Number
 - g. Security arrangements contemplated by the Contractor
 - h. Starting date of project
7. **Questions** (PM)

SECTION 01 32 00 – ELECTRONIC PROJECT MANAGEMENT SYSTEM

ART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Administrative and procedural requirements for usage of the University's Electronic Project Management (EPM) System, Procore, for electronic construction management document control and communications between the University, Architect of Record, other project-related consultants, and the [Contractor], [Construction Manager]. The system will be maintained and owned by the University but operated collaboratively by the Project Team. The [Contractor], [Construction Manager] shall use the Universities Procore for all contract documents, including RFI's, Submittals, Amended Construction Documents (ACD), i.e. Drawing and Project Specification Revisions, and Inspection Requests.

1.3 RELATED SECTIONS

- A. Section 01 33 00 – Submittal Procedures.

1.4 DEFINITIONS

- A. Learning Path: Selection of detailed help articles grouped by position.
- B. Permission level: Dictates what tasks user will be able to perform. Procore has four permission levels: none, read only, standard, and admin.
- C. Certification: Upon successful course completion, project team personnel will earn a certificate. Courses are designed to give users the basics for the Procore tools required in a specific position. <https://education.procore.com/page/procore-certification>
- D. Training Videos: Detailed videos that delve further into specific Procore tools.

1.5 COORDINATION

- A. The EPM system, Procore, will contain the following modules available to the contractor and project team for use at no cost to the [Contractor], [Construction Manager]. Detailed

instructions for usage of the various Procore tools will be part of the project documents within Procore.

1. Submittals and submittal logs.
2. Requests for information and RFI logs.
3. Inspection requests, inspection results, and inspection logs.
4. Project meeting agenda and minutes.
5. Electronic drawings, markups, and sketches.
6. Project specifications.
7. Project schedule.
8. Project punch list.
9. Project directory.
10. Change orders and payment requests.
11. Other documentation, as determined by the Cal Poly Representative.

1.6 CONTRACTOR RESPONSIBILITIES

- A. The [Contractor], [Construction Manager] is responsible for directing field personnel on the usage of Procore and specific training required for each team member.
- B. The [Contractor], [Construction Manager] is responsible for supplying necessary equipment for usage of Procore.
- C. The [Contractor], [Construction Manager] shall have sufficient computer(s) with capabilities to access the system at their on-site and off-site project offices, and mobile devices. At the pre-construction meeting, the [Contractor], [Construction Manager] shall provide to the University's Representative the email addresses of all Contractor personnel that the Contractor chooses to have access to the EPM system and information. At a minimum, this will include the [Contractor], [Construction Manager] Project Manager and Superintendent. These personnel shall have sufficient computer skills required to access the Internet, log on to the EPM system, and utilize the system. Technical support to the Contractor's personnel for use of the EPM system is available via Procore using the "Support & Feedback" module . The Contractor shall plan on an average of 4-hours training for each of the Contractor's personnel who will be using the system. The Contractor may request the University to provide training and technical support to the Contractor's personnel for use of the EPM system. The cost of the training session will be borne by the Contractor. Having the above capability in place onsite is a condition precedent to processing the Contractor's first payment request.
- D. The University will NOT accept emailed, faxed, and/or hand-written documentation of RFIs, RFI Sketches, Submittals, and/or Inspection Requests; not received via the University's Procore.
 1. The Contractor shall be solely responsible for data entry via the Electronic Project Management System Website for the generation of project related documentation.
 2. The contractor shall be solely responsible for the scanning of sketches / drawings as
necessary for the electronic submittal and attachment of necessary information

- related to RFIs.
- 3. Contractor shall supply field personnel with all necessary computer equipment necessary to enter documentation electronically.
- E. Product submittal samples may be submitted via hard copy per Section 01 33 00 Submittals with electronic documents for all paperwork and shall include photographs of physical product submittals.
- F. At the pre-construction meeting, The Contractor shall submit to the University a comprehensive list of users utilizing the form included in Section 01 32 00.1 Web Based Project Management User List. The University will use this information for no other purpose than to establish the necessary accounts for use by each individual.
- G. Contractor shall complete and submit the User List provided in Specification Section 01 32 00.1 for initial user set up and assignment prior to project kickoff meeting.

1.7 OFFICIAL RECORDS

- A. The documentation and records shall be maintained on the EPM system by the [Contractor], [Construction Manager] and will be the "Official Records" for the project. Refer to Sections 01 78 23 Operation and Maintenance Data, 01 78 29 Survey and Layout Data, 01 78 39 Project Record Documents, and Division 1 for requirements. This documentation shall be the records for the adjudication of any and all disputes. At the conclusion of the project all records can be made shall be available for import/export and submitted to the University per Sections 01 33 00 Submittal Procedures, 01 77 00 Contract Closeout Procedures, and Division 1.

PART 2 – PROCORE TRAINING BY CLASSIFICATION

2.1 ARCHITECT PROJECT MANAGER

- A. Completion of Architect Certification (<http://learn.procore.com/procore-certification-architect>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Financials (contractor)
 - 2. Documentation
 - 3. Field
- C. Learning Path articles that may be helpful can be found here: (<https://support.procore.com/procore-learning-paths/owner-cm/architect>)

2.2 ENGINEER PROJECT MANAGER

- A. Completion of Engineer Certification (<http://learn.procore.com/procore-certification-engineer>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Financials (contractor)
 - 2. Documentation
 - 3. Field
- C. Learning Path articles that may be helpful can be found here:
(<https://support.procore.com/procore-learning-paths/owner-cm/engineer>)

2.3 ARCHITECT SUBCONSULTANT

- A. Completion of Architect Certification (<http://learn.procore.com/procore-certification-architect>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Documentation
 - 2. Field
- C. Learning Path articles that may be helpful: (<https://support.procore.com/procore-learning-paths/owner-cm/architect>)

2.4 ENGINEER SUBCONSULTANT

- A. Completion of Engineer Certification (<http://learn.procore.com/procore-certification-engineer>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Documentation
 - 2. Field
- C. Learning Path articles that may be helpful can be found here:
(<https://support.procore.com/procore-learning-paths/owner-cm/general-contractor>)

2.5 [CONTRACTOR], [CONSTRUCTION MANAGER] SUPERINTENDANT/FOREMAN

- A. Completion of Superintendent Certification (<http://learn.procore.com/procore-certification-superintendent>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Documentation
 - 2. Field
- C. Learning Path articles that may be helpful can be found here:
(<https://support.procore.com/procore-learning-paths/owner-cm/engineer>)

2.6 [CONTRACTOR], [CONSTRUCTION MANAGER] PROJECT ENGINEER

- A. Completion of Subcontractor Certification (<http://learn.procore.com/subcontractor-certification>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Financials (contractor)
 - 2. Documentation
 - 3. Field
- C. Learning Path articles that may be helpful can be found here:
(<https://support.procore.com/procore-learning-paths/owner-cm/general-contractor>)

2.7 [CONTRACTOR], [CONSTRUCTION MANAGER] PROJECT MANAGER

- A. Completion of Subcontractor Certification (<http://learn.procore.com/subcontractor-certification>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Financials (contractor)
 - 2. Documentation
 - 3. Field
- C. Learning Path articles that may be helpful can be found here:
(<https://support.procore.com/procore-learning-paths/owner-cm/general-contractor>)

2.8 SUBCONTRACTOR

- A. Completion of Subcontractor Certification (<http://learn.procore.com/subcontractor-certification>)
- B. Helpful training videos (<http://learn.procore.com/#training-videos>)
 - 1. Financials (contractor)
 - 2. Documentation
 - 3. Field
- C. Learning Path articles that may be helpful can be found here:
(<https://support.procore.com/procore-learning-paths/owner-cm/general-contractor>)

PART 3 – SUBMITTALS

- 3.1 Prepare and submit Procore user's list including name, email address, company, and job classification based on Part 2 above.
- 3.2 After users have been added to the Procore directory, submit a "Certificate of Completion" for the required certification course, based on job classification.

END OF SECTION 01 32 00 - ELECTRONIC PROJECT MANAGEMENT SYSTEM

[PROJECT NAME]
[PROJECT NUMBER]

California Polytechnic State University
Procure User List

Specification Section
01 32 00.1

Name	Trade	E-mail Address	Company	Primary Phone	Address	City	State	Zip

SECTION 01 32 10 - Collaborative Construction Planning Process

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Section Includes:
 - 1. Definitions
 - 2. Basic Requirements of Contractor's Scheduling System
 - 3. Collaborative Schedule Overview/Background
 - 4. LPS Facilitation
 - 5. Collaborative Schedule Process
 - a. Required Participants
 - b. LPS Implementation Material and Tools
 - c. Preconstruction Meeting
 - d. Master Milestone Schedule
 - e. Phase Pull Scheduling
 - f. 6 Week Make Ready Planning
 - g. Weekly Work Plan
 - h. Workable Backlog
 - i. Daily Work Planning Huddles
 - 6. Deliverables
 - 7. Responsibility for Completion

1.3 DEFINITIONS

- A. Constraint – In the context of the Last Planner® System, an input, directive, resource or other requirement that will prevent a task or an assignment from starting, advancing or completing as planned.
- B. Constraint Log – A list of constraints, each one with an identification of the individual or champion who promises to remove it by an agreed upon date.
- C. Last Planner® System (LPS) – A system for project production planning and control aimed at creating a work flow for reliable execution.
- D. Last Planner – The person who conducts the final planning of a task or activity and makes the work resource assignments for those in production.
- E. Milestone Plan – A master plan schedule developed collaboratively by a project team that identifies major milestones in the project as well as each team members' milestones and their timing.

- F. Pareto chart - Named after Vilfredo Pareto, this chart contains both bars and a line graph, where individual values are represented in descending order by bars, and the cumulative total is represented by the line.
- G. Percent Planned Complete (PPC) – Metric used in the Last Planner® System to gauge plan reliability. Defined as the ratio of the number of actual activities completed in a given time period over the number of actual activities planned (typically weekly).

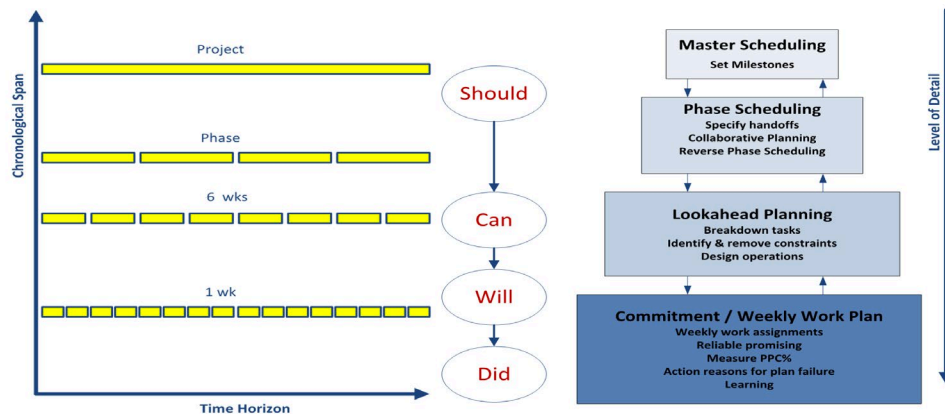
1.4 BASIC REQUIREMENTS OF CONTRACTOR'S SCHEDULING SYSTEM

- A. This Section specifies CSU expectations, administrative and procedural requirements for planning and scheduling. The CSU requires that Lean Construction planning principles and techniques shall be utilized as described herein. This specification section requires the integrated and coordinated use of the Reliable Production plan based on the LPS and conventional CPM scheduling. The CSU requires a high level of use of the LPS and expects the Contractor to have experience at all levels of planning and scheduling using these systems.
- B. The Schedule shall be prepared, updated and maintained using Primavera Project Planner, Microsoft Project, or other platform as approved by the Trustees.

1.5 COLLABORATIVE SCHEDULE OVERVIEW / BACKGROUND

- A. The primary function of the LPS is the collaborative planning process that involves Last Planners, the persons executing the work, for planning in greater detail as the team gets closer to doing the work. The LPS is an opposite way of thinking when compared to conventional push scheduling principles, where the work that *should* be done is planned in weekly meetings emphasizing adherence to the master schedule milestones. In contrast to traditional CPM scheduling, the LPS incorporates pull planning principles where only the work that *can* and *will* be done is considered and promised by Last Planners themselves. At its core, LPS is a system view versus individual optimization, where the Last Planners' active engagement in this systemic process is a fundamental requirement. The LPS is a team sport.
- B. The purpose of the Collaborative Schedule process is to build a reliable project Master Schedule within a collaborative team environment. The primary goal is to 1) establish, solidify and maintain the Milestones within the Master Schedule, and 2) support the teams and work flow improvements necessary to produce safe, reliable and interruption-free project delivery, increasing the reliability of project production planning and improving project performance.
- C. The Collaborative Schedule process is iterative and constantly measured with metrics. When executed successfully, the Weekly Work Plans can be easily formulated and Monthly Schedule Updates are naturally produced.
- D. The Collaborative Schedule process makes detailed plans by those who execute and manage the work. The System promotes conversations between trade foremen and project management, at appropriate levels of detail, to resolve issues before they become critical. As an activity nears execution the team collaboratively acts to remove constraints and verify that the promises made are tied to milestones. The promises made must be firm commitments, timely and without ambiguity.

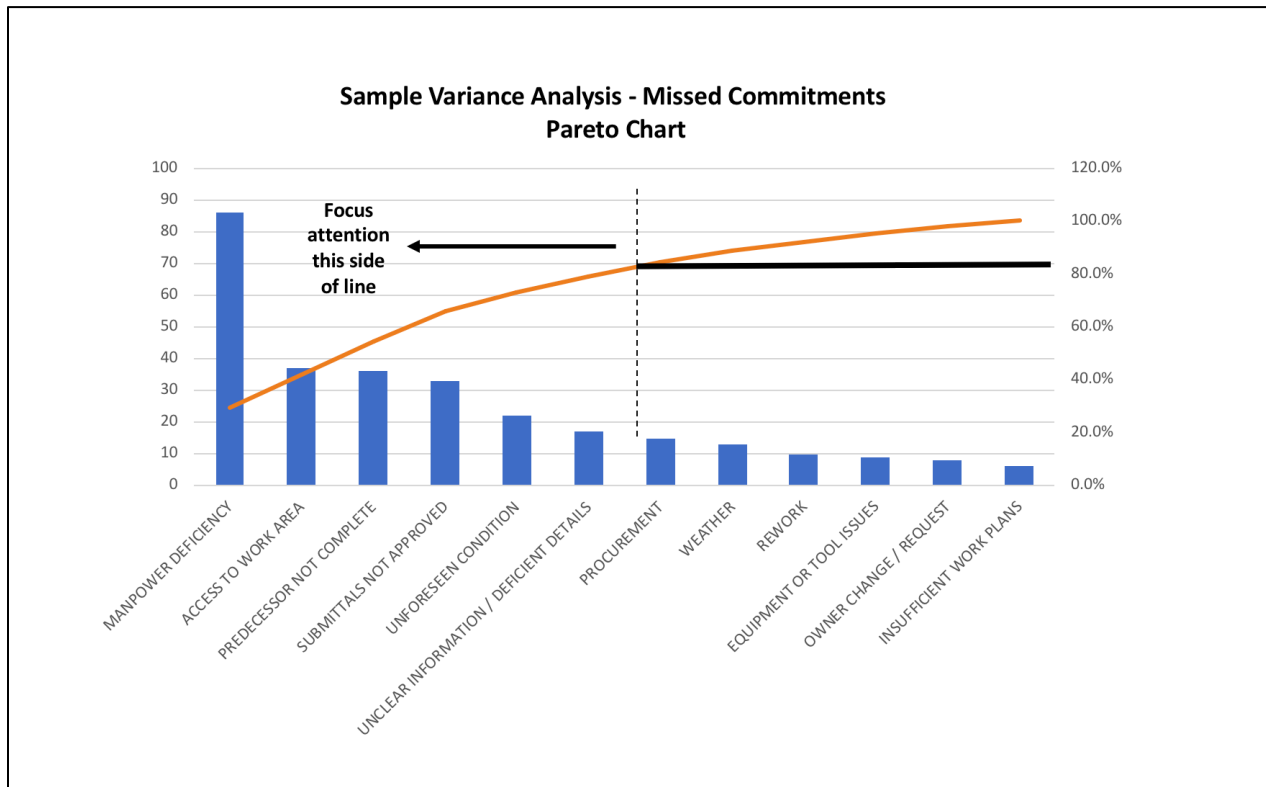
- E. Use planning procedures described herein to create a Master Schedule, a Look-Ahead Schedule, and a commitment-based Weekly Work Plan schedule through front-end planning using LPS and Lean Construction Planning techniques.
- F. LPS Planning Process Overview



The key elements of LPS are:

1. **Master Schedule Planning:** Setting milestones and strategy for the entire project including identification of long-lead items and major constraints. Incorporates critical path method (CPM) logic at a high level to determine overall project duration, what project work should be done. The milestone plan is used to develop the overall sequencing and flow of the work on the project. This will be a CPM-based schedule.
2. **Phase Pull Planning:** Strategically planning segments of work (typically 3 to 4 months in duration) in order to produce progressively detailed Weekly Work Plans. Collaborative reverse phase (pull) schedule planning by those who will be doing the work, at sufficient level of detail to specify handoffs, and identify and resolve operational conflicts. This effort will identify schedule activity durations and what project work can be done. Phase pull planning often results in modifications to the CPM logic used for initial project planning.
3. **6-Week Make-Ready Planning:** Look-ahead scheduling and constraint removal (roadblock removal process) in support of the progressively detailed planning process to assure that work is made ready for installation. This effort will identify what project work will be done. The plan is updated weekly constraints that threaten reliable workflow are identified and captured for the team's action to remove them.
4. **Weekly Work Planning:** Team collaboration to plan each day's work, conditions for handoff and acceptance, sequencing and synchronizing next week's work. Commitments are made to perform work in a certain manner and a certain sequence. What project work are we to do this week. Weekly work planning is the point of maximum progressive detailing to create reliable work plans. Plan reliability at this level is promoted by making only quality assignments and reliable promises so that the production unit will be shielded from upstream uncertainty.
5. **Daily Huddles:** Daily team check-ins, discussions based on the Weekly Work Plan. How are we doing? What do we need to maintain the plan in progress?

6. **Percent Plan Complete:** Number of activities completed divided by the total number of planned activities. At the end of each week, assignments are reviewed for completeness in order to measure the reliability of the planning.
7. **Reasons for Missed Commitments Variance Analysis:** Charted using Excel and/or Pareto charts (see example below) to identify trends, learning and understanding what needs to be fixed in order to improve next week's PPC.



8. **Learning:** By measuring percent of promises complete (PPC), tracking reasons for variance, diving deep into reasons for plan failures, and developing/implementing lessons learned to improve future plan reliability. Analyzing reasons for plan failures and acting on these reasons is the basis of learning.
9. **Reliable Promising:** Projects are essentially made up of an extensive set of reliable promises. LPS makes the planning processes and work flow highly reliable, and builds necessary trust within a collaborative team environment.

1.6 LAST PLANNER FACILITATION

A. LPS Facilitator

1. No later than ten (10) days after Contract NTP, the Contractor shall identify a facilitator to provide one day of training in the LPS and submit the facilitator's relevant qualifications for Trustees' review and approval. The facilitator may be in-house for the Contractor if the facilitator's qualifications meet the Trustees' approval. In general, it is expected that the facilitator has successfully led LPS on a number of projects previously. A listing of past experience and the project outcomes should be provided as part of the facilitator's qualifications. The facilitator is to be jointly chosen/approved by the contractor and

Trustees. If an outside facilitator is selected, this shall be a shared service between contractor and Trustees with the cost split 50/50 with no contractor mark-up allowed. All subcontractors and general contractor personnel responsible for executing this specification shall attend.

2. The LPS facilitator shall attend Pull Planning sessions commensurate with the experience of the General Contractor, and as necessary to assure that all process and requirements detailed herein are satisfied.
3. Teams may have variable past experience with LPS. For teams that have never participated in a project delivered using LPS, six (6) facilitated sessions at the beginning of the project are typically required for project teams without LPS experience to develop working competency. This is not considered a minimum, but is a suggested training level. Teams more experienced with LPS may require a reduced level of facilitation.
4. If the cumulative Percent Planned Complete (PPC) drops below 70 percent, then a LPS facilitator needs to be brought back to assist the team in identifying why the plan is not reliable and assist in identifying and implementing appropriate countermeasures to improve reliability of the plan.

1.7 COLLABORATIVE SCHEDULE PROCESS

A. Required Participants

1. Since LPS is a collaborative process, all those that have a planning role on the project need to participate in the scheduling process at the appropriate time. It is expected that there will be different participants required at different times in the project timeline depending on their respective scope of work and the timing of when it will be planned and performed. The right people need to participate at the right time for the plan to be informed and reliable. These individuals will be expected to participate in all phases of LPS as described in this section.
2. Required Project Stakeholders (the list is not exhaustive, participation by others may be required):
 - a. General Contractor
 - b. CSU Project Manager
 - c. All subcontractors, and/or discipline-specific trades
 - d. Project Manager from each trade and/or subcontractor
 - e. General foremen and superintendents from each trade subcontractor
 - f. Key project engineers and/or construction coordinators
 - g. Vendor and/or suppliers with key materials, as necessary
 - h. Off-site fabricators, as necessary
 - i. Third-party support (testing, inspection, commissioning agents, LEED certification specialists, etc.)
 - j. Architects and engineers
 - k. University representatives including IT, campus police, purchasing and others as necessary. The University end-users shall be represented through separate user group meetings to identify items of concern, constraints, etc.
 - l. LPS Facilitator.

B. LPS Implementation Materials and Tools

1. These forms are included by reference:

- a. Short-Term Production Plan
 - b. Constraint Log
 2. Large Meeting Room – Job Site Trailer, large enough for 30 individuals, ideally from a single location, “The Big Room”.
 3. Standard conference room white board (20’ horizontal length suggested).
 4. Walls dedicated to visual system aids.
 5. Standard 3-inch size “sticky notes”, dedicated color for each Trade Contractor and/or design discipline.
 6. Weekly work plan boards for the 6-week make work ready plan that are freestanding and contain columns and rows for “sticky notes”. Boards should have 7 columns, one for each day of the week, and approximately 20 rows of 4 inch by 4 inch squares for standard 3-inch size “sticky notes”. The surface of the boards should allow good adhesion of the “sticky notes”. Boards should also be easily movable to accommodate rolling planning done weekly.
 7. Microsoft Office Suite, specifically Microsoft Excel, for creation of Weekly Work Plans and other necessary LPS elements. Microsoft Project or Primavera scheduling software, for creation and documentation of milestone schedule, milestone relationships and 6-week Look-Ahead schedules.
 8. Display well-maintained outputs for the group to use at Daily Huddles and Weekly Coordination Meetings in The Big Room.
 9. The four primary Visual Outputs tools of LPS are:
 - a. Weekly Work Plans (WWP) –boards described above.
 - b. Percent Plan Complete (PPC) trend over time.
 - c. Reasons for Variance Pareto, graph, or pie chart.
 - d. Constraint Log.
- C. Preparatory Meeting
1. Submit a Draft Master Milestone Schedule (High-Level Master Milestone) and an initial 6 Week look-ahead schedule at the Preparatory Meeting which will include mobilization activities, first collaborative pull planning session, etc.
- D. Master Milestone Schedule
1. Prior to the first pull planning Milestone session, the General Contractor will prepare a high-level master milestone CPM schedule in advance of the session for the entire project to identify major project milestones and general sequence of how the project may be executed. These milestones should include required delivery dates for major long-lead equipment items like switch gear, transformers, chillers, etc.
 2. As part of the Milestone Plan pull planning session, the major project milestones (e.g., CSU constraints and contract milestone requirements, foundation poured, topping out, weathered in, permanent power) developed through the CPM schedule will serve as the dates to work the Milestone Plan.
 3. Milestones have zero duration and represent the completion or start of a particular activity or action.
 4. Milestones used in the Milestone Plan should be completion milestones for the most part. Select start milestones for critical activities may also be appropriate to include in the plan.

5. Milestones for trade contractors should represent completion of major trade activities and for completion of trade work in a specific area of the project (e.g., floor, gridline or elevation).
 6. Each trade should have multiple milestones and with sufficient detail to identify interim trade milestones at least every 6 weeks to help develop more reliable make work ready planning.
 7. The team works backward from the final project milestone to pull towards the milestone plan.
 8. The collaboratively developed milestone plan is used to validate or challenge the required CPM schedule, and collaboratively inform necessary changes to the CPM schedule.
 9. Include milestones for each trade contractor, each phase, key submittal approvals, key release dates for long-lead equipment and material, shipment/arrival of key materials and/or equipment, key inspections, occupancy, commissioning, project completion, etc.
 10. Any constraints that are identified that will prevent a task or an assignment from starting, advancing, or completing as planned need to be captured in a Constraint Log. The log should clearly identify the constraint, by what date it needs to be removed to not impact project production, and the member of the project team that has been assigned responsibility to lead the efforts to remove the constraint. The constraint log should be maintained and updated throughout the project and displayed visually in The Big Room so that all project team members can see it.
 11. Master Milestone Schedule CPM Format
 - a. Activities shall be coded in a logical manner to allow for sorting and grouping of like characteristics, including but not limited to such items as: phase, work shift, project area, activity type (e.g., submittal, agency review, and construction activity), trade, etc.
 - b. Include activities and milestones as requested for work completed by University under separate contract, University-furnished materials, move-in, etc.
 - c. The schedule duration shall be calculated for the Initial Construction Schedule, Contract Construction Schedule, and subsequent schedule updates.
 - d. Contractor's Superintendent and Project Manager shall be integrally involved in production of the Initial Master Schedule and each subsequent update.
 - e. Failure by Contractor to include any element of the work required for performance of the Contract shall not relieve Contractor of the obligation to complete the entire Work of the Contract in accordance with the Contract Completion Date.
- E. Phase Pull Scheduling
1. Phase Pull Scheduling generates a detailed schedule magnifying the master schedule into more detailed project components strategically planning segments of work and activities in order to produce progressively detailed Weekly Work Plans.
 2. The purpose of Phase Pull Scheduling is to produce a plan:
 - for completing a phase of work that everyone involved understands and supports, and
 - from which scheduled activities are drawn into the look-ahead process to be exploded into operational detail and made ready for assignment in weekly work plans.

- a. The project milestones shall be placed at the top of the visual phase plan which is developed at the wall.
 - b. The level of detail in the Phase Schedule is determined by the requirement that the Phase Schedule specify the handoffs between subcontractors involved in doing the work.
 - c. The phase plan will consist of activity tags completed for each trade by the Last Planner for that trade.
 - d. Activities should be no longer than 10 days in duration. Any task longer than 10 days can be broken down into smaller discrete activities which allow for better planning.
 - e. Identify the specific task to be completed with an action verb, identify what is required to release the work (predecessor or constraint), location, crew size, and duration.
 - f. Each discipline or trade is responsible for completing and placing its own tags on the plan.
 - g. The phase will pull, starting from the completion of the interim milestone associated with the end of the phase, and working backwards (right to left). After the pull backwards, then a forward pass (left to right) needs to be conducted to ensure that the plan demonstrates a logical building sequence and that the sum of the total activity durations is within the allowable time to meet the project milestone(s), and to identify opportunities to resolve conflict and improve production flow. Do not double count durations for concurrent tasks.
 - h. The completion of a "phase" should be sequenced so that the "phase" completion releases new work.
 - i. Participants: All team members involved in planning and execution of work during the Phase Schedule.
 - j. A Phase Pull schedule is produced for a typical duration of approximately three (3) months using an appropriate interim milestone as the completion point of the phase.
 - k. After the initial Phase Pull plan, subsequent Phase Pull plans should be developed every six (6) weeks to reflect the next three (3) months of project production. This will allow for a fully informed rolling 6-week Make-Work Ready Plan on the project.
 - l. The Phase Pull plan should be visually displayed in The Big Room for all to see and to inform subsequent 6-week Make-Work Ready Plans.
3. Phase Pull Schedule Format
- a. Activities shall be organized in a logical manner to allow for grouping of like characteristics, including, but not limited to such items as: phase, work shift, project area, activity work stream. The use of swim lanes on the Phase Pull plan may also be included to designate different work areas, phases, or work streams.
 - b. An appropriate number of interim milestones will be used to help develop the Phase Pull schedule activities. Milestones from the Preparatory meeting shall be incorporated.
 - c. Identify work days and non-work days on the Phase Pull production schedule.
 - d. Contractor shall work in conjunction with each subcontractor and supplier to ensure that all relevant submittal, procurement, delivery and installation dates for the various trades are accurately represented in the Phase Pull schedule.
 - e. Include activities related to critical project submittals and approvals.

F. 6-Week Make Ready Planning

1. The 6-Week Make Ready / Look Ahead Plan is a visual plan of activities that need to be accomplished over the upcoming six weeks. Standard 3-inch “sticky notes” placed on 6 weekly activity boards are used to establish the rolling 6-week Make Ready Plan.
 - a. Once an activity has entered into the Look Ahead Plan, it is the team’s task to make that activity ready for execution by the scheduled time, remove constraints, and execute the work within the expected duration.
 - b. Look ahead week activities should be planned as a whole identifying operations to be planned jointly by multiple trades with respect to hand-offs and work areas.
 - c. The Last Planners create the make-work ready plan that consists of weekly work plans with daily tags for each crew on site identifying what and where they will be working for the next 6 weeks and the size of the respective crew.
 - d. The quality of the work assignments/activities needs to be in greater detail and accuracy for the upcoming two weeks of work.
 - e. After the initial 6-Week Make Ready Plan has been developed, the next 6th week of work is planned as part of the weekly schedule meeting in the Big Room to provide a rolling 6-week plan.
 - f. Any new constraints that are identified during the 6-Week Make Ready planning are identified need to be captured in the constraint log with an assigned champion to remove them and required completion date.
 - g. Participants: All Team members involved in planning and execution of work during the next 6 weeks.
- G. Weekly Work Plan
 1. Weekly Work Planning is tactical team collaboration to plan each day’s work during the next week including defining work areas and zones, conditions for handoff and acceptance between trades and disciplines, and crew sizing.
 - a. Weekly Work Plan updates shall occur as planned by the project team. These may coincide with the Weekly Owners Meeting where it makes sense to do so.
 - b. The Weekly Work Plan needs to be highly reliable to produce effective work flow and production on the project.
 - c. Specify tasks planned to be done next week and on which days.
 - d. The five minimum requirements to control quality of input into the Weekly Work Plan are:
 - 1) What is the Task?
 - 2) What will be done? (e.g. install wire way sections 1, 2, 3)
 - 3) Where it will be done? (e.g. Column A/1, above AC Box)
 - 4) When it will be done? (e.g. Tuesday and Wednesday)
 - 5) Who will do it? (e.g., company, crew size)
 - e. Identify make ready actions by assessing their feasibility prior to making assignments in the weekly work plan so as to shield production workers from uncertainty.
 - f. Synchronize tasks made ready relative to the promises of the team members.
 - g. The conditions for hand off and acceptance are clearly communicated within the team and all constraints removed.
 - h. Optimization of the team capabilities to plan, synchronize, execute, learn and improve.

- i. At the end of each week, assignments are reviewed for completeness in order to measure the reliability of the planning system. Analyzing reasons for plan failures and acting on these reasons is the basis of learning.
 - j. Participants: All Team members involved in planning and execution of work during the next 6 weeks.
 - 2. Weekly Work Plan Meeting Typical Agenda.
 - a. Review constraint log and note any overdue constraints and impact (5 minutes)
 - b. Review 6-week look-ahead plan (15 minutes)
 - c. Review the new week – Note activities that are starting up in week 6.
 - d. Review weeks 2-5 only by new exceptions that pop up. (Team should have been looking at weeks 2-5 for the last 5 weeks.)
 - e. Review last week's performance (5 min.)
 - f. Last week's PPC: The number of activities completed since the last weekly meeting divided by the total number of planned activities which were supposed to occur.
 - g. Current week's PPC
 - h. The Percent Plan Complete Statistic shall be kept on a Project Log showing each weeks Percent Plan Complete Statistic for each week of the project schedule until completion.
 - i. Trend chart
 - j. Variance chart, and reasons for variance: charted in Pareto or pie charts to see trends and facilitate learning, knowing what needs to be fixed in order to improve next week's PPC
 - k. Finalize next week's Weekly Work Plan (30 minutes)
 - l. Plus/Delta (2 minutes)
- H. Workable Backlog
 - 1. Capacity limitations of a production unit may prevent the Last Planner from assigning all work shown in the first week of the Look-ahead that satisfy the definition, soundness, and sequence criteria.
 - 2. There may be more work made ready than a production unit can reasonably be expected to complete in any week.
 - 3. Overloading a production unit is held against the performance of the Last Planner as assigned work that remains incomplete counts against the plan reliability measure.
 - 4. Ready work that cannot be assigned is recorded as Workable Backlog on the Weekly Work Plan.
 - 5. Should a production unit for any reason not be able to complete an assignment on their Weekly Work Plan, or should they complete assignments sooner than expected, the Workable Backlog will provide them with other work so they need not be idle or wind up doing out-of-sequence work
 - 6. Items in workable backlog must meet the same quality criteria as do priority assignments for the week.
- I. Daily Work Planning Huddles
 - 1. Daily Huddles are meetings where team members quickly give the status of the previous shift's accomplishments and failures, plus the current shift's plan of work for that day.
 - 2. Daily Huddle discussions must be directly connected to the team's Weekly Work Plan.

3. Transparency and reliable commitments are measured in the Daily Huddles for the Last Planners themselves to see and interact with directly.
4. This is the rallying point for “our plan,” which has “my input” accurately reflected. This is the heart of LPS, it is of utmost importance for the team to establish and drive healthy Daily Huddle discipline.

1.8 DELIVERABLES

A. Schedule Deliverables:

1. Master Milestone Schedule / Baseline schedule – Due Prior to NTP
2. Initial Phase Pull Plan – Due 15 days after NTP
3. Updated 6-Week Make Work Ready Look Ahead Schedule – Due every week
4. Weekly Metric Report (Percent Plan Complete for week, variance analysis for week’s missed commitments, Current Constraint Log)
 - a. If weekly PPC is less than 70%, specify what specific efforts the Contractor will undertake to improve its weekly work plan reliability.
5. Monthly Master Schedule Updates – Due Every Month
 - a. The updated Contract Construction Schedule shall accurately represent the as-built condition of all completed and in-progress work activities as of the schedule data date.
 - b. The level of detail shall be sufficient to describe and forecast the scheduled completion dates for the phase milestones used in the Phase Pull Planning.
 - c. Planned percent complete (PPC) for the month and cumulative to date for the project on a weekly basis displayed in a graphical format.
 - d. If the average weekly PPC is less than 70%, specify what specific efforts the Contractor will undertake to improve its weekly work plan reliability.
 - e. Variance analysis for missed commitments with bar chart, Pareto chart or pie chart that visually shows trends for the month and trends for the project-to-date. Discuss proposed countermeasures to address root causes of most frequent causes of variance that will be implemented during the next month. These may include actions required by the Trustees.
 - f. The current status of the phase milestones as established in the Milestone Plan.
 - g. The reason phase milestones may not have been accomplished and their delaying factors.
 - h. What mitigation efforts the Contractor or Trustees will undertake to complete the phase milestones without adversely impacting the overall project milestones leading to successful completion of the project by the finish milestone.
 - i. Any changes made to the sequencing, durations, working time, etc. made to accomplish the phase milestones.
 - j. Current Constraint Log with all outstanding items that have the potential to prevent a task or assignment from starting, advancing or completing as planned. This should include a constraint removal need by date to avoid adversely impacting the schedule and the name of the assigned individual to champion the efforts to remove the constraint.

- k. Current and anticipated delays not resolved by approved change order, including:
 - Cause of the delay – Contractor or Trustees
 - Corrective action and schedule adjustments to correct the delay
 - Known or potential impact of the delay on other activities, milestones, and Project completion date
 - l. Pending items and status thereof including but not limited to:
 - Pending change orders
 - Time extension requests
 - Other items
 - m. Contract completion date status:
 - If ahead of Construction Schedule, the number of Days ahead
 - If behind Construction Schedule, the number of Days behind.
- B. All schedule submittals including the updated progress schedules will be reviewed jointly by the Trustees, the Architect, and the Contractor. Review of the Contractor's schedules shall not constitute approval or acceptance of the Contractor's construction means, methods, or sequencing, or a positive determination by the Trustees and/or the Architect of the Contractor's ability to complete the Work in a timely manner.

1.9 RESPONSIBILITY FOR COMPLETION

- A. Should any monthly or weekly update of the Contract Construction Schedule indicate that the Contract Completion Date has extended, Contractor shall work with the team and submit a written action plan to meet the Contract Completion Date. Contractor and the Trustees shall initiate corrective actions, as approved by the CSU Project Manager, at no additional cost, unless agreed otherwise for shared delays. These actions shall include, but not be limited to, one or more of the following:
 - 1. Identify and remove constraints and barriers to the project production work flow.
 - 2. Identify root causes for missed commitments and develop and implement countermeasures to address these.
 - 3. In conjunction with the Last Planners, re-sequence activities in order to improve work flow production and subsequent completion of these activities.
 - 4. In conjunction with the Last Planners, increase construction manpower in certain or all trades in order to bring the completion date into compliance with Contract requirements.
 - 5. In conjunction with the Last Planners, increase the number of labor shifts, working hours per shift, or working days per week as required to bring the completion date into compliance with Contract requirements.
 - 6. Arrange and pay for acceleration of fabrication schedules for long-lead material items.
 - 7. Arrange and pay for alternate shipping or delivery methods in order to expedite material procurement.
 - 8. Arrange and pay for acceleration of design / architectural responses, changes, and /or resolutions.
- B. Comments provided by the CSU Project Manager concerning the Initial Construction Schedule, Contract Construction Schedule, or any schedule update shall not relieve Contractor from the responsibility for compliance with the entire requirements of the Contract Documents.

END OF SECTION 01 32 10

DRAFTING THE SUPPLEMENTARY GENERAL CONDITIONS.

If incorporating the previous Specification Section 01 32 10 – COLLABORATIVE CONSTRUCTION PLANNING PROCESS into your Project Documents, then use the following Supplementary General Conditions in lieu of the Contract General Conditions for the articles Contract Time and Schedule. In the chart below, the first column lists the Contract General Conditions for each Contract Type (delivery method), and in the columns to the right are the referenced articles/topics for which the section names and numbers are provided for each Contract Type. Using Contract Time for Design-Build delivery method in the SGC below, section b, Starting and Completion Date, there is a reference to a section named “Guarantee”, so Campus would replace Article [xx.xx] with Article 39.06.

Also, it is required to select the appropriate contract entity whether Contractor, Construction Manager (CM), or Design-Builder and use consistently throughout. All areas highlighted in yellow need review and appropriate selection of the relevant contract section numbering or contract entity.

Contract Type	Contract Time Section No.	Schedule Section No.	Change Orders Section No.	Delay in Completion LDs Section No.	Guarantee Section No.
CM at Risk	4.16	4.17	6.01	7.02	8.11
Design-Bid-Build Major	4.15	4.16	6.01	7.02	8.06
Design-Bid-Build Minor	4.14	4.15	6.01	7.02	8.05
Design-Bid-Build Auxiliary	4.15	4.16	6.01	7.02	8.06
Collaborative Design-Build	36.15	36.16	38.01	39.02	40.06
Design-Build	35.15	35.16	37.01	38.02	39.06

Supplementary General Conditions to the Contract General Conditions

Definitions—Reference the Definitions found in the Contract General Conditions for the delivery method chosen, and, if not in the Contract General Conditions, check Division One Section 01 32 10, Collaborative Construction Planning Process, section 1.3—Definitions.

Article [xx.xx], Contract Time, delete and replace with the following:

- a. Time of the Essence.
All time limits specified in this Contract are the essence of the Contract.
- b. Starting and Completion Date.
The Trustees shall designate in the Notice to Proceed the starting date of the Contract on which [Contractor], [Construction Manager], [Design-Build Contractor] (*select appropriate party to be used throughout based on contract type*) shall immediately begin and thereafter diligently prosecute the Work to completion. [Contractor], [Construction Manager], [Design-Build Contractor] agrees to complete the Work on the date specified for completion of [Contractor], [Construction Manager], [Design-Build Contractor] performance in the Contract unless such time is adjusted, in writing, by change order by the Trustees. [Contractor], [Construction Manager], [Design-Build Contractor] may complete the Work before the completion date if it will not interfere with the Trustees or other

contractors engaged in related or adjacent Work. The Work shall be regarded as completed on the acceptance date noted on the Trustees' Notice of Completion. This date shall be used as the date the guarantee period begins as defined in Article [xx.xx], Guarantee.

- c. Adjustment of Contract Time Due to Acts of God, etc.
[Contractor], [Construction Manager], [Design-Build Contractor] shall not be assessed with liquidated damages, nor the cost of engineering and inspection, during any delay in the completion of the Project caused by acts of God, the public enemy, fire, flood, epidemic, quarantine restriction, strike, freight embargo, discovery of archaeological or paleontological artifacts, and unusual action of the elements; provided that [Contractor], [Construction Manager], [Design-Build Contractor] shall notify the Trustees in writing of the causes of the delays within 24 hours from the beginning of any such delay. The Trustees shall determine the facts with regard to the delay and the reasonable period of time by which the date of completion should be extended by reason thereof, if any. The Trustees' findings thereon shall be final and conclusive. There shall be no compensation to [Contractor], [Construction Manager], [Design-Build Contractor] for costs associated with this kind of delay.
- d. The term "unusual action of the elements" is limited to extraordinary, adverse weather conditions and conditions immediately resulting therefrom which cause a cessation in the progress of the Work which will delay the time of completion of the Contract. [Contractor], [Construction Manager], [Design-Build Contractor] shall have no right to an adjustment in the time of completion due to weather conditions or industrial conditions which are normal for the locality of the site. The time for completion of the Contract has been calculated with consideration given to the average climatic range and usual industrial conditions prevailing in the locality of the site.
- e. Adjustment of Contract Time Due to Acts of the Trustees.
If [Contractor], [Construction Manager], [Design-Build Contractor] is delayed in completing the Contract by reason of any act or omission of the Trustees not provided by the Contract, or by reason of changes made pursuant to Article [xx.xx], Change Orders, without reaching agreement as to any time adjustments, the time for completion of the Contract may be extended for a period commensurate with the delay. [Contractor], [Construction Manager], [Design-Build Contractor] shall notify the Trustees in writing of the causes of the delay within seven (7) Days from the beginning of the delay.
- f. [Contractor], [Construction Manager], [Design-Build Contractor]'s Duty to Fully Prosecute Work.
No extension of time will be granted for any of the causes for which extensions may be granted unless [Contractor], [Construction Manager], [Design-Build Contractor] demonstrates to the satisfaction of the Trustees that [Contractor], [Construction Manager], [Design-Build Contractor] has made every reasonable effort to fully prosecute the Work and complete the Work within the Contract Time. The causes of delay shall be subject to the same determinations as stated in Article [xx.xx].c, Adjustment of Contract Time Due to Acts of God, etc., above. [Contractor], [Construction Manager], [Design-Build Contractor] shall refer to Article [xx.xx], Schedule.
- g. Trustees' Adjustment of Contract Time.
Even though [Contractor], [Construction Manager], [Design-Build Contractor] has no right to an extension of time for completion, the Trustees may extend the time at the request of [Contractor], [Construction Manager], [Design-Build Contractor], if they determine it to be in the best interest of the State. If the time is extended, the Trustees may, in lieu of assessing liquidated damages, charge [Contractor], [Construction Manager], [Design-Build Contractor], its successors, heirs, assigns, or sureties, and deduct from the final payment for the Work all or any part, as they may deem proper,

the value of the lost use of the completed Project, and of the actual cost to the Trustees of engineering, inspection, superintendence, and other overhead expenses which are directly chargeable to the Contract, and which accrue during the period of such extension. Such costs will not exceed liquidated damages.

- h. Adjustment of Contract Time Due to Reasons beyond Trustees' Control.
Should the Trustees be prevented or enjoined from proceeding with Work either before or after the start of construction by reason of any litigation or other reason beyond their control, [Contractor], [Construction Manager], [Design-Build Contractor] shall not be entitled to make or assert any claim for damage by reason for said delay; but time for completion of the Work will be extended to such reasonable time as the Trustees may determine will compensate [Contractor], [Construction Manager], [Design-Build Contractor] for time lost by such delay. Any such determinations will be set forth in writing.
- i. Liquidated Damages.
Attention is directed to Article [xx.xx], "Delay in Completion--Liquidated Damages."

Article [xx.xx], Schedule, delete and replace with the following:

- a. Time is of the essence of this Contract, including the time of beginning, the rate of progress, and the time of completion of the Work. The Work shall be prosecuted at such time, in such manner, and on such part or parts of the Project as may be required to complete the Project as contemplated in the Contract Documents and [Contractor], [Construction Manager], [Design-Build Contractor]'s Construction Schedule.
- b. [Contractor], [Construction Manager], [Design-Build Contractor] shall prepare and submit to the Trustees' Construction Administrator the [Contractor], [Construction Manager], [Design-Build Contractor]'s initial construction schedule prior to Notice to Proceed. The [Contractor], [Construction Manager], [Design-Build Contractor]'s initial Construction Schedule shall comprise a high-level milestone critical path method. [Contractor], [Construction Manager], [Design-Build Contractor]'s initial Construction Schedule shall show the dates on which each major part or division of the Work is expected to be started and completed. The initial Construction Schedule shall also show all major dates for submission and approval of submittals required by the Contract as well as required delivery dates for major pieces of long-lead material or equipment. [Contractor], [Construction Manager], [Design-Build Contractor] shall also submit a separate listing of all submittals required under the Contract and noting the anticipated date that each submittal will be submitted. [Contractor], [Construction Manager], [Design-Build Contractor] shall submit a projected monthly cash flow schedule with the initial Construction Schedule and shall revise the cash flow schedule with each Construction Schedule revision. The cash flow schedule is [Contractor], [Construction Manager], [Design-Build Contractor]'s estimate of the dollar value of Contract Work completed and billable each month of the Project. [Contractor], [Construction Manager], [Design-Build Contractor]'s initial Construction Schedule shall begin with the effective date of the Notice to Proceed and conclude with the date of acceptance.
- c. [Contractor], [Construction Manager], [Design-Build Contractor] shall identify the number of work days that reflects anticipated rain delay during the performance of the Contract. The duration shall reflect the average climatic range prevailing in the locality of the site. Weather data shall be based on information provided by the National Oceanic and Atmospheric Administration (NOAA).
- d. [Contractor], [Construction Manager], [Design-Build Contractor] may submit an initial Construction Schedule that shows the Work completed in less time than the specified Contract Time. However,

the acceptance of such a Construction Schedule will not change the Contract Time. The Contract Time shall control in any determination of liquidated damages or extension of the Contract Time. Buffer, or schedule contingency, is the unused time within the Construction Schedule and the difference in time between the Project's early completion date and the required Contract completion date. This buffer is not for the exclusive use of either the Trustees or the [Contractor], [Construction Manager], [Design-Build Contractor], but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Contract milestones and the Contract completion date.

- e. Comments made by the Trustees on [Contractor], [Construction Manager], [Design-Build Contractor]'s initial Construction Schedule during review will not relieve [Contractor], [Construction Manager], [Design-Build Contractor] from compliance with the requirements of the Contract Documents. The review is only for general conformance with the scheduling requirements of the Contract Documents. Upon the Trustees' request, [Contractor], [Construction Manager], [Design-Build Contractor] shall participate in the review of [Contractor], [Construction Manager], [Design-Build Contractor]'s initial Construction Schedule submissions (including the original submittal, all update submittals, and any re-submittals). The Trustees may request the participation of subcontractors in these reviews, as determined necessary by the Trustees. All revisions shall be resubmitted within fifteen (15) Days after the Trustees' review.
- f. The submittal of a fully revised and acceptable [Contractor], [Construction Manager], [Design-Build Contractor]'s initial Construction Schedule shall be a condition precedent to the processing of the second monthly payment application, unless the Trustees grant a time extension due to unusual circumstances.
- g. [Contractor], [Construction Manager], [Design-Build Contractor] shall submit the required monthly Master Schedule Updates to the Construction Administrator with a copy to the Project Manager/Construction Inspector five (5) Days prior to the submittal of [Contractor], [Construction Manager], [Design-Build Contractor]'s monthly payment request. The submittal of the monthly Progress Schedule that satisfies the requirements of this Article, accurately reflects the status of the Work, revises the cash flow schedule, and incorporates all changes into the Construction Schedule, shall be a condition precedent to the processing of the monthly payment application. Progress Schedules shall also be submitted at such other times as the Trustees may direct. If [Contractor], [Construction Manager], [Design-Build Contractor] fails to comply or is late in compliance with this requirement, and the Trustees find it to be in their best interest to process the monthly payment, an amount not exceeding \$10,000 shall be retained from each monthly progress payment until compliance is achieved.
- h. Adjustment of Contract Times for Completion.
In addition to the provisions in the Contract General Conditions, the Contract Time for completion of the Work will be adjusted in accordance with these procedures.

Whenever [Contractor], [Construction Manager], [Design-Build Contractor] submits a request for an adjustment of the Contract Time for completion for Trustees-requested changes, differing site conditions, weather impacts, or delays or alleged delays in removal of Trustees' constraints, [Contractor], [Construction Manager], [Design-Build Contractor] shall also submit an evaluation of the Constraints Log identifying items that have impacted the schedule that are not within the responsibility of the [Contractor], [Construction Manager], [Design-Build Contractor]. [Contractor], [Construction Manager], [Design-Build Contractor] shall also submit information regarding Planned Percent Complete for the Project to date and for time periods of interest, with a detailed variance

analysis for missed commitments in the weekly work planning, clearly indicating items beyond the responsibility of the [Contractor], [Construction Manager], [Design-Build Contractor] that have adversely impacted the schedule. The Trustees will not grant time extensions unless substantiated by the analysis.

[Contractor], [Construction Manager], [Design-Build Contractor] shall determine the impact based on the date or dates when the change or changes were issued, or the date or dates when the alleged delay or delays began.

If the Construction Administrator finds, after review of the analysis, that [Contractor], [Construction Manager], [Design-Build Contractor] is entitled to any extension of time for completion, the Contract Time for completion will be adjusted accordingly by the Construction Administrator, and [Contractor], [Construction Manager], [Design-Build Contractor] shall then revise the Milestone Plan accordingly.

No time extensions shall be granted nor indirect costs paid, unless [Contractor], [Construction Manager], [Design-Build Contractor] can clearly demonstrate the delay on the basis of the Progress Schedule current as of the month the change is issued or the delay occurred, and which delay cannot be mitigated, offset, or eliminated through revising the intended sequence of Work or other means. [Contractor], [Construction Manager], [Design-Build Contractor] shall include field instructions and change orders in the revised Construction Schedule. Failure to include field instructions or change orders shall waive rights to a Contract time extension or delay damages.

- i. As a condition precedent to the release of retained funds, [Contractor], [Construction Manager], [Design-Build Contractor] shall, after completion of the Work has been achieved, submit a final [Contractor], [Construction Manager], [Design-Build Contractor]'s As-Built Milestone Baseline Plan with Percent Planned Complete (PPC) graphically displayed for the duration of the project.

-End of Supplementary General Conditions-

SECTION 01 32 26 - Construction Progress Reports

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Construction progress reports.

1.3 RELATED SECTIONS

- A. Section 01 31 19 - Project Meetings: Review of construction progress and submittals status at Project meetings.
- B. Section 01 77 00 - Contract Closeout Procedures: Notice by Contractor of progress of the Work sufficient for Contract Completion review and Acceptance by University.

1.4 CONSTRUCTION PROGRESS REPORTS

- A. Daily Log: Contractor shall maintain a written daily log at the job site with the following information as a minimum:
 - 1. Date.
 - 2. Weather conditions.
 - 3. Subcontractors and trades performing Work under the Agreement on the Site, and number of workers each and number of hours worked by each worker.
 - 4. Others on the Site performing work for University under separate contracts.
 - 5. List of visitors to site, giving name, company or agency affiliation and telephone number.
 - 6. Descriptions of situations and circumstances which could delay normal progress of Work or which could be basis of claim for change in Contract Time or Contract Sum.
 - 7. Changes to Work and who authorized changes.
 - 8. Contractor shall describe all damage, deterioration, soiling, staining or similar conditions in accordance with 01-45-00 QUALITY CONTROL. Contractor may note responsible party for the damage.

8. Comments, as Contractor determines are appropriate for Project record.
- B. Submission of Logs: Submit one copy of daily logs to University's Representative and Architect at weekly intervals, for review at Construction Progress Meetings.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION 01 32 26

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Administrative requirements
- B. Construction Progress Schedule Submittal
- C. Contractor's review of submittals.
- D. Architect's review of submittals.
- E. Product data submittals.
- F. Shop drawing submittals.
- G. Sample submittals.
- H. Manufacturer's Instructions
- I. Reports of results of tests and inspections.
- J. Operations and Maintenance Data submittals
- K. Certificates

1.3 RELATED SECTIONS

- A. Section 01 31 13 – Project Coordination
- B. Section 01 31 26 – Electronic Communications Protocol
- C. Section 01 45 00 - Quality Control: Test and inspection reports.
- D. Section 01 77 00 - Closeout Procedures: Submittals for occupancy, Acceptance and Final

Payment.

- E. Section 01 78 23 - Operation and Maintenance Data: Requirements for preparation and submission.

1.4 DEFINITIONS

- A. Shop Drawings, Product Data and Samples: Instruments prepared and submitted by Contractor, for Contractor's benefit, to communicate to Architect the Contractor's understanding of the design intent, for review and comment by Architect on the conformance of the submitted information to the general intent of the design. Shop drawings, product data and samples are not Contract Documents. Drawings, diagrams, schedules and illustrations, with related notes, are specially prepared for the Work of the Contract, to illustrate a portion of the Work. Approval of the shop drawings does not relieve the contractor of their duty to perform or install any component of the project.
- B. Product Data: Standard published information ("catalog cuts") and specially prepared data for the Work of the Contract, including standard illustrations, schedules, brochures, diagrams, performance charts, instructions and other information to illustrate a portion of the Work.
- C. Samples: Physical examples that demonstrate the materials, finishes, features, workmanship and other characteristics of a portion of the Work. Accepted samples shall serve as quality basis for evaluating the Work.
- D. Other Submittals: Technical data, test reports, calculations, surveys, certifications, special warranties and guarantees, operation and maintenance data, extra stock and other submitted information and products shall also not be considered Contract Documents but shall be information from Contractor to Architect to illustrate a portion of the Work for confirmation of understanding of design intent.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Administrative Requirements for Submittals: Submittals shall be made in accordance with requirements specified herein and in other Divisions of the Specifications. See also the Contract General Conditions for additional requirements; especially those regarding requests for alternatives or equals and for substitutions.
 - 1. All required submittals, with the exception of O&M manuals, close-out submittals, and mock-ups required to be installed concurrent with specific construction activities, shall be submitted within 90 calendar days after Notice to Proceed.
 - 2. It shall be the sole responsibility of the contractor to obtain approval from the AHJ for rated assemblies, fire, life, safety systems, and other items as required by the AHJ. The contractor shall not delegate this responsibility to the Owner, or Subcontractor.

- a. The contractor shall provide a Table of Contents for submittal packages that include Fire Life Safety (FLS) items with non-FLS items. Table of Contents to denote the specific pages that have the fire-rated data sheets and documentation from the listing agency on them. Include on each page header of the rated items in the package. The contractor shall not delegate this responsibility to the Owner, or Subcontractor. Submittals received without a Table of Contents will be returned and marked "Not Reviewed".
- B. Contractor Coordination of Submittals: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
 2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Architect will return without action submittals requiring coordination with other submittals until related submittals are coordinated.
- C. Submittal Log: Prior to proceeding with affected work, Contractor shall prepare and submit a Submittal Log, which lists submittal items per the product specifications for review and approval by University's Representative and Architect. Contractor shall allow seven (7) calendar days for Trustees review. Submittal Log shall identify all specified submittals to be made and shall serve as checklist for submittals.
 1. Maintain accurate submittal log for duration of Contract. Indicate current status of all submittals at all times. Submit log at progress meeting and as otherwise requested by University Representative or Architect.
 2. Format shall be suitable for Project and shall be subject to acceptance by University's Representative and the Architect. Comply with directions by University's Representative and the Architect for scope and format of Submittals List.
 3. Submittals list shall include the following submittal types and headings:
 - SD = Shop Drawings are required
 - PD = Product Data required
 - SA = Samples required
 - CO = Color samples required
 - SS = Site Sample installations are required
 - LM = List of Materials
 - RD = Record Drawings required

- CE = Certificates are required
 PR = Manufacturer's instructions or specifications required
 OM = Operation and Maintenance manuals are required
 EQ = Maintenance materials/equipment are required
 WA = Warranties and/or guarantees are required
 LR = Laboratory Reports are required
 FT = Factory Test reports are required
 ST = Site Test reports required
 RP = Submittal to the Architect for record purposes only and not for review or approval
 O = Other submittal requirements as specified in Section

2. Sample Table:

<u>Section</u>	<u>S</u> <u>D</u>	<u>P</u> <u>D</u>	<u>S</u> <u>A</u>	<u>C</u> <u>O</u>	<u>S</u> <u>S</u>	<u>L</u> <u>M</u>	<u>R</u> <u>D</u>	<u>C</u> <u>E</u>	<u>P</u> <u>R</u>	<u>O</u> <u>M</u>	<u>E</u> <u>Q</u>	<u>W</u> <u>A</u>	<u>L</u> <u>R</u>	<u>F</u> <u>T</u>	<u>S</u> <u>T</u>	<u>R</u> <u>P</u>	<u>O</u>
05 12 00	x					x											
09 25 00		x			x	x		x					x		x		
10 81 00		x	x														

- D. Transmission of Submittals: Submittals shall be processed electronically (with exceptions such as product and material samples or otherwise designated or approved by the University Representative). Transmit all submittals from Contractor to Architect via Electronic Project Management (EPM) system, unless otherwise directed, using a transmittal form for each one. Submittals received from sources other than the Contractor will be returned without action. Include all information specified below for identification of submittal and for monitoring of review process.

1. Architect will provide example Letter of Transmittal, if requested.
2. Submittals shall be concurrently made available via EPM to University's Representative for review.

- E. Timing of Submittals: Make submittals sufficiently in advance of construction activities to allow shipping, handling and review by the Architect and Architect's consultants. Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

1. The Architect will make desired corrections and consolidate relevant Trustees comments within fifteen (21) calendar days and return the submittal to the Contractor via EPM system.

Submittals, which require coordination with other submittals, may require more than fifteen (21) calendar days review time. Submittals that require selection of colors will be reviewed. Color selection may not be provided until all submittals requiring color selection have been received and reviewed, and color selections have been approved by the Trustees.

2. Make corrections required by the Architect and submit via EPM system for final review and distribution.
3. If an intermediate submittal is necessary, process the same as the initial submittal.
4. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

F. Submittals Identification:

1. Provide a space on all submittals electronically approximately four-inches by five-inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken. Include the following information on the label for processing and recording action taken:
 - a. Project name and Trustees project number
 - b. Submission date
 - c. Name and address of Architect
 - d. Name and address of Contractor
 - e. Name and address of subcontractor
 - f. Name and address of supplier
 - g. Name of manufacturer
 - h. Number and title of appropriate Specification Section
 - i. Drawing number and detail references, as appropriate.
2. Identify each element on submittal by reference to Drawing sheet number, detail, schedule, room number, assembly or equipment number, Specifications article and paragraph, and other pertinent information to clearly correlate submittal with Contract Drawings. On the submittal transmittal form or separate sheet record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information submitted complies with requirements of the Contract Document. The Architect's review of such submittals or shop drawings or product data shall not relieve the Contractor of responsibility for deviations from the drawings or specifications.
3. Identify each submittal by Specification Section number followed by a number indicating sequential submittal for that Section. Resubmittals shall use same number as original submittal, followed by a letter indicating sequential resubmittal. For example:

- 09 26 13-01-01 First submittal for Section 09 26 13 - Gypsum Veneer Plastering.
- 09 26 13-02-01 Second submittal for Section 09 26 13 - Gypsum Veneer Plastering.
- 09 26 13-02-02 Resubmittal of second submittal for Section 09 26 13 - Gypsum Veneer Plastering.
- 09 26 13-02-03 Second resubmittal of second submittal for Section 09 26 13 - Gypsum Veneer Plastering.

4. Place a permanent label or title block on each submittal electronically for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
- G. Grouping of Submittals: Unless otherwise specifically permitted by the Owner, make all submittals in groups containing all associated items. The Owner may reject partial submittals as incomplete or hold them until related submittals are made.
- H. Unsolicited Submittals: Unsolicited submittals may be returned without being reviewed.
- I. Record Submittals: When record submittals are specified, submit in accordance with the Electronic Project Management System requirements. Record submittals will not be reviewed but will be retained for historical and maintenance purposes.
- J. Revisions: Revisions to original submittal list and schedule will only be accepted by University Representative and Architect when revisions are required by circumstances not reasonably anticipated by Contractor during preparation of original schedule. Submit revisions not later than 20 calendar days following the date that the need for revision became necessary.

1.6 CONSTRUCTION PROGRESS SCHEDULE SUBMITTAL

- A. Submit as specified in the Contract General Conditions under Schedule and Section 01 32 26 for Construction Progress Documentation.

1.7 CONTRACTOR'S REVIEW OF SUBMITTALS

- A. Contractor's Review of Submittals: Prior to submission to Architect for review, Contractor shall review each submittal for completeness and conformance to specified requirements. Contractor shall stamp each submittal with a review action stamp and sign each copy of submittal. Submittals without stamp and signature will not be reviewed and will be returned. Electronic signatures are acceptable but will need to be authenticated during the submittal process. Contractor's submittal action stamp shall certify the following actions by Contractor:
1. Field measurements have been determined and verified.
 2. Conformance with requirements of Contract Drawings and Specifications is confirmed.

3. Catalog numbers and similar data are correct.
4. Work being performed by various subcontractors and trades is coordinated.
5. Field construction criteria have been verified, including confirmation that information submitted has been coordinated with the work being performed by others for University and actual site conditions.
6. All deviations from requirements of Drawings and Specifications have been identified and noted.
7. Contractor shall certify that submittals have been reviewed and approved:

Stamp Submittals utilizing the following language verbatim:

"The undersigned certifies this submittal has been reviewed and approved with respect to the means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incidental thereto; and also warrants that this submittal complies with the Contract Documents and comprises no variation thereto.

Signature:_____Date:_____
Name Printed:_____Title_____
Contractor Name:_____

8. Submittals not certified by being stamped and signed by Contractor will be returned without action, as will submittals which, in University Representative's or Architect's opinion, have not been adequately reviewed and coordinated by Contractor.
- B. Changes in Work: Changes in the Work shall not be authorized by submittal review actions. No review action, implicit or explicit, shall be interpreted to authorize changes in the Work. Changes shall only be authorized by separate written direction from the University Representative, in accordance with the Contract General Conditions.
- C. Allow sufficient review time so that installation will not be delayed as result of time required to process submittals, including time for resubmittals.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related elements of Work so processing will not be delayed by need to review submittals concurrently for coordination.
 - a. University Representative and Architect reserve right to withhold action on submittal requiring coordination with other submittals until related submittals are received.
 3. Allow additional time if processing must be delayed to permit coordination with subsequent submittals.
 4. If intermediate submittal is necessary, process same as initial submittal.
 5. Allow same time for reprocessing each submittal as allowed for processing original submittal.
 6. No extension of Contract Time will be authorized because of failure to transmit submittals to University Representative sufficiently in advance of Work to permit processing.
- D. Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to University Representative using Submittal Transmittal form attached at the end of this section.
1. Submittals received from sources other than Contractor will be returned without action.
 2. Number each submittal and resubmittal as indicated in approved Submittal Schedule.
 3. Submittals forwarded without a completed Submittal Transmittal form will be returned without review.
 4. Submittals shall be submitted electronically unless they are related to materials and products.

1.8 REVIEW OF SUBMITTALS BY UNIVERSITY'S REPRESENTATIVE AND ARCHITECT

- A. Review of Submittals by University's Representative and Architect: Submittals shall be a communication aid between Contractor and Architect by which interpretation of Contract Documents requirements may be confirmed in advance of construction.
1. Reviews by University's Representative, Architect and Architect's consultants shall be only for general conformance with the design concept of the Project and general compliance with the information given in the Drawings and Specifications.
 2. The Architect's review shall not be construed as an "approval," or to relieve the Contractor(s) and material suppliers of responsibility for errors or omissions in the submitted documents.
 3. Acceptance of a specific item does not include acceptance of the assembly of which the item is a component.

4. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly via EPM system.
- B. Review Action: Architect will stamp each submittal with a uniform, self-explanatory action stamp.
1. Stamp will be appropriately marked as follows to indicate the action taken:
 - a. Action 1 (no exception taken): Means fabrication, manufacture, or construction may proceed providing submittal complies with Contract Documents.
 - b. Action 2 (make corrections noted; no resubmission required): Means fabrication, manufacture, or construction may proceed providing submittal complies with Architect's notations and Contract Documents. (Note: If Contractor cannot comply with notations, make revisions and resubmit.)
 - c. Action 3 (make corrections noted; submit corrected copy): Means fabrication, manufacture, or construction may proceed; however, submittal did not fully demonstrate full extent of all conditions, details and coordination with other surrounding work and therefore requires additional information and rework as noted. Resubmit shop drawings for final Action 1 or 2. Should Contractor proceed with fabrication, manufacturing or construction, it shall do so at its own risk.
 - d. Action 4 (rejected, revise and resubmit): Means submittal does not comply with design intent of Contract Documents. Do not use submittals stamped Action 3. Make revisions and resubmit.
 - e. Action 5 (rejected, submit specified item): Means submittal varies from specified item or system specified in Contract Documents and is not acceptable for use on the project. Do not use submittals stamped Action 4. Make revisions and resubmit.
 - f. Action 6 (resubmit with related assembly items): Means submittal of related assembly item(s) are required in conjunction with the submittal for proper review.
 - g. Action 7 (rejected; incorrect transmittal): Means the Submittal

Transmittal form specified for use on the Project was not included, incomplete, or incorrectly completed.

- h. Action 8 (No Action): Means documents have not been reviewed by Architect and submittal is returned to Contractor for several possible reasons: submittal not requested, submittal not complete, submittal not coordinated, or submittal bears no resemblance to design intent.
 - i. Action 9 (submitted to consultant for review): This code is for the use of the Architect to indicate routing to various A/E consultants. Any submittals marked Action 6 by Architect will be returned to Contractor without review.
 - j. Record Submittals: Specifications require certain information and calculations be submitted for record purposes only. Such submittals will not be acted upon, stamped or returned to Contractor.
- 2. Do not permit submittals marked "Rejected, Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
 - 3. Note: Any work performed prior to receiving a fully approved submittal shall be done at the Contractor's risk and shall be subject to being replaced if Contract requirements are not met.

C. Contract Requirements:

- 1. Review actions by Architect and Architect's consultants shall not relieve the Contractor from compliance with requirements of the Contract Drawings and Specifications.
 - a. Acceptance of submittals with deviations shall not relieve Contractor from responsibility for additional costs of changes required to accommodate such deviations.
 - b. Deviations included in submittals without prior acceptance will be considered an exception from review of submittals whether noted or not on returned copy.

***** *DELETE PARAGRAPH BELOW AND RETAIN FOLLOWING PARAGRAPH IF CAMPUS CONSTRUCTION MANAGER IS NOT INVOLVED IN PROJECT.*

- 2. No review action, implicit or explicit, shall be interpreted to authorize changes in the Work. Changes shall only be authorized by separate written Change Order or Field Instruction, in accordance with the Contract General Conditions.

3. When professional certification of performance criteria of materials, systems or equipment is required by Contract Documents, University Representative and Architect shall be entitled to rely upon accuracy and completeness of such calculations and certifications.
 4. Notations by University Representative or Architect which increase contract cost or time of completion shall be brought to University Representative's and Architect's attention before proceeding with Work.
- D. Resubmittals:
1. Subject to same terms and conditions as original submittal.
 2. University Representative and Architect will accept not more than one resubmittal.
 - a. Should additional resubmittals be required, Contractor shall reimburse Trustees for University Representative and Architect's accounts for time spent in processing additional resubmittals at rate of 2.5 times rate of Direct Personnel Expense (DPE). Direct Personnel Expense is defined as direct salaries of University Representative's and Architect's personnel engaged on Project and portion of costs of mandatory, and customary contributions and benefits related thereto, including employment taxes and other statutory employee benefits, insurance, sick leave, holidays, vacations, pensions, and similar contributions and benefits.

1.9 PRODUCT DATA SUBMITTALS

- A. Product Data: Catalog cuts, photographs, illustrations, standard details, standard schedules, performance charts, material characteristics, color and pattern charts, test data, roughing-in diagrams and templates, standard wiring diagrams and performance curves and listings by Code authorities and nationally-recognized testing and inspection services. Where product data must be specially prepared because standard manufacturer data is not suitable for use, submit according to requirements for shop drawings specified below.
1. "Commodity Letters" are not permitted and will not be accepted by the University in lieu of a formal submittal. The contractor shall provide Product Data Submittals in accordance within this specification section 01 33 00 SUBMITTAL PROCEDURES.
- B. Modifications to Standard Product Data: Modify manufacturer's standard catalog data to indicate precise conditions of the Project.
1. Provide space for review action stamps and, if required by authorities having jurisdiction, license seal of Engineer and/or design consultant, if applicable.
 2. Mark each copy to show applicable choices and options. Where manufacturer's product

data includes information on several products, some of which are not required, mark copies to highlight applicable information.

3. Include the following information:
 - a. Manufacturer's literature with recommendations,
 - b. Compliance with recognized trade association standards,
 - c. Compliance with recognized testing agency standards,
 - d. Application of testing agency labels and seals,
 - e. Notation of dimensions verified by field measurement,
 - f. Notation of coordination requirements,
 - g. Environmental Product Declaration (EPD)'s information.

Environmental Product Declaration: Independently verified document created and verified in accordance with International Organization for Standardization (ISO) 14025 for Type III environmental declarations that identifies the global warming potential emissions of the facility- specific material or product through a product stage life cycle assessment.

The legislation was introduced as Assembly Bill (AB) 262. It targets the embedded carbon emissions of certain construction materials used in public works projects. AB 262 requires that these materials have a global warming potential that falls below a limit set by the Department of General Services.

The following materials or products are subject to the Buy Clean California Act, and shall have EPD's submitted for all products listed below:

Material or product	.Material specifications: CSI Unifomat
Carbon steel rebar	Section 03 20 00, "Bar Reinforcement"
Structural steel	Section 05 12 00, "Structural Steel"
Flat glass	Section 08 80 00, "Glazing"
Mineral wool board insulation	Section 07 21 13.19 "Mineral Board Insulation"

4. Do not submit product data until compliance with requirements of the Contract Documents has been confirmed.
5. Proceed with installation only using reviewed copy of product data with appropriate action stamp as indicated in Section 1.8 B1 above. Do not permit use of unmarked copies of product data in connection with construction.

- C. Copies: Submit electronic copies of catalog pages with applicable data highlighted and cross-referenced to Drawings and Specifications requirements. Paper copies may be reproduced however, will not be acceptable replacement of an electronic submittal unless specifically authorized by the University Representative. Distribution of approved submittals shall be electronic unless otherwise noted.

1.10 SHOP DRAWINGS SUBMITTALS

- A. Shop Drawings: Drawings, diagrams, schedules and other graphic depictions to illustrate fabrication and installation of a portion of the Work. Shop Drawings shall include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
 - 1. Identification of products and materials included
 - 2. Compliance with referenced standards
 - 3. Notation of coordination requirements
 - 4. Dimensions
 - 5. Notation of dimensions established by field measurement.
- B. Coordination: Show all field dimensions and relationships to adjacent or critical features of Work.
- C. Preparation of Shop Drawings: Prepare and submit electronically newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- D. All shop drawings shall include the contractor's license and the name and signature of the drafter.
 - 1. Provide space for review action stamps and, if required by governing authorities having jurisdiction, license seal of Architect and Architect's design consultant, if applicable.
 - 2. Prepare shop drawings submitted in electronic format that shall be printable on minimum sheet size of 17-inches by 22-inches, or smaller if a multiple of 8-1/2 inches by 11-inches. Maximum size shall be 30-inches by 42-inches.
 - 3. Except as otherwise approved by the University Representative, submit all shop drawings

electronically using the Contractor's Electronic Project Management system.

4. Do not use Shop Drawings without an appropriate final review stamp indicating action taken in connection with construction.
- D. Distribution of Reviewed Shop Drawings: Electronic distribution of reviewed shop drawings will be by Contractor and must be stamped by the Architect.

1.11 SAMPLE SUBMITTALS

- A. Samples: Full-size, fully-fabricated samples cured and finished as specified and physically identical with the material or product proposed. Samples shall include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to include the following:
 - a. Project name and location
 - b. Manufacturer and supplier.
 - c. Name, finish, and composition of material.
 - d. Location where material is to be used.
 - e. Specification Section number.
 - f. Submittal number.
 - g. Contractor's review stamp.
 - h. Space for Architect's review stamp.
 - i. Compliance with recognized standards
 - j. Availability and delivery time.
 2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

3. Submit actual samples. Photographic or printed reproductions will not be accepted.
 4. Field samples specified in individual Sections are special types of samples. Field samples shall be full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be evaluated.
- B. Preliminary or Selection Submittals: Where samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit full set of choices for the specified material or product.
1. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.
- C. Quantity: Except for samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit three sets. One sample will be returned marked with the action taken.
1. Maintain sets of samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
 2. Unless otherwise noted, full-size and complete samples will be returned and may be incorporated into field mock-ups. Samples may be incorporated into the Work (completed construction) only with written approval of the Architect and the University Representative in advance of sample preparation.
 3. Other samples shall be produced and mounted on cardstock in 8-1/2" by 11" format, three-hole punched and suitable for inclusion in product sample binders. Contractor shall provide binders as directed.
 4. Contractor shall prepare and distribute additional samples to subcontractors, manufacturers, fabricators, suppliers, installers, and others as necessary for performance of the Work.
 5. Accepted samples will form standard of comparison for finished Work. Defects and deviations in excess of those in accepted samples, are unacceptable and are subject to rejection of completed Work.
- D. Color Samples: Architect will review and select colors for Project only after all colors are received, so that colors may be properly coordinated.
- E. Review of Field Samples: Review by Architect of field samples will be made for the following products if not otherwise required and if requested by Contractor.

THE FOLLOWING ARE EXAMPLES. EDIT TO SUIT ACTUAL PRODUCTS USED FOR PROJECT.

1. Casework.
2. Portland cement concrete paving: Trowel finish, imprinted texture, colors, abrasive blasting, exposed aggregate and acid washing.
3. Exterior plaster finish color and texture.
4. Gypsum board textures and finishes.
5. Gypsum plaster textures and finishes.
6. Field-applied paint colors and finishes: Draw-downs and brush-outs.
7. [____].

1.12 MANUFACTURER'S INSTRUCTIONS

- A. Manufacturer's Instructions: Submit manufacturer's instructions for preparation, mixing, assembly, handling, application and installation of products, as applicable and as specified in product sections of the Specifications.
 1. Include applicable ICBO ES Evaluation Reports. Evaluation Reports shall be current and shall be annotated for applicable products.
 2. Include applicable Safety Data Sheets (SDS), for Project record only.
 3. Include written recommendations, as applicable, from manufacturer for Project conditions.
 4. Identify conflicts between manufacturers' instructions and Contract Documents.
- B. Copies: Electronic distribution will be required. If requested and agreed to by the University Representative, copies may be distributed as necessary.
- C. Reviews by Architect and University's Representative: Manufacturer's instructions shall be for information and will not be reviewed by Architect or University's Representative. Contractor shall be responsible for proper coordination and installation of product or material specified.

1.13 REPORTS OF RESULTS OF INSPECTIONS AND TESTS

- A. Reports of Results of Inspections and Tests: Submit technical data, test reports, calculations,

surveys, and certifications based on field tests and inspections by independent inspection and testing agency and by authorities having jurisdiction.

1. Reports of results of inspections and tests shall not be considered Contract Documents.
2. Refer to Section 01 45 00 - Quality Control for additional requirements.

1.14 OPERATION AND MAINTENANCE DATA SUBMITTALS

- A. Operation and Maintenance Data Submittals: Refer to requirements specified in Section 01 78 23 - Operation and Maintenance Data. Include operation and maintenance data submittals in Construction Progress Schedule. Refer to Contract General Conditions.

1.15 CERTIFICATES

***** *DELETE PARAGRAPH BELOW AND RETAIN FOLLOWING PARAGRAPH IF CAMPUS CONSTRUCTION MANAGER IS NOT INVOLVED IN PROJECT.*

- A. When specified in individual specification Sections, submit manufacturers' certificates to Architect through Electronic Project Management system for review as specified.

***** *DELETE PARAGRAPH BELOW AND RETAIN PREVIOUS PARAGRAPH IF CAMPUS CONSTRUCTION MANAGER IS INVOLVED IN PROJECT.*

- B. Submit in form of letter or company standard forms, signed by officer of manufacturer.
- C. Each certification shall include the following:
 1. Project name and location.
 2. Contractor's name and address.
 3. Quantity and date or dates of shipment or delivery to which certificate applies.
 4. Manufacturer's name.
- D. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

***** *DELETE PARAGRAPH BELOW AND RETAIN FOLLOWING PARAGRAPH IF CAMPUS CONSTRUCTION MANAGER IS NOT INVOLVED IN PROJECT.*

- E. Certificates may be recent or previous test results on material or product, but must be acceptable to University Representative and Architect.

***** *DELETE PARAGRAPH BELOW AND RETAIN PREVIOUS PARAGRAPH IF CAMPUS CONSTRUCTION*

MANAGER IS INVOLVED IN PROJECT.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION 01 33 00

SECTION 01 34 00 - REQUESTS FOR INTERPRETATION (RFI)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Procedures for submitting requests for interpretation (RFI).
- B. Limitations on use of RFI to obtain interpretation and clarification.

1.3 RELATED SECTIONS

- A. Section 01 31 00 - Coordination: Requirements for organizing and coordinating the Work.
- B. Section 01 33 00 - Submittals Procedures: Restriction on use of submittals for changes in materials, products, equipment and systems.
- C. Section 01 63 00 - Product Substitution Procedures: Procedures for requesting substitutions of materials, products, equipment and systems.

1.4 DEFINITIONS

- A. Request for Interpretation: A document submitted by the Contractor requesting clarification of a portion of the Contract Documents, hereinafter referred to as an RFI.

1.5 PREBID REQUESTS FOR INTERPRETATION (PREBID RFIS)

- A. Bidders shall use the enclosed form titled, See Exhibit A "Request for Interpretation of Contract Documents During Bid." to submit written requests for interpretation or corrections by e-mail or fax to the University:

Cal Poly State University
Attn: [Project Manager Name]
E-mail: [\[email\]@calpoly.edu](mailto:[email]@calpoly.edu)

- B. To expedite the interpretation process, interpretations will be e-mailed to bidders as addenda.

- C. Information shall be printed or typed including: Company name, address, phone, Email address, contact person, date, time of request, and question or clarification.
- D. If bidders have several questions that will not fit on one form, submit additional pages, numbering each page.
- E. Deadline for Requests for Interpretation during bid period: Requests for interpretation shall be received by the Trustees not later than ten (10) calendar days before the date bids will be opened.
- F. The person submitting the request shall be responsible for its delivery.

1.6 CONTRACTOR'S REQUESTS FOR INTERPRETATION (RFIs) POST AWARD

- A. Contractor's Requests for Interpretation (RFIs): Should Contractor be unable to determine from the Contract Documents the exact material, process, or system to be installed; or when the elements of construction are required to occupy the same space (interference); or when an item of Work is described differently at more than one place in the Contract Documents; the Contractor shall request that the Architect make an interpretation of the requirements of the Contract Documents to resolve such matters. Contractor shall comply with procedures specified herein to make Requests for Interpretation (RFIs).
 - B. Submission of RFIs: RFIs shall be prepared and submitted electronically utilizing the Electronic Project Management System. Refer to specification section 01 32 00. *[IF IS NOT USED – REVISE THIS SECTION]*
 - 1. Forms shall be completely filled in, and if supplemental drawings or other information is prepared by hand, it shall be fully legible.
 - 2. Each RFI shall be given a discrete, consecutive number. Revised RFI shall include the original number with the addition of a decimal and subsequent revision number. For instance, Revision #1 to RFI 029 should be noted as RFI 029.1.
 - 3. Each page of the RFI and each attachments to the RFI shall bear the University's project name, project number, date, RFI number and a descriptive title.
 - 4. Contractor shall attest to good faith effort to determine from the Contract Documents the information requested for interpretation. Frivolous RFI or simply passing on the RFI to the University without first vetting the RFI shall be subject to reimbursement from Contractor to University for fees charged by University, the Architect, Architect's consultants and other design professionals engaged by the University.
 - C. Subcontractor-Initiated and Supplier-Initiated RFIs: RFIs from subcontractors and material suppliers shall be submitted through, be reviewed by and be attached to an RFI prepared, signed
- REQUESTS FOR INTERPRETATION (RFI) 01 34 00 - 2

and submitted by Contractor. RFIs submitted directly by subcontractors or material suppliers will be returned unanswered to the Contractor.

1. Contractor shall review all subcontractor- and supplier-initiated RFIs and take actions to resolve issues of coordination, sequencing and layout of the Work. Coordination of the work, sequence and layout are not the responsibility of the University or Architect.
 2. RFIs submitted to request clarification of issues related to means, methods, techniques and sequences of construction or for establishing trade jurisdictions and scopes of subcontracts will be returned without interpretation. Such issues are solely the Contractor's responsibility.
 3. Contractor shall be responsible for delays resulting from the necessity to resubmit an RFI due to insufficient or incorrect information presented in the RFI.
- D. Requested Information: Contractor shall carefully study the Contract Documents, in particular, Article 5 of the Contract General Conditions, to ensure that information sufficient for interpretation of requirements of the Contract Documents is not included. RFIs that request interpretation of requirements clearly indicated in the Contract Documents will be returned without interpretation.
1. In all cases in which RFIs are issued to request clarification of issues related to means, methods, techniques and sequences of construction, for example, pipe and duct routing, clearances, specific locations of Work shown diagrammatically, apparent interferences and similar items, the Contractor shall furnish all information required for the Architect or University's Representative to analyze and/or understand the circumstances causing the RFI and prepare a clarification or direction as to how the Contractor shall proceed.
 2. If information included with this type RFI by the Contractor is insufficient, the RFI will be returned unanswered.
- E. Unacceptable Uses for RFIs: RFIs shall not be used to request the following:
1. Approval of submittals (use procedure specified in Section 01 33 00 - Submittals Procedures)
 2. Approval of substitutions (refer to Section 01 63 00 - Product Substitution Procedures)
 3. Changes that entail change in Contract Time and Contract Sum (comply with provisions of the Contract General Conditions, as discussed in detail during pre-construction meeting)
 4. Different methods of performing Work than those indicated in the Contract Drawings and Specifications (comply with provisions of the Contract General Conditions).

- F. Disputed Requirements: In the event the Contractor believes that a clarification by the University's Representative results in additional cost or time, Contractor shall comply with Article 5 of the Contract General Conditions.
- G. RFI Log: The Electronic Project Management System will maintain a log of RFIs. Only the University may close any outstanding RFI.
- H. Review Time: Architect will return RFIs to Contractor and University's Representative within seven calendar days of receipt. RFIs received after 12:00 noon shall be considered received on the next regular working day for the purpose of establishing the start of the seven-calendar day response period. Additional time shall be granted depending on the complexity of the request.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION 01 34 00

EXHIBIT A

CALIFORNIA POLYTECHNIC STATE UNIVERSITY

REQUEST FOR INTERPRETATION OF CONTRACT DOCUMENTS DURING BID

To: **California Polytechnic State University**

Attn: [First Last Name] ([email]@calpoly.edu,

Project: [Project title and Project Number]

Date: _____ **Time:** _____

Company: _____

Contact Person: _____

Address: _____

Telephone: _____ **Email:** _____

Plan Sheet: _____ **Specification Section:** _____

INTERPRETATION REQUESTED:

RESPONSE:

Date: _____ **Time:** _____

Company: _____

Contact Person: _____

INTERPRETATION:

SECTION 01 35 00 - Special Procedures

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

1. Environmental protection procedures
2. Smoke/odor control procedures
3. Noise control procedures
4. Dust and air pollution control procedures
5. Hazardous materials procedures
6. Welding and burning mitigation procedures
7. Erosion and sediment control procedures (Storm Water Pollution Protection Plan)
8. Disposal operations procedures
9. Cultural resources procedures
10. Alteration project procedures.

1.3 RELATED SECTIONS

- A. Section 01 73 29 - Cutting and Patching: General requirements for procedures and limitations for cutting and patching the work.

1.4 SUBMITTALS

- A. Refer to Section 01 33 00 – Submittal Procedures
- B. Environmental Protection Plan – Submit within 30 days of commencement in Notice to Proceed.

- C. State Water Pollution Prevention Plan (SWPPP): Submit Notice of Intent to the Regional Water Quality Control Board (RWQCB) with copies to Trustees Representative and Campus Environmental Health and Safety.
- D. Submit notification in writing to the San Luis Obispo County Air Pollution Control District (SLOAPCD) with a copy to the Trustees Representative, 10 days prior to the start of Demolition.
- E. Submit notification in writing to the San Luis Obispo County Air Pollution Control District (SLOAPCD) with a copy to the Trustee's Representative, 14 days prior to the start of road construction.

1.5 ENVIRONMENTAL PROTECTION REQUIREMENTS AND PROCEDURES

- A. Environmental Permit Management and Compliance: The Contractor is solely responsible for all aspects of environmental permitting throughout the project lifecycle. This includes, but is not limited to:
 - 1. Identifying and obtaining all required permits
 - 2. Preparing and submitting permit applications
 - 3. Developing associated plans and documentation
 - 4. Ensuring ongoing compliance with permit conditions
 - 5. Conducting all required inspections and reporting
 - 6. Arranging and funding any mandated biological monitoring
 - 7. Paying all permit fees

The Contractor must include Cal Poly Environmental Health and Safety (EHS) along with the Cal Poly Representative in all permit-related processes, including application reviews, agency submissions, and compliance activities. Timely communication with Cal Poly EHS is essential to ensure proper oversight and institutional awareness of all environmental obligations.

- B. Environmental Protection Requirements and Procedures, General: Requirements specified in this Section are in addition to those of Article 4.03 of the Contract General Conditions.
 - 1. During the progress of the work, keep the premises in a neat and clean condition and protect the environment from potentially polluting construction activities both on site and off site, throughout and upon completion of the construction project.
 - 2. In coordination with the Campus, develop an Environmental Protection Plan in detail and submit to University's Representative for approval within 30 calendar days from the date of commencement specified in the Notice to Proceed. Distribute approved plan to all employees and to all subcontractors and their employees. Environmental Protection Plan

shall include, but not be limited to, the following items:

- a. Copies of required permits
- b. Proposed sanitary landfill site
- c. Other proposed disposal sites
- d. Noise Control
- e. Dust Control
- f. Erosion and Sediment Control
- g. Copies of any agreements with public or private landowners regarding equipment, materials storage, borrow sites, fill sites, or disposal sites. Such agreements made by Contractor shall be invalid if their execution causes violation of local or regional grading or land use regulations.

C. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects may result.

1. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize disruptions to the general public, staff and students near the site.
2. Comply with noise control requirements specified below.

D. Construction Operations: All construction operations shall comply with all applicable Federal, State and local Codes, ordinances, statutes and regulations pertaining to water, air, solid waste and noise pollution. It shall be Contractor's responsibility to identify and determine necessary measures to be taken to comply with such Codes, ordinances, statutes and regulations.

E. Definitions of Contaminants:

1. Sediment: Soil and other debris that have been eroded and transported by runoff water
2. Solid waste: Rubbish, debris, garbage and other discarded solid materials resulting from construction activities, including a variety of combustible and non-combustible wastes, such as ashes, waste materials that result from construction or maintenance and repair work, leaves and tree trimmings
3. Chemical waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, disinfectants, organic chemicals and inorganic wastes. Some of the above may be classified as "hazardous"
4. Sanitary wastes:
 - a. Sewage: Domestic sanitary sewage

- b. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing and consumption of food.
- F. Hazardous Materials: See also Section below titled "HAZARDOUS MATERIALS PROCEDURES."
 - 1. Except as otherwise specified, in the event the Contractor encounters on the site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), lead containing/based paint or other hazardous materials which have not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Trustees in writing.
 - 2. Work in affected areas shall not thereafter be resumed except by written agreement of the Trustees and Contractor if in fact the material is asbestos, PCB, lead containing/based paint or other hazardous materials and has not been rendered harmless.
 - 3. Work in affected areas shall be resumed in the absence of asbestos, PCB, lead containing/based paint or other hazardous materials, or when such materials have been rendered harmless.
- G Protection of Natural Resources: It is intended that the natural resources within the Project boundaries and outside the limits of permanent work performed under this Contract be preserved in their existing condition or be restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the public roads, easements, and work area limits shown on the drawings. Return construction areas to their pre-construction elevations except where surface elevations are otherwise noted to be changed. Maintain natural drainage patterns. Conduct construction activities such that ponding of stagnant water conducive to mosquito breeding habitat will not occur at any time.
 - 1. Land resources protection: Do not remove, cut, deface, injure or destroy trees or shrubs outside the work area limits. Do not remove, deface, injure or destroy trees within the Project area without permission from University's Representative. Such improvements shall be removed and replaced, if required, by the Contractor at no change in Contract Time and Contract Sum.
 - 2. Landscaping protection: Protect trees that are located near the limits of Project area which may possibly be defaced, bruised or injured or otherwise damaged by the Contractor's operations. No ropes, cables or guys shall be fastened to or be attached to any existing nearby trees or shrubs for anchorages. Refer to additional requirements specified in Section 01 56 00 - Temporary Barriers and Controls.
 - a. Trimming: Refer to Section 01 56 69 - Tree and Plant Protection.
 - b. Excavations around trees: Refer to Section 01 56 69 - Tree and Plant Protection.
 - c. Repair and restoration: Repair or replace trees or other landscape feature scarred or damaged by equipment or construction operations as specified below. Repair and

restoration plan shall be reviewed and approved by University's Representative prior to its initiation.

3. Temporary construction:
 - a. Remove all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction as directed by the University's Representative.
 - b. Level all temporary roads, parking areas and any other areas that have become compacted or shaped.
 - c. Unpaved areas where vehicles have been operated shall receive suitable surface treatment or shall be periodically wetted down to prevent construction operations from producing dust damage and nuisance to persons and property, at no additional cost to the Trustees.
 - d. Keep haul roads clear at all times of any object that creates an unsafe condition. Promptly remove any contaminants or construction materials dropped from construction vehicles. Do not drop mud and debris from construction equipment on public streets. Sweep clean turning areas and pavement entrances as necessary.
4. Water resources: Comply with all applicable Federal, State and local Codes, ordinances, statutes and regulations pertaining to discharge (directly or indirectly) of pollutants to underground and natural waters.
 - a. Perform all Work under the Contract in a manner that any adverse environmental impacts are reduced to a level that is acceptable to University's Representative and authorities having jurisdiction.
 - b. Refer to 01 35 00, 1.11 SWPPP, EROSION AND SEDIMENT CONTROL PROCEDURES, earthwork Sections, and Civil Drawings for specific requirements on control of Stormwater and disposal of water from dewatering activities.
5. Sanitary Sewer Discharge Compliance: All discharges to Cal Poly's sanitary sewer system must strictly adhere to the requirements outlined in the campus' Significant Industrial User/Sewer Discharge Permit. Contractors are responsible for reviewing and complying with the current permit conditions, which are available on the Cal Poly Environmental Health and Safety (EHS) website (https://afd.calpoly.edu/ehs/docs/CalPoly_SIU.pdf). Any project-related discharges must be evaluated against these requirements prior to release. Contractor must consult with Cal Poly EHS before initiating any non-standard discharges to ensure compliance and prevent potential permit violations. Contractor must contact Cal Poly EHS a minimum of 21 days in advance of any planned discharge to allow sufficient time for review, approval, and implementation of any necessary treatment or best management practices. The proposed discharge work plan shall be submitted to EH&S and the Cal Poly representative per 01 33 00 Submittal Procedures.
6. Storm Drain Discharge Restrictions: All discharges to the campus storm drain system are prohibited without prior review and explicit approval from the Cal Poly Environmental

Health and Safety (EHS) department. This restriction applies to all types of water, including potable water. All potable water discharged to the campus storm drain system during testing, maintenance, or other authorized activities must be dechlorinated at the point of discharge. Due to the proximity of Stenner Creek and Brizzolara Creek, only ascorbic acid based dechlorination tablets or solutions shall be used; sodium-based dechlorinating agents (including sodium sulfite, sodium bisulfite, or sodium thiosulfate) are prohibited. All discharges must be controlled to prevent erosion and scour, with discharge activities planned to minimize total volume released to the storm system. Where feasible, water should be directed to landscaped areas or other permeable surfaces.

Key points:

1. No water may be discharged to storm drains without EHS approval
2. Potable water must be dechlorinated prior to any approved discharge
3. All proposed discharges must be submitted to EHS for review, regardless of water source or quality
4. Approval from EHS is required to facilitate proper reporting of discharges.

Contractor must contact Cal Poly EHS a minimum of 21 days in advance of any planned discharge to allow sufficient time for review, approval, and implementation of any necessary treatment or best management practices. Proposed discharge work plan shall be submitted to EH&S and the Cal Poly representative per 01 33 00 Submittal Procedures.

7. Oily Substances: At all times, special measures shall be taken to prevent oily or other hazardous substances from entering the ground, drainage areas or local bodies of water in such quantities as to affect normal use, aesthetics or produce a measurable impact upon the areas. All soil or water that is contaminated with oily substances due to Contractor's operations shall be disposed of in accordance with applicable regulations, at no change in Contract Time and Contract Sum.

1.6 SMOKE/ODOR CONTROL PROCEDURES

- A. Smoke/Odor Control: Protect primary fresh air intakes to existing buildings from exhaust from internal combustion engines, paint and solvent fumes and other noxious fumes and vapors.
 1. Implement control methods such as snorkels from engine exhaust to within 50 feet from existing building air intakes. Provide carbon filters on air intakes as necessary, including periodic replacement of filters to ensure effectiveness.
 2. All other activities generating fumes shall be limited to minimum distance of 50 feet from air intake grilles.

3. If fume-generating procedures must occur within 50 feet of an air intake, Contractor shall do the following:
 - a. Notify University's Representative at least 14 calendar days in advance of such activities.
 - b. Perform Work when it least impacts the University (evenings, weekends or particularly windy days).
 - c. Provide carbon filter media, plastic barriers, or other control methods to ensure fresh air only enters into the building ventilation system.

1.7 NOISE CONTROL PROCEDURES

- A. Noise Control Procedures, General: Requirements of this Section are in addition to those of Article 4.03 of the Contract General Conditions. Maximum noise levels within 1,000 feet of classrooms, laboratories, residences, businesses, adjacent buildings and other populated areas:
 1. Noise levels for trenchers, pavers, graders and trucks: Not exceeding 90 dBA at 50 feet as measured under noisiest operating conditions.
 2. Noise levels for all other equipment: Not exceeding 85 dBA at 50 feet.
- B. Noise Control of Equipment:
 1. Equip jackhammers with exhaust mufflers and steel muffling sleeves.
 2. Use air compressors of a quiet type such as a "whisperized" compressor. Compressor hoods shall be closed while equipment is in operation.
 3. Use electrically-powered rather than gasoline or diesel powered fork-lifts where feasible.
 4. Provide portable noise barriers around jack hammering, with barriers constructed of 3/4 inch plywood lined with 1-inch thick ductliner type fiberglass on Work side.
- C. Noise Control of Construction Operations:
 1. Keep noisy equipment as far as possible from noise-sensitive site boundaries.
 2. Machines shall not be left idling.
 3. Use electric power in lieu of internal combustion engine power whenever possible.
 4. Maintain equipment properly to reduce noise from excessive vibration, faulty mufflers, or other sources. All engines shall have properly functioning mufflers.
- D. Scheduling of Noisy Operations: Schedule construction activities to minimize time of noisy

operations and disruption to occupants of adjoining facilities. Notify University's Representative in advance of performing Work creating unusual noise and schedule such Work at times mutually agreeable.

- E. Accessory Noise: Do not play radios, tape recorders, televisions, and other similar items at construction site.

1.8 EQUIPMENT EMISSIONS COMPLIANCE, DUST AND AIR POLLUTION CONTROL PROCEDURES

- A. Dust and Air Pollution Control Procedures, General: Requirements of this Section are in addition to those of Article 4.03 of the Contract General Conditions. Employ measures to prevent or minimize creation of dust and air pollution. Contractor shall appoint a dust control monitor to oversee and implement all measures specified in this Article.
- B. All projects utilizing emission-generating equipment and processes must exclusively use equipment registered with the California Air Resources Board (CARB) under the Portable Equipment Registration Program (PERP). This requirement applies to portable engines rated at 50 brake horsepower (bhp) or greater. Contractors are responsible for ensuring all applicable equipment on-site meets this requirement throughout the project duration
 - 1. Unpaved areas shall be wetted down, to eliminate dust formation, a minimum of twice a day to reduce particulate matter. When wind velocity exceeds 15 mph, site shall be watered down more frequently.
 - 2. Store all volatile liquids, including fuels or solvents in closed containers.
 - 3. No on-site burning of debris, lumber and other scrap shall be permitted.
 - 4. Properly maintain equipment to reduce gaseous pollutant emissions.
 - 5. Exposed areas, new driveways and sidewalks shall be seeded, treated with soil binders or paved, as appropriate, as soon as possible.
 - 6. Cover stockpiles of soil, sand and other loose materials if not currently being utilized and the the end of each work day.
 - 7. Cover trucks hauling soil, debris, sand or other loose materials.
 - 8. Sweep project area streets and walks at least once weekly or as needed to maintain a clean road or walkway. Refer to Section 01 74 00 - Cleaning Requirements.

1.9 HAZARDOUS MATERIALS PROCEDURES

A. Identified Hazardous Materials:

THE FOLLOWING IS AN EXAMPLE ONLY. DETERMINE IF HAZARDOUS MATERIAL STUDIES ARE APPLICABLE TO PROJECT AND, IF SO, IDENTIFY REPORT(S).

1. Limited hazardous materials investigations have been conducted for the University by {insert name of environmental consultant}, the results of which are in a document titled "[*TITLE*]" dated [*DATE*]. This report is furnished to Contractor as Information Available to Contractor. The report is included in the Project Manual as Appendix [____].
2. Contractor shall perform hazardous materials abatement in compliance with requirements described in the document identified above. Costs and time associated with abatement of hazardous materials identified in this report shall be included in the Contract Sum and Contract Time.
 - a. Comply with California Code of Regulations, Title 8, Sections 1529, 1532.1 and 5208.
3. Architect assumes no responsibility relating to existence of any hazardous materials, and Architect assumes no responsibility or liability for performance of Work described in the report identified above.

B. Unidentified Hazardous Materials:

1. Information regarding known asbestos containing material (ACM) is available from University's office of Environmental Health & Safety. Contact the University's Representative to request this information.
2. Except as otherwise specified, in the event that Contractor encounters on the project site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), lead containing/based paint or other hazardous materials which have not been rendered harmless, the Contractor shall immediately stop work in the area affected and report the condition to University's Representative.
3. Work in the affected area shall not be resumed except by written agreement between University and Contractor if in fact the material is asbestos, PCB, or other hazardous materials and has not been rendered harmless.
4. Work in the affected area shall be resumed in the absence of asbestos, PCB lead containing/based paint or other hazardous materials, or when such materials have been rendered harmless.

C. Notification and Disclosure: Refer to Contract General Conditions for Asbestos Notification and Disclosure requirements. Refer to [*HAZARDOUS_MATERIALS_ABATEMENT_DOCUMENT*] for

information available to Contractor.

1. In the event that hazardous materials are discovered on site during performance of the Work, Contractor shall notify the University's Representative and request directions for abatement of hazardous materials.
2. University will ensure that the identified hazardous waste and/or hazardous materials are handled and disposed in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code Division 20, Chapter 6.5).

1.10 WELDING AND BURNING MITIGATION PROCEDURES

- A. Welding and Burning Mitigation Procedures: Eliminate welding and burning of steel as much as possible. Where unavoidable, perform welding and burning with all possible precaution to avoid fire hazard. Provide a fire watch for minimum of 30 minutes after burning stops. Provide adequate protection for all adjacent surfaces.
- B. Hot work permit issued by the University is required for all activity where sparks, heat or flame are used which pose a threat to start a fire.

1.11 SWPPP, EROSION AND SEDIMENT CONTROL PROCEDURES

- A. Erosion and Sediment Control Procedures: Refer to runoff control requirements specified in Section 01 57 00 - Temporary Controls. Obtain and comply with Storm Water Pollution Protection Plan (SWPPP) and project-specific requirements indicated on Civil Drawings and Specifications.
 1. Contractor to provide the following personnel for the duration of the project until the project completion.
 - a. QSD
 - b. QSP
- B. Stormwater Management for Sub-Acre Projects: All construction projects, regardless of size, must implement stormwater Best Management Practices (BMPs). Projects disturbing less than 1 acre of land, while exempt from formal State Water Resources Control Board SWPPP submission, is required to develop and implement an erosion and sediment control plan. This plan must detail site-specific BMPs to prevent stormwater pollution and control erosion throughout the construction process.

1.12 DISPOSAL OPERATIONS PROCEDURES

- A. Solid Waste Management:

1. Supply solid waste transfer containers. Daily remove all debris such as spent air filters, oil cartridges, cans, bottles, combustibles and litter. Take care to prevent trash and papers from blowing off of the construction site. Encourage personnel to use refuse containers. Convey contents to a sanitary landfill.
 2. Washing of concrete containers where wastewater may reach adjacent property, storm drains or natural water courses will not be permitted. Remove any excess concrete to the sanitary landfill.
- B. Chemical Waste and Hazardous Materials Management: furnish containers for storage of spent chemicals used during construction operations. Dispose of chemicals and hazardous materials in accordance with applicable regulations.
- C. Garbage: Store garbage in covered containers, pick up as required and dispose of properly.
- D. Grading Spoil and Landscape Debris: Dispose of vegetation, weeds, rubble, and other materials removed by the clearing, stripping and grubbing operations off site at a suitable disposal site in accordance with applicable Federal, State and local Codes, ordinances, statutes and regulations
- E. Excavated Materials:
1. Native soil complying with the requirements of applicable Division 2 - Site Construction earthwork Section, may be used for backfill, fill and embankments as allowed in applicable by that section.
 2. Remove all material which is excavated in excess of that required for backfill. Dispose of unsuitable excavated material from the site and dispose of it legally.
 - a. Excess suitable backfill material shall be hauled off site. No additional compensation will be paid to the Contractor for such off haul. Include all such costs in the Contract Sum.
 - b. Unsuitable backfill material shall be disposed of off-site in accordance with applicable regulations, in a disposal site indicated in the Environmental Protection Plan.
 - c. Remove rubbish and materials unsuitable for backfill immediately following excavation.
 - d. Remove material in excess of that required for backfill immediately following backfill operations.

1.13 CULTURAL RESOURCES PROCEDURES

- A. Cultural Resources Procedures: Requirements specified in this Section are in addition to those required by Article 4.03 of the Contract General Conditions.
1. Project does not pass through any known archaeological sites. However, it is conceivable that unrecorded archaeological sites could be discovered during construction.

2. In the event that artifacts, human remains, or other cultural resources are discovered during subsurface excavations at locations of the Work, the Contractor shall protect the discovered items, cease work for a distance of 35 feet radius in the area, notify the Architect and University Representative and comply with applicable law.
3. Trustees may retain an Archaeologist to monitor and recover data and artifacts during period that work has ceased.
4. All items found which are considered to have archaeological significance are the property of the University.

1.14 ALTERATION PROJECT PROCEDURES

- A. Coordinate the work of trades and schedule elements of alterations and renovation work by procedures and methods to expedite completion of the work.
- B. In addition to demolition specifically shown, cut, move or remove items as necessary to provide access or to allow alterations and new work to proceed. Include such items as:
 1. Repair or removal of hazardous or unsanitary conditions.
 2. Removal of abandoned items and items serving no useful purpose, such as abandoned piping, conduit and wiring.
 3. Removal of unsuitable or extraneous materials not marked for salvage, such as abandoned furnishings and equipment, and debris such as rotted wood, rusted metals and deteriorated concrete.
 4. Cleaning of surfaces, and removal of surface finishes as needed to install new work and finishes.
- C. Patch, repair and refinish existing items to remain, to the specified condition for each material, with a smooth and clean transition to adjacent new items of construction.
- D. Assign the work of moving, removal, cutting and patching, to trades qualified to perform the work in a manner to minimize the possibility of damage to each type of work, and provide means of returning surfaces to appearance of new work.
- E. Perform cutting and removal work with minimal disruption and in a manner to avoid damage to adjacent work.
- F. Cut finish surfaces such as masonry, tile, plaster or metals, using methods that terminate surfaces

in a straight line at a natural point of division.

- G. Perform cutting and patching as specified in Section 01 73 29 - Cutting and Patching.
- H. Protect existing finishes, equipment, and adjacent construction that is scheduled to remain, from damage.
 - 1. Protect existing and new work from weather and extremes of temperature.
 - 2. Maintain existing interior work above 60 degrees F or at a temperature recommended by any product manufacture.
 - 3. Provide weather protection, waterproofing, heat and humidity control as needed to prevent damage to remaining work and to new work.

1.15 RULES FOR PERFORMING ELECTRICAL WORK ON CAMPUS

- A. To ensure the safety of personnel working on electrical systems, it is critical that safe work practices are followed and that outages are well planned and carefully scheduled and coordinated. The following rules apply to contractors performing electrical work on the University campus:
 - 1. Electrical work shall not be performed on energized systems.
 - 2. Panel covers and dead fronts shall not be removed while a panel is energized.
 - 3. Circuit breakers shall not be cycled to switch existing loads on and off while a panel is in service.
 - 4. All work up to the point of connection at an existing panel shall be completed without penetrating the enclosure. Once this new work is complete up to the existing panel, an outage shall be scheduled to facilitate termination at the panel.
 - 5. Contractors shall schedule electrical outages with the responsible University Representative. Work shall be planned and scheduled so as to minimize the number of outages required.
 - 6. The University Electricians will de-energize systems at the point of connection on the scheduled outage day and time. Lock Out/Tag Out will be performed by both the University Electricians and the qualified contractor performing the work.
 - 7. During an outage, the individual working on the system shall be responsible for confirming that an "**electrically safe work condition**" has been established per NFPA 70E procedures using appropriate PPE.

8. Once the work at the point of connection is complete an inspection shall be scheduled with the campus building inspector and/or University Electricians.
9. Upon acceptance of the inspection, the locks shall be removed and the system shall be re-energized by the University Electricians.
10. Upon re-energization, the contractor shall test all new installations to confirm they are functioning properly prior to completing work and leaving the work location.

PART 2 - PRODUCTS

2.1 PRODUCTS FOR PATCHING, EXTENDING AND MATCHING

- A. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing.
- B. Generally the Contract Documents will not define products or standards of workmanship present in existing construction; determine products by inspection and necessary testing, and determine quality of workmanship by using existing as a sample for comparison.
- C. The presence of a product, finish, or type of construction requires that patching, extending or matching shall be performed as necessary to make work complete and consistent with identical standards of quality.

PART 3 - EXECUTION

3.1 CUTTING AND PATCHING

- A. Perform cutting and patching as specified in Section 01 73 29 - Cutting and Patching.

END OF SECTION 01 35 00

**SECTION 01 35 05
SAFETY AND HEALTH PROCEDURES**

PART 1 - GENERAL

1.1 REQUIREMENTS AND RELATED DOCUMENTS

- A. The Contractor must comply with all of 29 CFR 1910 OSHA General Industry Regulations, and 29 CFR 1926 OSHA Construction Industry Regulations.
- B. Any OCIP project or Project Over 50 personnel (which is the total combined onsite General Contractor and Subcontractors personnel) shall have a dedicated full-time site-specific safety officer who shall always be onsite during construction. The contractor shall submit their proposed site-specific safety officer's resume for review and approval by Cal Poly per 01 33 00 Submittal Procedures.
- C. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.
- D. CSU OCIP Safety Manual. The Construction Manager/General Contractor shall meet the minimum requirements as specified in the CSU OCIP Safety Manual. Refer to California State University (Construction Health & Safety Policy 01 20 2023 V.1). OWNER HEALTH AND SAFETY REQUIREMENTS (Page 1 to 81).
- E. The Contractor will administer a Subcontractor pre-qualification program that includes at minimum the following prequalification criteria: Safety statistics from OSHA 300 logs which are equal or less than BLS state averages for the specific NAICS code of that employer; and Experience Modification Rating (EMR) evaluation. The evaluation will establish that any Subcontractor with a current EMR greater than 1.25 and/or a Total Case Incident Rate exceeding state average, within the past 3 years, as established by the BLS, must undergo a specific approval process by the Contractor and Cal Poly EHS.
- F. Safety Trax: Contractor Monthly Reporting Tool. The purpose of this form is to track monthly safety metrics on CSU Construction Projects. The Contractor shall complete all fields and submit in accordance with Monthly Progress Payments. This form follows the OSHA Injury & Illness Recordkeeping Forms - 300, 300A, 301. Use the following link:
<https://app.smartsheet.com/b/form/74ac14793c6347788fc73400fa2a3aad>
- G. Monthly Safety KPI Reporting. Due by the 15th of the month following the reported month. Request form from Cal Poly EH&S and Cal Poly Representative. Submit through Procore. Required for Monthly Contractor Payment.
 - 1. Days Away, Restricted or Transferred (DART): including Days Away (When an employee can not work at all), Restricted (When the employee can work but only for a short period or can only perform limited duties of their normal job), Transfer (When an employee can work but

must be transferred to another department, such as from fieldwork to office work). GC or Lead Contractor to provide for all the contractors/sub-contractors working on site.

2. Total Recordable Incident Rate (TRIR) is an OSHA rate based on a contractor's 300 and 300A logs for any injuries that are considered recordable. This calculation is all-encompassing of the DART and LTIR. This records the number of 'days away from work' incidents, transferred incidents, and restricted incidents. Additional recordable injuries include hospitalizations, deaths, amputations, loss of an eye, anything beyond first aid treatment, and injuries needing prescription medication.
3. Number of conducted and approved (approved by GC or lead contractor) weekly job safety analysis (JSA) or job hazard analysis (JHA) during construction.
4. Number of SIFp (Significant Injury and Fatality Prevention) "high potential risk" inspections and findings: the processes for determining if an event had SIF potential are determined by the person who enters a near-miss or incident. This person is required to enter the potential severity of the event and the potential probability of the event on a scale from 1 to 5, with the total risk assessment being the multiplication of those two numbers. Anything with a total score over 10 is labeled "high potential risk."

1.2 SECTION INCLUDES

- A. Procedures for health and safety protection and requirements for reporting accidents.

1.3 RELATED SECTIONS

- A. Division 01 - General Requirements
- B. 01-33-00 Submittal Procedures
- C. Section 01 35 01 - Hazardous Material Procedures: Protection from asbestos containing materials (ACM), polychlorinated biphenyl (PCB), lead containing paint or other hazardous materials.
- D. Section 01 56 00 - Temporary Barriers and Enclosures: Protective barriers.

1.4 SUBMITTALS

- A. All safety submittals shall be submitted per 01-33-00 Submittal Procedures to the Cal Poly Project Manager or Cal Poly Representative assigned to the project. See Exhibit A for Safety Permit Forms.

- B. Site Fire Safety Plan. As of January 1, 2022, construction projects requiring a permit are required to have a "site safety plan" prior to issuing a construction permit. This is not a Cal OSHA safety plan or a Title 8 safety plan. A Site Safety Plan is defined in Title 24 as, "A plan developed to establish a fire prevention program at a construction site".

This fire prevention plan requires general fire safety precautions for all structures and all occupancies during construction and demolition operations. The owner's authorized agent (Contractor) shall be responsible for the development, implementation, and maintenance of an approved, written site safety plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, repair, alteration, or demolition work. In general, these requirements seek to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment, and promote prompt response to fire emergencies.

This plan is not required to be placed on the construction documents. The CSU Office of Fire Safety (OFS) recommends that this be a separate attachment as this plan may change during the course of the construction project. OFS recommends that this plan be part of the on-site construction binder. The code requires that if the plan is modified in the field, then it must be approved by the field fire code official as well.

Every construction project requiring a permit must be evaluated for the magnitude and scope of the site safety plan. OFS recommends that this is done on a case-by-case basis. Not all site safety plans are large in scope. The more complex the project the more complex the site safety plan.

The code requires that the site safety plan be managed by a safety director. The safety director must be qualified and approved by the University, not the contractor or architect. The safety director shall be responsible for ensuring compliance with the site safety plan. The safety director must be qualified to perform the tasks of enforcing the requirements of Title 24. OSHA training is not one of the means to meet the minimum qualifications for a safety director. Training in construction fire safety from the National Fire Protection Association, International Code Council, the National Fire Marshals Association, American Wood Council, and Construction Fire Safety Coalition are examples of approved training.

This requirement is intended to prescribe minimum safeguards for new building construction and significant building alteration projects in order to provide a reasonable degree of safety to life and property from fire. The requirement is based on the provisions for fire safety during building construction and demolition as set forth in Chapter 33 of the California Building Code, California Fire Code; and the most current Office of State Fire Marshal adopted edition of NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations. This requirement shall not be construed to be in lieu of any other applicable State or Federal law, or regulation related to construction site safety. The general contractor or other designee of the building owner shall be responsible for compliance with these standards.

To assist the Contractor, please refer to Exhibit C CSU Site Safety Plan Template.

- C. A Site-specific Accident Prevention Plan (APP). Approved APP shall be required prior Notice To Proceed (NTP) and prior to start of work or mobilization. Contractor to provide a safety plan to outline their requirements for compliance with OSHA and California OSHA related to the hazards associated with the Definable Features of Work (DFoW), and a fire plan per NFPA 241 and CBC Chapter 33, and plan per NFPA 51B prior to construction. See Exhibit C at the end of this section for an example Accident Prevention Plan.
- D. Accident Reporting: A copy of each accident report, which the Contractor or subcontractors submit to their insurance carriers, shall be forwarded to the Architect and to the Trustees' Representative as soon as possible, but in no event later than seven (7) calendar days after the day the accident occurred.
- E. Pre-task Plan And Job Safety Hazard Analysis - Every work operation shall have a Pre-Task Plan and a Job Safety Hazard Analysis (JSHA) to identify work operations, potential hazards, and control of hazards through engineering controls and/or through PPE (Personal Protective Equipment). JSHA's are to be completed by a supervisor familiar with the task to be performed and reviewed with the workers prior to the commencement of work. Pre-Task Plans are to be reviewed with crews prior to commencement of a new task, and with new crew members upon arrival and before beginning work. Following 'approved' permits will need to be displaced on a daily basis in a central location where all the sub-contractors can have easy access: Roof Permit, Confined Space permit, Hot work permit, Elevator Repair permit, Helicopter lift permit, and others as required by the scope of work.
- F. Crane Lift Plan: Contractor shall request Crane Lift Plan Form from Cal Poly Project Manager or Cal Poly Representative assigned to the project upon contract award.
- G. Traffic and Building Impairment Plan: Contractor shall submit Traffic and Building Impairment Plan for review by the AHJ/local Fire Deputy. All Traffic Plans shall be in compliance with the current Caltrans, Chapter 2: Safety and Traffic, Section 2: Traffic, and Cal Poly campus requirements, and local and State Fire requirements.
- H. Other Submittals: If agreed to in writing at the preconstruction safety meeting, other submittals shall be required. One such submittal that may be included is a narrative work plan of action for handling hazardous materials to contain the following:
 - 1. Number, type, and experience of employees to be used for the Work
 - 2. Description of how safety and health regulations and standards shall be met
 - 3. Type of protective equipment and work procedures to be used
 - 4. Emergency procedures for accidental spills or exposures.

PART 2 - PRODUCTS

SAFETY AND HEALTH PROCEDURES

01 35 05

2.1 GENERAL

- A. Special facilities, devices, equipment, clothing, and similar items used by the Contractor in the execution of the Work shall comply with all applicable regulations. The contractor is responsible for ensuring a safe work environment for its employees, its subcontractors as well as University representatives, for the full duration of the work.
 - 1. Inspection Documentation: Physical inspection tags and physical signage shall be displayed on all safety and work equipment (i.e. fire extinguishers, eye wash, 1st Aid Kits, mobile work platforms, scaffolding, spider boxes) and work scenarios (i.e. Hot Work or Fall Protection Control Areas) and work equipment and work scenarios requiring inspections. Online inspection recordkeeping may be used to complement recordkeeping requirements, but shall not be used instead of physical inspection tags and physical signage.

PART 3 - EXECUTION

3.1 STOP WORK ORDERS

- A. Stop Work Orders:
 - 1. When the Contractor or its subcontractors are notified by the University's Representative of an incident of noncompliance with the provisions of the Contract, and the action(s) to be taken, the Contractor shall immediately, or within 48 hours after receipt of a notice of violation, correct the unsafe or unhealthy condition to prevent harm.
 - 2. If the Contractor fails to comply promptly, all or any part of the work performed may be stopped by with a "Stop Work Order." When, in the opinion of the University's Representative, satisfactory corrective action has been taken to correct the unsafe and unhealthy condition, a start order will be given immediately.
 - 3. Environment, health and safety (EHS) will stop activities considered to be an imminent danger. An "imminent danger" is defined as any condition or practice that could reasonably be expected to cause substantial harm to the health and safety of employees or the public, or to the environment. This policy applies to all activities conducted at Cal Poly University, San Luis Obispo and to all off-site facilities operated by Cal Poly University personnel.
 - 4. All Cal Poly employees, contractors, and participating guests are responsible for stopping work activities that are considered to be an imminent danger. An "imminent danger" is defined as any condition or practice that could reasonably be expected to cause substantial harm to the health and safety of employees or the public, or to the environment. Whenever an employee, contractor, or participating guest encounters conditions or practices that appear to constitute an imminent danger, such individuals have the authority and responsibility to:

- A. Alert the affected employee(s) or contractor(s) engaged in the unsafe work creating an imminent danger condition and request that the work be stopped.
 - B. Call 805-756-5555 to report the incident. An EH&S staff will investigate.
 - C. Notify the immediate supervisor and/or responsible division/department manager.
 - D. Note: When in doubt about a safety condition, contact your supervisor.
- 5. The Contractor shall not be allowed any extension of time or compensation for damages by reason of or in connection with such work stoppage.

3.2 PROTECTION

- A. Protection: Contractor shall take all necessary precautions to prevent injury to the public, building occupants, or damage to property of others. Construction Safety Professionals are required full time at the project site, if the site has more than 50 workers and/or if the site is conducting "high risk operations". "High risk operations" examples include working at height, Roof work, Confined space. The dedicated Safety Representative must have a minimum of five (5) years of qualified project safety experience which may include time spent in the role of a superintendent/safety representative on large, similar type construction projects that are representative of the planned construction activities. 2. Evidence of completing the OSHA 30-Hour Construction Outreach Training or equivalent within the last three (3) years. 3. Current CPR/First Aid Certification provided by The American National Red Cross or equivalent training.
 - 1. For the purposes of the Contract, the public or building occupants shall include all persons not employed by the Contractor or a subcontractor working under the Contractor's direction.
 - 2. Work shall not be performed in any area occupied by the public or Owner's employees unless specifically permitted by the Contract or the Owner and unless adequate steps are taken for the protection of the public and the Owner's employees.
 - 3. Whenever practicable, the work area shall be fenced, barricaded, or otherwise blocked off from the public or building occupants to prevent unauthorized entry into the work area.
 - 4. Positive means for providing fall protection shall be in accordance with the most current adopted OSHA Requirements, CSU Requirements, and Campus Requirements, whichever is most stringent.
- B. Alternate Precautions: When the nature of the Work prevents isolation of the work area, and the public or building occupants may be in or pass through, under or over the work area,

alternate precautions such as the posting of signs, the use of signal persons, the erection of barricades or similar protection around particularly hazardous operations shall be used as appropriate.

- C. Public Thoroughfare: When Work is to be performed over a public thoroughfare such as a sidewalk, lobby, or corridor, the thoroughfare shall be closed, if possible, or other precautions taken such as the installation of screens or barricades. When the exposure to heavy falling objects exists, as during the erection of building walls or during demolition, special protection of the type detailed in 29 CFR 1910/1926 shall be provided.
- D. A traffic control person, flag person, or signaler, shall be provided by the Contractor when moving materials (e.g. using a large forklift or other such mobile equipment) in or out of the "Construction Zone" for the safe guarding of pedestrians.
- E. Hazardous Conditions: Storing, positioning or use of equipment, tools, materials, scraps, and trash in a manner likely to present a hazard to the public or building occupants by its accidental shifting, ignition, or other hazardous qualities is prohibited.

Exhibit A Safety Permit Forms

Activity Hazard Analysis (AHA)

Activity/Work Task:	Overall Risk Assessment Code (RAC) (Use highest code)					
Project Location:	Risk Assessment Code (RAC) Matrix					
Contractor:	Severity	Probability				
Date Prepared		Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title):	Catastrophic	E	E	H	H	M
	Critical	E	H	H	M	L
Reviewed by (Name/Title):	Marginal	H	M	M	L	L
	Negligible	M	L	L	L	L
Notes: (Field Notes, Review Comments)	Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
	"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				RAC Chart	
	"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E = Extremely High	
					H = High Risk	
	Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				M = Moderate Risk	
				L = Low Risk		

Job Steps	Hazards	Controls	RAC
			L

Activity Hazard Analysis (AHA)

Job Steps	Hazards	Controls	RAC

Activity Hazard Analysis (AHA)

Equipment to be Used	Training	Inspection Requirements

Activities Requiring a Competent or Qualified Person – Attach Proof of Competency	
Activity	Designated Competent or Qualified Person

Activity Hazard Analysis (AHA)

Signatures / Verification of Review		
Name (Print)	Signature	Date

AHA Modified and Reviewed		
Name (Print)	Signature	Date

Activity Hazard Analysis (AHA)

Method of Operation Procedure (MOP)

Section 01 Procedure Schedule Information	Procedure Title:				
	MOP- Title of MOP Procedure:				
Procedure Author:		Creation Date:		Revision No:	
	Expected Start Date		Procedure Time Frame:		
	Start Time:		Level of Risk:		
	Choose One <input type="checkbox"/> Level – High Risk <input type="checkbox"/> Level 2-Medium Risk <input type="checkbox"/> Level 3-Low Risk <input type="checkbox"/> No Risk-Administrative <input type="checkbox"/> No Risk-Non-Invasive				
Procedure Information					

Section 02	Customer (Company) Name:		Work Order Number: Insert the work order number for the specific PM generated by the CMMS system.		
Site Information					
Address:	Street Address:	City	State:		Zip:

Section 03 Procedure Overview					
Work Area:		Affected Systems:			
Equipment Information:	Manufacturer:	Equipment ID:	Model #:	Serial #:	
Personnel Required: Name, Position, and cell# of each person assigned to complete work	# of FM Team Personnel:	# of Contractors #1:	# of Contractors #2:	# of Customers:	

Section 04 Scope, Purpose and Responsibilities					
Scope:	Provide an overview of the work to be performed, estimate of time to complete, and summarize expected impacts while performing the work as well as expected outcomes of completing work:				
Purpose:	Provide a purpose for the MOP				
Responsibilities:	The Facility Manager or designee will properly implement this document. It is the responsibility of the individual(s) performing this procedure to comply with the procedural steps. Define the responsibilities of each individual associated with the work to be performed. Example: Contractor-Facility technical liaison and step approver				

Method of Operation Procedure (MOP)

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Method of Operation Procedure (MOP)

Section 05 Effect of Procedure on Critical Facility					
Facility Equipment or System	Yes	No	N/A	Details: Define specific impact. Example: Emergency generation capability will lose redundancy during the performance of this work.	
Electrical Utility Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Emergency Generator System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Critical Cooling System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Ventilation System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Uninterruptible Power Supply System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Critical Power Distribution System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Emergency Power Off (EPO) System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fire Detection Systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Fire Suppression System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Monitoring System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Control System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Security System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
General Power and Lighting System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Lockout/Tag out Required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Include specific valves, circuit breakers, etc.	

Section 06 Supporting Documentation	Identify all documents required to support successful completion of this work. Example: OEM manual, site safety plan, Emergency generator shutdown procedure, communication informing key stakeholder of work to be performed, etc.
Documents	1.

Section 07 Safety Requirements																																					
1.	All personnel involved in the procedure have read and agree to adhere to the (Insert Site Specific Building Owner here) "Worker Safety and Health Program." <input type="checkbox"/>																																				
2.	Potential Hazards (check all that apply). If none, check here																																				
	<table border="1"> <tr> <td><input type="checkbox"/></td> <td>Electrical</td> <td><input type="checkbox"/></td> <td>Hazardous Chemicals</td> <td><input type="checkbox"/></td> <td>Harmful Dust</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Impalement</td> <td><input type="checkbox"/></td> <td>High Temperatures</td> <td><input type="checkbox"/></td> <td>Low Temperature</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Sharp edges/pinch points</td> <td><input type="checkbox"/></td> <td>Fall Hazards</td> <td><input type="checkbox"/></td> <td>Other:</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Pressure (water/pneumatic)</td> <td><input type="checkbox"/></td> <td></td> <td><input type="checkbox"/></td> <td></td> </tr> </table>	<input type="checkbox"/>	Electrical	<input type="checkbox"/>	Hazardous Chemicals	<input type="checkbox"/>	Harmful Dust	<input type="checkbox"/>	Impalement	<input type="checkbox"/>	High Temperatures	<input type="checkbox"/>	Low Temperature	<input type="checkbox"/>	Sharp edges/pinch points	<input type="checkbox"/>	Fall Hazards	<input type="checkbox"/>	Other:	<input type="checkbox"/>	Pressure (water/pneumatic)	<input type="checkbox"/>		<input type="checkbox"/>													
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<input type="checkbox"/>	Pressure (water/pneumatic)	<input type="checkbox"/>		<input type="checkbox"/>																																	
3.	Personnel Protective Equipment (PPE) required. Check all that apply																																				
	<table border="1"> <tr> <td><input type="checkbox"/></td> <td>Safety Glasses</td> <td><input type="checkbox"/></td> <td>Cut Resistant Gloves</td> <td><input type="checkbox"/></td> <td>Hearing Protection</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Safety Glasses (flash proof if needed)</td> <td><input type="checkbox"/></td> <td>Chemical Resistant Gloves</td> <td><input type="checkbox"/></td> <td>Work Boots</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Face Shield</td> <td><input type="checkbox"/></td> <td>Hard Hat</td> <td><input type="checkbox"/></td> <td>Harness Lanyard</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Self-Retracting life line</td> <td><input type="checkbox"/></td> <td>Filtering Face (dust) mask</td> <td><input type="checkbox"/></td> <td>Respirator</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Arc Flash PPE Rating:</td> <td><input type="checkbox"/></td> <td>Apron (chemical resistant)</td> <td><input type="checkbox"/></td> <td>Radio</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td><input type="checkbox"/></td> <td>Other:</td> </tr> </table>	<input type="checkbox"/>	Safety Glasses	<input type="checkbox"/>	Cut Resistant Gloves	<input type="checkbox"/>	Hearing Protection	<input type="checkbox"/>	Safety Glasses (flash proof if needed)	<input type="checkbox"/>	Chemical Resistant Gloves	<input type="checkbox"/>	Work Boots	<input type="checkbox"/>	Face Shield	<input type="checkbox"/>	Hard Hat	<input type="checkbox"/>	Harness Lanyard	<input type="checkbox"/>	Self-Retracting life line	<input type="checkbox"/>	Filtering Face (dust) mask	<input type="checkbox"/>	Respirator	<input type="checkbox"/>	Arc Flash PPE Rating:	<input type="checkbox"/>	Apron (chemical resistant)	<input type="checkbox"/>	Radio					<input type="checkbox"/>	Other:
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<input type="checkbox"/>	Arc Flash PPE Rating:	<input type="checkbox"/>	Apron (chemical resistant)	<input type="checkbox"/>	Radio																																
				<input type="checkbox"/>	Other:																																
4.	Safe Work Practices (precautions/controlling measures) to be followed. Provide a detailed discussion of the unique hazards to the work activities/location, including the safety measures/personal protective equipment (PPE) to be utilized to alleviate the hazard.																																				

Method of Operation Procedure (MOP)

4.1	HAZCOM	<input type="checkbox"/> Yes <input type="checkbox"/> N/A (Will be completed whenever chemical, including cleaning agents, are being brought on site and identified in SDS)	
4.2	Electrical	<input type="checkbox"/> N/A <input type="checkbox"/> < 50v <input type="checkbox"/> 50v-250v <input type="checkbox"/> 250v-480v <input type="checkbox"/> > 480v-13800v	
4.3	Hand & Power Tools	<input type="checkbox"/> Yes <input type="checkbox"/> N/A (Multi-meter, infrared thermometer, and basic hand tools)	
4.4	Fall Protection	<input type="checkbox"/> Yes <input type="checkbox"/> N/A Will employees be exposed to fall hazard (working height > 4' above lower level) while performing leading edge or roof edge work and /or working from ladders.	
4.5	Hot Work	<input type="checkbox"/> Yes <input type="checkbox"/> N/A Will be completed for all work involving welding, cutting, soldering, or heating of metals (Pick up hot work Permit)	
4.6	UPS / Battery Safety	<input type="checkbox"/> Yes <input type="checkbox"/> N/A Will be completed whenever work task involves working on batteries or in battery rooms. VRLA (Valve Regulated Lead Acid) batteries contain no liquid electrolyte. Do not short terminals. Note: If YES is checked please refer to SOP	
4.7	Other(s)	Please describe any safety work practice, not described above, that will be used while performing your work task. (Examples: confined space entry, scaffolding, aerial work platforms, etc.)	
	a.		
	b.		
	c.		
4.8	Housekeeping	Have all tools and material lists available for pre and post work review.	
4.9	Conduct Safety Meeting		
5.	Required Permits (Check all that apply)	<input type="checkbox"/> Energized Work <input type="checkbox"/> Hot Work <input type="checkbox"/> Confined Space <input type="checkbox"/> Red Tag	

Section 08 Procedure Risks, Contingency Plans, & Assumptions	Refer to (Insert Site Specific info here) Facility Operations Manual (FOM) Maintenance Management Plan (MMP) Risk section for Level of Risk definitions. Please refer to page 7.
Risks	Risk 1: Risk 2: Risk 3:

Method of Operation Procedure (MOP)

Contingency Plans	<p>Specific to the risk noted above, what is the plan to deal with the risk should it come to be realized during the course of the work? <u>Example:</u> Due to the absolute criticality of the systems at risk a secondary portable generator will be brought on site to act as a redundancy back-up.</p> <p>Contingency Plan 1:</p> <p>Contingency Plan 2:</p> <p>Contingency Plan 3:</p>
Assumptions	<p>Example : Assumption: Any deviation from this approved procedure must be reviewed, approved and accepted by both site and department management</p> <p>Assumption: All personnel involved in the procedure have read and agree to adhere to the Site Specific Worker Safety and Health Program.</p> <p>Assumptions 1:</p> <p>Assumptions 2:</p> <p>Assumptions 3:</p>

Section 09 Notification Page	
	<p>Notify [insert Building Owner Name here] Facility Management when test:</p> <p>- begins <input type="checkbox"/> email TIME:</p> <p>- ends <input type="checkbox"/> email TIME:</p>

Section 10 Procedure Details				
Detailed Procedure		<i>Time</i>	<i>Date</i>	<i>Initials</i>
<p>List the very specific steps that will be taken to complete this work. This should include every action taken from arrival on site to leaving the site and post notification to key stakeholders. A Dry Run of the procedure should be conducted with those that will be performing the work to ensure nothing is missed.</p> <p>Note: 1. Verify that Change Management approval has been received prior to performing work.</p> <p>2. Log Time for Major Steps</p> <p>3. Notification of impact to timeline</p>		<p><i>Specific time of day this step will take place</i></p>		<p><i>Initials of the people performing this step upon successful completion of this task</i></p>
1.				
2.				
3.				
4.				

Method of Operation Procedure (MOP)

5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
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15.			
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17.			
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19.			
20.			
21.			
22.			

Section 11 Procedure Approval			
<p><i>Dry Run Performed (Physical Walkthrough)</i></p> <p><i>Note: Vendor needs to be involved in walkthrough with FM TECH REP</i></p>	<p><i>By: Name, Position Title, Phone Number, Initials</i></p>	<p><i>Date:</i></p>	<p><i>Time:</i></p>
	<p>X</p> <p>_____ RRN Mgr</p>		

Method of Operation Procedure (MOP)

FM TECH REP Electrical and Mechanical Quality Assurance Approval: (Physical Walkthrough) Note: FM TECH REP needs to be involved in walkthrough with vendor)	Approvers Name: Signature:	Approvers Title:	Date:
	Signature:		
TSO Manager. Approval:	Approvers Name:	Approvers Title:	Date:
	Signature:		
Building Manager:	Approvers Name:	Approvers Title:	Date:
	Signature:		
Comments:			
Day of work instructions and Notes/Findings:			

Method of Operation Procedure (MOP)

(Insert Building Name Here)

Assessing Risk

Use the Risk Assessment Code (RAC) matrix below to assess the risk of each hazard. To use this matrix:

- Find the “severity” or the worst-case outcome of a mishap from the hazard along the left side of the matrix. The possible consequences are:
 Class I – Catastrophic. A condition that may cause death or permanently disabling injury or facility destruction.
 Class II – Critical. A condition that may cause severe injury or occupational illness, or major property damage to facilities, systems or equipment.
 Class III – Moderate. A condition that may cause minor injury or occupational illness, or minor property damage to facilities, systems or equipment.
 Class IV – Negligible. A condition that could cause the need for minor first-aid treatment, but would not adversely affect personal safety or health; damage to facilities, systems or equipment more than normal wear and tear level.
- Find the “likelihood” for mishap to occur across the top of the matrix. The possible likelihood estimates are:
 Likelihood A. Likely to occur.
 Likelihood B. Probably will occur.
 Likelihood C. May occur.
 Likelihood D. Unlikely to occur.
 Likelihood E. Improbable.
- Find the RAC in the box where the “consequence” and “likelihood” cross.

SEVERITY CLASS	LIKELIHOOD ESTIMATE				
	A	B	C	D	E
I	1	1	2	3	4
II	1	2	3	4	5
III	2	3	4	5	6
IV	3	4	5	6	7

For new procedures, establish mitigation procedures to bring the RAC into a green level (RAC Code 4-7) to the extent possible. RAC codes of 1, 2 and 3 must be reviewed and approved as described below prior to finalizing the Operating Procedure.

If the RAC is... Then the risk is . . .

1.	(Building Owner) Director is authorized to accept the risk with adequate justification in rare cases where critical tests must be done and the risk cannot be reduced.
2	ESH Division Director or Chief Safety Officer is authorized to accept the risk with adequate justification.
3	ESH Program Manager or equivalent management is authorized to accept the risk with adequate justification.
4–7	Acceptable with controls – Facility Manager and EHS Coordinator is authorized to accept the risk with adequate justification.

Permit Required Confined Space Entry

Permit Required Confined Space Details – Valid for One Shift & Crew

Name & Location of Space: _____

Work Performed: _____

Work Authorized: _____

Date of Entry

From (time)

To (time)

Companies Entering: _____

Note: all companies entering a permit required confined space must have submitted their written program prior to entry. **Written programs must be available at the space during the entry** .

Hazard Assessment

A hazard assessment must be conducted prior to entry into the confined space. A designated competent person from each company entering the space must be present. The following are examples of hazards to be considered during this assessment: atmospheric, oxygen deficiency, mechanical or stored energy, engulfment, electrical, radiation, converging surfaces, noise, temperature extremes, surface coatings, residual material, biological, flammable / combustible, physical arrangement, limited access / egress, hazards introduced to the space.

Existing Hazards: _____

Previous Content of

Vessel or Space: _____

Hazards Generated: _____

Other Hazards: _____

Control Measures

☐ Drain, Flush, Clean

☐ Lock, Tag, Verify

☐ Disconnect Lines

☐ Blank Lines

☐ Open Manholes

☐ Force Ventilation

☐ Hot Work Permit (attach)

☐ Fall Protection /

Guardrails

☐ Other: _____

Protective Equipment Required

☐ Safety Harness

☐ Rescue System

☐ Respirator (written plan required)

☐ Other: Communication

☐ Other: _____

☐ Other: _____

☐ Procedures: _____

Is Declassification to a Non-Permit Space Possible?

If there are no hazards or the hazards identified during the hazard assessment are eliminated or isolated and atmospheric testing proves (document on page 5) there is not an unsafe atmosphere, can the confined space be declassified to a non-permit required space?

☐ Yes: non-permit confined space

☐ No: permit required space

Document on pages 1 and 5

Document on all pages

Entry Supervisor

Signature: _____

AS / PS

Signature: _____

Note: the permit space may be reclassified as a non-permit confined space for as long as the atmospheric hazards remain eliminated or isolated. If a hazardous condition is identified everyone must exit the space immediately. This permit will be terminated, and a new permit issued after the space is reassessed.

Retain permit in the project point file AND provide a copy to the host employer.

Permit Required Confined Space Entry

Rescue

In the event a rescue is required in a confined space, rescue personnel are not permitted to enter the space. Rescue personnel will first notify _____ using _____ and inform them there is an emergency and to contact emergency services. Emergency services will be contacted by calling _____.

While emergency services are being contacted, rescue personnel will attempt to rescue personnel in the space. Rescue will be conducted using the following:

- ☐ Body harness ☐ Trip pod and winch ☐ Rope and pulley system
☐ Wristlets ☐ Anklets
☐ Other: _____ ☐ Other: _____ ☐ Other: _____

The dedicated rescue team will be furnished with all required PPE to safely perform the rescue. The designated rescue team includes:

Name	Company	Training on Rescue Conducted (Yes – Required)	Has Current Training in CPR and First Aid (Yes – Required)	Has Practiced the Rescue (Yes – Required)

Authorized Personnel

The following personnel have been designated the following responsibilities for this space. All personnel involved must have training to understand their responsibilities. In addition, all personnel and their representatives must be allowed to witness air monitor readings.

Role	Name	Company	In	Out
Entry Supervisor			N/A	N/A
Competent Person			N/A	N/A
Attendant			N/A	N/A
Entrant				
Entrant				
Entrant				

Retain permit in the project point file AND provide a copy to the host employer.

Permit Required Confined Space Entry

Coordination		
Host Employer		
Before entry into the space, has the host employer provided the following information to Hensel Phelps:	Yes	Notes
The hazards or potential hazards in the space and why it is a permit space.		
Precautions the host employer or other employers have taken for protection of employees.		
Controlling Contractor		
Before entry operations begin, the controlling contractor must:	Yes	Notes
Obtain the host employer's information about the permit space hazards and previous entry operations.		
Communicate the following information to each entering entity and any other entity who could create a hazard in the space: <ul style="list-style-type: none"> Information received from the host employer. Precautions the host employer, controlling contractor, or other employers have implemented. 		
Entry Employer		
Before entry, each entry employer must:	Yes	Notes
Obtain all the controlling contractor's information regarding permit space hazards and entry operations for the permit space.		
Inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in the space.		

Retain permit in the project point file AND provide a copy to the host employer.

Permit Required Confined Space Entry

Approvals, Verification, and Certification

	Company	Signature
Entry Supervisor Name:		
Entry Supervisor Name:		
Competent Person Name:		
Competent Person Name:		
Area Superintendent Name:		
Project Superintendent Name:		

After Entry Operations

Following entry into a permit space, the controlling contractor and entry employer must debrief regarding the permit space program followed and any hazards confronted or created in the space. The controlling contractor must apprise the host employer of the information.

Describe below any hazards that were confronted or created during the entry:

Was this entry and any lessons learned communicated to the host employer? It is required to supply a copy of this permit to the entry employer:

☐ Yes

☐ No

Retain permit in the project point file AND provide a copy to the host employer.

Permit Required Confined Space Entry

Atmospheric Testing			
Has the air monitor been calibrated and bump tested in accordance with the manufacturer instructions:			
	Date of bump test	Date of calibration	Notes
Yes			
No	Entry not authorized	Entry not authorized	Entry not authorized

AT NO TIME IS HENSEL PHELPS ALLOWED TO ENTER OR WORK IN ANY A CONFINED SPACE WHERE THERE IS AN IMMEDIATELY DANGEROUS TO LIFE OR HEALTH ENVIRONMENT.

All air tests shall be taken at various levels throughout the space.

[illegible]

Retain permit in the project point file AND provide a copy to the host employer.

Boom Permit Risk Assessment

Issue Date: _____ **Time:** _____ **Contractor:** _____
Lift Manufacturer: _____ **Model #:** _____ **Serial Number:** _____
Operator(s): _____ **Other Occupant(s):** _____
Work Location: _____ **Tasks:** _____

Planning – All requirements must be in place to continue		N/A	Y	N
1	The lift is the appropriate machine to conduct this operation.		<input type="checkbox"/>	<input type="checkbox"/>
2	Appropriate fall protection harnesses, SRLs or fall restraint devices are used and inspected. Users have been trained in their use.		<input type="checkbox"/>	<input type="checkbox"/>
3	A fall rescue plan has been developed and is in the AHA.		<input type="checkbox"/>	<input type="checkbox"/>
4	Personnel transferring from the lift to an adjacent surface have a plan in the AHA (refer SHM for requirements) .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Training - All training must be in place to continue		N/A	Y	N
1	The operator has been trained and authorized to operate the equipment. Operator has received familiarization training on the make and model in use.		<input type="checkbox"/>	<input type="checkbox"/>
2	The Supervisor/Qualified person has received supervisor training for Mobile Elevated Work Platforms.		<input type="checkbox"/>	<input type="checkbox"/>
3	Any occupants have received appropriate training (see page 3 for briefing requirements).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Equipment Inspection - All inspections must be in place to continue		Y	N
1	Operator has conducted an inspection for this shift. Equipment has been verified safe to use.	<input type="checkbox"/>	<input type="checkbox"/>
2	Annual inspection has been completed.	<input type="checkbox"/>	<input type="checkbox"/>

Loading and Capacity - Total weight shall never exceed lift capacity			
Number of people to be in lift:		People weight:	Lbs.
Type of material in platform:		Material weight:	Lbs.
Tools in platform:		Tool weight:	Lbs.
Add weight of people, material, tools and all other material in the lift.		Total weight:	Lbs.
Total weight shall never exceed lift capacity.		Lift capacity:	Lbs.

Work Area Survey - Possible Hazards to safe operation - Mark all that apply					
<input type="checkbox"/>	Drop-offs, holes, leading edges	<input type="checkbox"/>	Personnel in area / public exposure	<input type="checkbox"/>	Adjacent or overhead equipment
<input type="checkbox"/>	Floor obstructions	<input type="checkbox"/>	Ground condition capacity or slopes	<input type="checkbox"/>	Powerlines
<input type="checkbox"/>	Debris	<input type="checkbox"/>	Wind and weather	<input type="checkbox"/>	Overhead hazards
					<input type="checkbox"/> Other

Safeguards Put in Place to Mitigate Hazards Identified - All hazards must be controlled

Important Information
Equipment that is being operated adjacent to a floor opening or lower level must have positive stop logs or hard barriers approved by the supervisor/qualified person. These barriers must be positioned to prevent the equipment from rolling off the edge. Additionally, equipment should only be operated parallel to edge.
A minimum distance from energized conductors shall be maintained as follow: 0 – 350 kv: 20 feet, 350 – 500 kv: 25 feet, 500 – 750 kv: 35 feet, 750 – 1000 kv: 45 feet
Each operator shall adhere to applicable requirements provided in manufacturer's literature, EM 385-1-1, OSHA Standards and ANSI A92. Hensel Phelps review does not relieve trade partners of the responsibility for compliance with all applicable safety laws, regulations, ordinances and contractual requirements.

Operator(s) Print

Operator(s) Sign

Complete daily for each location. Keep on lift.

Boom Permit Risk Assessment

BOOM/SCISSORS LIFT PRE-START INSPECTION CHECKLIST

OK	Fix	N/A		Notes
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Operating and Emergency Controls	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Devices and Guards	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Guard Rails	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fluid Levels and Leaks (oil, hydraulic, fuel, and coolant)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lower Level Controls	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Steering and Brakes	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Loose or Missing Parts	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tire and Wheels (pressure and wear) Visual	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Labels and Placards (nameplates and decals)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Controls and Control Markings	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Horn, Gauges, Lights and Backup Alarm	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Welds, Fiberglass Insulation and Vehicle Condition	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Battery(ies) – (clean and secured)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cleanliness of Vehicle / Legibility of Controls	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maintenance	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mechanical Fasteners and Locking Pins	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cable and Wiring Harness	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Outriggers, Stabilizers and Other Structures	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other:	

Comments:

**DO NOT operate lift if any of these components are defective until they have been repaired by a qualified person.
Tag lift “Out of Service” until repairs are made.**

Supervisor/Qualified Person Print

Supervisor/ Qualified Person Sign

The Supervisor/Qualified person must communicate the results of the risk assessment to all parties involved

MEWP Safe Use Plan: Occupant Instruction

The operator of a mobile elevating work platform (MEWP) is responsible for providing instruction or confirming that

Complete daily for each location. Keep on lift.

Boom Permit Risk Assessment

all occupants have received instructions to have a basic level of knowledge to work safely on the MEWP. To ensure that this process happens, you should include instruction within your safe use plan. Here is an overview of what needs to be covered with an occupant before he or she goes up in a MEWP.

1. Personal Fall Protection Equipment requirement for MEWP or jobsite
 - a. Explain the guardrail system and the purpose of the harness and lanyard, ensure that all occupants are properly fitted with the appropriate PFPE, identify the locations of the lanyard attachment points, and ensure that all occupants are properly secured.
2. Explain how their actions in the platform could affect the stability of the machine:
 - a. Do not lean over the platform guardrail.
 - b. Maintain a firm footing on the platform floor at all times. Do not climb up on the toe guard, mid rail or top rail.
 - c. Do not jump up and down or shake the platform.
 - d. Do not push off or pull toward any object outside the platform.
 - e. Do not touch the platform controls.
3. Explain the proper and safe use of the accessory, including any hazards that may be associated with its use.
4. Explain any site-specific work procedures the occupants must follow related to the operation of the MEWP.
 - a. Examples include fall protection, personal protective equipment (PPE), vehicle or pedestrian right of way, driving in the stowed position only, honking the horn prior to driving the machine, etc.
5. Discuss all hazards related to the task at hand and their avoidance, and include any applicable site risk assessment.
 - a. Bring a copy of the most current risk assessment to review with occupants.
6. Review the manufacturer's warnings and instructions for the MEWP being operated.
 - a. Remove the operator's manual from the weather-resistant storage box on the platform and review the various warnings and instructions identified by the manufacturer.
 - b. Explain that the operator's manual must be kept on the MEWP at all times when not in use by the operator.
7. Review with at least one of the occupants:
 - a. The intended purpose and function of the MEWP platform controls.
 - b. The intended purpose and function of the safety-related items specified by the manufacturer including secondary guarding systems, emergency shut-down procedures, and the intended use and function of the lowering procedures to the extent required to lower the MEWP safely to the ground or the stowed position.

Keep in mind and remind the occupant(s) that receiving this information does not constitute training and they are not authorized to operate the controls at any time except in an emergency situation.

Excavation Utility Permit

Contractor Name: _____

I. GENERAL INFORMATION				
Location of excavation (attach copy(s) of plan sheets w/ utilities highlighted):				
Purpose of excavation:				
Start Date:	Expected Completion Date:	Depth:	Width:	Length:

II. LOCATE SERVICE NOTIFICATION			
Ticket No.:	Date Requested:	Requested By:	
III. PRE – WORK CHECKLIST		Initials	Comments: If “No” Explanation required.
Designated Supervisor for operation.	<input type="checkbox"/> Yes <input type="checkbox"/> No		Name:
Subcontractor designated competent person in writing to oversee operation (on AHA)	<input type="checkbox"/> Yes <input type="checkbox"/> No		Name:
AHA prepared and reviewed with all involved parties and signed by each site work crew member.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
If high priority lines are located within 10 feet, has a meeting been held with owners / operators?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Are utilities shown in the area of excavation on utility map?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Are utilities located?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Plans verified against locate markings.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Locate markings offset.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Visual check for unmarked utilities (e.g., manholes, equipment, valves).	<input type="checkbox"/> Yes <input type="checkbox"/> No		
If electrical, has electrical subcontractor been notified and scheduled to turn off the service prior to the start of the operation (including pot holing and all other work that might result in contact with the utility)?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
All utilities potholed at each crossing according to approved procedure?	<input type="checkbox"/> Yes <input type="checkbox"/> No		

Excavation Utility Permit

IV. SIGNATURES (All signatures required)		
	Location of Markings Known	Signature
Electrical Supervisor	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Operation Foreman	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Contractor Competent Person	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Superintendent	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Utility Locate / Pothole Procedures Instructions & Field Guide

All existing utilities will be located, marked, and visually verified prior to starting any operation. The foreman of each operation is responsible for ensuring that these procedures are followed and the AHA and all necessary drawings are available at the operation.

Excavation / Utility Permits:

An Excavation / Utility Permit is **required** for all operations which penetrate the ground surface. The Excavation/Utility Permit has several sections requiring completion.

- Section 1: Describe the work zone and include the location of the work, purpose of the work, start and finish dates, and the size of the excavation. Attach an additional sheet of paper if more space is needed.
- Section 2: Record the locating service information and include the locate ticket number, the date requested, and who requested it.
- Section 3: Covers the pre-work checklist and includes a series of questions concerning the One-Call Center, utility locations, pot holing, and job/activity hazard analysis. This section is to be completed by the Project Superintendent. The questions are yes / no and must be initialed off before excavation operations can begin.
- Section 4: This section requires signatures that must be obtained before excavation operations can begin. The responsible engineer, foreman, competent person and superintendent will sign this section before any operations can begin. By signing this area, each person is acknowledging that all proper operation steps have been taken. They are also acknowledging that they have reviewed the hazard analysis for operation.

Any deviation from using the Excavation/Utility Permits must be accepted prior to the commencement of the operation, in writing, by the HP Superintendent. Once the Excavation/Utility Permit have been properly completed, the following documents must be reviewed with the foreman and personnel performing the operation.

- A copy of the Activity Hazard Analysis.
- A copy of the Utility as-built drawing. This drawing shall show all existing utilities that still remain on the project as well as any new utilities (water or temporary electric) that have been installed. Notes and highlights must be made on these drawings to indicate which runs have been installed.
- A copy of the Drainage Plan sheets for the work zone that the permit covers. Notes and highlights will be made on these drawings to indicate which drainage items (e.g., catch basins, pipe runs, etc.) have been installed.
- A copy of the Utility Plan sheets for the work zone the permit covers. Notes and highlights will be made on these drawings to indicate which utilities (water, gravity sanitary sewer, force main) have been installed.
- A copy of the Site Duct Bank Plan sheets for the work zone that the permit covers. Notes and highlights will be made on these drawings to indicate which duct banks have been installed, which ones have cable through them, and which ones are being utilized for temporary services (power or comm.).

Hot Work Permit

HOT WORK PERMIT		Name of Emergency Contact:	Telephone Number:
Contractor:	Supervisor Name & Phone:	Specific Location Within Building:	
Date of Work:	Special Nature of Work:		
Start Time: <input type="checkbox"/> AM <input type="checkbox"/> PM			
Stop Time: <input type="checkbox"/> AM <input type="checkbox"/> PM			
Anticipated Hazards Due to Work (Safety / Health / Fire):			
List of Protective Clothing and Equipment Required for Work (include personal protection and public protection):			
Name of Person Performing Work:		Name and phone number of Fire Watch:	
Emergency Precautions (include type of required fire extinguisher):			
Has an Activity Hazard Analysis been completed for this operation? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Supervisor of Person Performing Work:			
Signature	Name and Title:		Date / Time:
Permit Issued by:			
Signature	Name and Title:		Date / Time:
Post Work Fire Watch:			
Signature	Name and Title:		Date / Time:

A FIRE WATCH IS REQUIRED FOR 30 MINUTES AFTER HOT WORK IS COMPLETE.

Hot Work Permit

FIRE WATCH REPORT				Name of Fire Watch Contact & Phone Number:			
				Company:			
Local Fire Department Phone Number:							
Hensel Phelps Contact and Phone Number:							
Date of Work:		Name of Company Performing Work:					
Reason for Work:							
Start Time: <input type="checkbox"/> AM <input type="checkbox"/> PM		Does this Fire Watch start immediately or after a set amount of hours?					
Stop Time: <input type="checkbox"/> AM <input type="checkbox"/> PM		Has the hot work permitting process been completed?					
Are fire doors and exits unobstructed?			<input type="checkbox"/> YES		<input type="checkbox"/> NO		<input type="checkbox"/> N/A
Are hallways and aisles kept clear?			<input type="checkbox"/> YES		<input type="checkbox"/> NO		<input type="checkbox"/> N/A
Are the fire alarm pull stations and fire extinguishers unobstructed?			<input type="checkbox"/> YES		<input type="checkbox"/> NO		<input type="checkbox"/> N/A
Are sprinkler heads free of obstacles?			<input type="checkbox"/> YES		<input type="checkbox"/> NO		<input type="checkbox"/> N/A
Is the storage of combustible material limited? (i.e. no excessive storage of boxes, paper or flammable liquids.)			<input type="checkbox"/> YES		<input type="checkbox"/> NO		<input type="checkbox"/> N/A
INSPECTION INTERVALS EVERY 30 MINUTES							
Initial	Time			Initial	Time		
		<input type="checkbox"/> AM	<input type="checkbox"/> PM			<input type="checkbox"/> AM	<input type="checkbox"/> PM
		<input type="checkbox"/> AM	<input type="checkbox"/> PM			<input type="checkbox"/> AM	<input type="checkbox"/> PM
		<input type="checkbox"/> AM	<input type="checkbox"/> PM			<input type="checkbox"/> AM	<input type="checkbox"/> PM
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		<input type="checkbox"/> AM	<input type="checkbox"/> PM			<input type="checkbox"/> AM	<input type="checkbox"/> PM
		<input type="checkbox"/> AM	<input type="checkbox"/> PM			<input type="checkbox"/> AM	<input type="checkbox"/> PM

A FIRE WATCH IS REQUIRED FOR 30 MINUTES AFTER HOT WORK IS COMPLETE.

Exhibit B Sample Accident Prevention Plan

“COMPANY NAME/LOGO HERE”

Accident Prevention Plan

Project Number:

Project Name: Project Address:

1 Grand Ave, Bldg. XX

California Polytechnic University

San Luis Obispo, CA 93407

Date Produced:

Revision Dates:

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23)	Crane Safety	#
24)	Critical Lifts	#
25)	Rigging	#
26)	Fall Protection	#
27)	Excavation and Trenching	#
28)	Confined Space Entry	#
29)	Ladders	#
30)	Scaffolds	#
31)	Powered Industrial Equipment	#
32)	Boom and Scissor Lifts	#
33)	Hazard Communication Plan	#
34)	Hazardous Material and Waste Site-Specific Safety Plan	#
35)	Severe Weather	#
36)	Heat/Cold Stress	#
37)	Forms	#

1) Statement of Safety and Health Policy

It is the policy of "COMPANY NAME" to perform work in the safest manner possible consistent with good construction practices. Accidents can be prevented through planning, training, follow-up, and a cooperative effort in all areas of our operations.

Project specific risk must be identified, and preventive measures applied prior to the execution of any work.

To fulfill the requirements of this policy, "COMPANY NAME" has established this Accident Prevention Plan (APP) to support our philosophy all injuries can be prevented.

2) Project Description

Add project description here and SAT Map image of project location (e.g. from Google Earth) and Street Map with project location indicated.

3) Responsibilities and Lines of Authority

The "COMPANY NAME" safety culture is grounded in the belief that all personnel (salaried, craft, and Trade Partners) are responsible for the prevention of all unsafe acts on the project site. Although we are all responsible, there are key elements of the "COMPANY NAME" safety and health program that are the responsibility of key staff members to ensure implementation. Additionally, the importance of the overall safety culture on the project is predicated on the management team's commitment to developing and implementing this Accident Prevention Plan based on good leadership involvement, employee engagement and accountability.

The Project Manager and Superintendent are responsible for the effectiveness of the Accident Prevention Plan on their project. The primary responsibility for jobsite safety rests with the Superintendent. It is the Project Manager's responsibility to ensure safety is properly incorporated into planning and execution; reinforce and promote accountability among staff members and Trade Partners as it relates to the project's safety policies; and enforce these policies by actively participating in safety-related functions.

Senior management is responsible for the appointment of appropriate persons to administer the program and oversight of safety performance for the project. Project safety performance will be audited as part of the review process and employee periodic performance evaluations.

Trade Partners will be furnished a copy of this APP and are bound to it contractually. "COMPANY NAME" reserves the right to update and/or modify any and all items outlined in this APP without any cost to "COMPANY NAME" and/or the Owner. "COMPANY NAME" will provide updated APP to all Trade Partners should there be any updates and/or modifications that would potentially affect the Trade Partners. In addition, Trade Partners and tier contractors are responsible for compliance with all applicable laws, regulations, their safety program and their Activity Hazard Analysis.

Key elements and responsibilities of the Safety and Health Program									
Program Element	Superintendent	Project Mgr	Area Supt	Safety Mgrs / Safety Eng	Staff	Foreman	Safety Director	Vice President Operations Mgr General Supt	Trade Partner Supervision
Accident Prevention Plan & Appendices	P	P	A	A	X	X	R	O	X
Site Utilization Plan and Material Management Plan	P	A	P	A	X	X	R	O	X
Public Hazard Analysis	P	A	A	A	X	X	R	O	X
Emergency Action Plan	P	P	A	A	X	X	O	P	A
Site Specific Safety Orientation	P	P	A	A	X	X	R	O	X
Safety Training	P	P	A	R	A	A	R	O	X
Foreman Indoctrinations	P	X	A	R		X	R	P (GS)	X
SAFE Program	P	P	A	R	X	X	R	O	X
Disciplinary Action Plan	P	P	A	R	X	A	R	O	P
AHA/STA	P	A	P	R	A	A	R	O	P
6 Step Quality/Safety Process	P	P	A	R	A	A	R	O	P
Documentation	P	P	A	A	X	A	R	O	P

Primary = P Assist = A Accountable = X Resource = R Oversight = O

4) Prevention of Alcohol and Drug Abuse

In order to maintain a safe, healthy and efficient work environment, and to minimize absenteeism and tardiness, all Employers, unless excluded by a collective bargaining agreement or other laws, codes, or ordinances, shall implement a Substance Abuse Prevention Policy that, at minimum, includes testing as prescribed by this section. "COMPANY NAME" may request at any time that the Trade Partner test 100% of their employees on the project or any personnel involved in an accident, incident or near miss. All associated costs are the responsibility of the employer of the affected employee.

Fundamental requirements of this program:

- Employers shall implement and enforce a policy that prohibits the possession, distribution, promotion, manufacture, sale, use or abuse of unauthorized drugs or drugs that are illegal under either federal or applicable state laws, drug paraphernalia, controlled substances and alcoholic beverages by employees, agents or any person otherwise under the control of the employer, including employees and agents of Trade Partners and consultants while on the work site.
- Employees shall be prohibited from reporting to the premises under the influence of drugs or alcohol.
- The Policy must apply to all personnel, including but not limited to regular, part-time, probationary, casual and contract employees of the company, as well as to employees and agents of Trade Partners and consultants. The employer shall take whatever legally permissible steps are necessary or appropriate to enforce compliance with this policy.
- Employees governed by this policy may possess a prescription medication in its original container and prescribed for current use of the person in possession by an authorized medical practitioner; provided that the employer provides a mechanism to ensure that employees taking prescription medicine inform their employer about potential side effects of medication which may affect the employee's work ability (particularly their alertness and

- coordination), safety and the safety of others.

Submittals, Planning, and Activity Hazard Analysis (AHA)

Each contractor must submit to "COMPANY NAME" an Activity Hazard Analysis (*Form B06.01*) for each definable feature of work (DFOW) prior to the start of that operation. Each contractor is responsible to ensure that any of their Trade Partners also follow this procedure. The Activity Hazard Analysis should be accepted prior to and reviewed in the Preparatory Meeting. The contractor should come prepared with a final submitted and accepted product to this meeting. This AHA must identify the following:

- Equipment that will be used to include training and inspection requirements; and
- The names of the designated competent and qualified person(s) for the operation. Proof of competency must be attached to the Activity Hazard Analysis.

The Activity Hazard Analysis must be physically present in the field while the DFOW is being performed. It is the responsibility of each contractor for compliance with all applicable safety laws, regulations, ordinances, and contractual requirements. Each contractor is responsible for reviewing each Activity Hazard Analysis with all personnel involved before the start of the DFOW, on a regular basis, and must notify "COMPANY NAME" and adjust the Activity Hazard Analysis as necessary whenever the plan for performing the DFOW is modified or following an unplanned event.

Additional documents must be submitted to "COMPANY NAME" before any Trade Partner starts work. These documents include, but are not limited to the following:

- Safety Plans (as required)
 - Lifting / Hoisting
 - Fall Protection
 - Lock Out / Tag Out
 - Respirable Crystalline Silica Exposure Control Plan
 - Respiratory Protection
 - Permit Required Confined Space
 - Arc Flash Hazard Analysis
- Engineering Plans
- Abatement Plans
- Demolition Plans
- Steel Erection Plans
- Formwork and Shoring Plans
- Hazard Communication Information (Refer Hazard Communication Plan)
 - Trade Partner Safety Data Sheet (SDS) Log (*Form A03.09*)
 - Trade Partner Chemical Questionnaire (*Form A03.08*)
 - Site-Specific Safety Data Sheets (SDS)
- Proof of competency for designated competent and qualified people
- Equipment operator training certificates
- California Specific Requirements:
 - Injury and Illness Prevention Program
 - Code of Safe Practices
 - Cal/OSHA Annual (and activity notification) or Project Permit, if required
 - Heat Stress Prevention Program
 - Fire Protection Plan

5) Training

Site-Specific Safety Orientation (Indoctrination):

All personnel accessing a "COMPANY NAME" project must complete the Site-Specific Safety Orientation prior to engaging in work activities. This orientation is approximately two hours long. Participants will be oriented to the general safety rules of the project. In addition, they will learn about the emergency action plan, reporting of safety concerns, SAFE program, the project's disciplinary program and the importance of reporting accidents and near misses. After this orientation, a label with each participant's first and last name will be issued for placement on the front of the hard hat. It is required that this label remain on their hard hat. A site-specific sticker or badge will be issued to each person allowing them access to the project site. There may be circumstances where "COMPANY NAME" require that an individual, crew, or foreman will repeat the orientation prior to being allowed back on the site.

Mandatory Training:

"COMPANY NAME" supervisory personnel will be trained in first aid and CPR. Each Trade Partner is required to have at least one employee that has current first aid and CPR training on the project while they are performing work. Additional training that will be required is based upon the definable feature of work. Examples of mandatory training include, but are not limited to: confined space entry, crane operation, equipment and forklift operation, trench and excavation, scaffolds, fall protection, respiratory protection, rigging, powder-actuated tool use, hazmat, and OSHA 10 or 30 hour. If a contractor uses temporary workers, they must receive all applicable training prior to beginning work.

All "COMPANY NAME" Staff onsite during demo will also be trained in Lead Awareness Training.

Periodic Safety and Health Training:

"COMPANY NAME" will conduct weekly toolbox meetings. These meetings will be conducted by a qualified management representative. Trade Partners will be required to conduct weekly toolbox meetings specific to their scope of work. These meetings will be held during the week at the Trade Partner's discretion. Signed documentation by all the employees present during the meeting and the topic discussed will be submitted to "COMPANY NAME" weekly and no later than the end of the business day on Friday. A job wide safety meeting will be held at least monthly on this project.

"COMPANY NAME" will provide awareness and comprehensive level training to our employees periodically based on project requirements. Trade Partners are responsible to provide necessary training to their employees based on applicable regulations, safety audit findings, near miss events / accidents, their company policy, and this APP.

Emergency Action Plan Training:

Training in the project's emergency action plan will take place in the site-specific safety orientation. Refresher training will be conducted periodically throughout the length of the project. In addition, at least two drills per year will be conducted where the emergency action plan is rehearsed.

6) Safety and Health Inspections

In accordance with our SAFE Program, The Project Superintendent and Project Manager are responsible to develop a jobsite safety audit schedule that helps facilitate consistent safety presence in the field. All supervisory employees (foreman and above) will participate in these audits and will be trained in our SAFE Program.

In addition, "COMPANY NAME" will conduct a weekly self-inspection. The "COMPANY NAME" Weekly Safety Audit (*Form B08.01*) will be used as a guide for these inspections and a copy kept on file. Periodically, safety inspections shall be completed by the Director of Safety and Health. Trade Partner supervisors may be asked to participate in these weekly safety walks.

Trade Partners and tier contractors are required to conduct, as a minimum, a weekly safety inspection of their operation. During this inspection, they should verify that the Activity Hazard Analysis is accurate and updated, if needed. This process must include a review of the designated competent and qualified personnel to verify they are onsite, as required.

Our Craft Awareness, Recognition, and Engagement in Safety (CARES) Program will be implemented on most "COMPANY NAME" Projects. Project leadership will work with Trade Partners to select representatives to participate in this required safety committee.

Machinery and Equipment Inspections:

Before any machinery or equipment is put into use on this project, it shall be inspected and tested by a qualified person and determined to be in safe operating condition, including reverse signal alarms, guards for moving parts and hot surfaces, overhead protection, and rollover protection, as required. All operators shall be familiar with provisions of the applicable standards.

Inspections must be conducted by users prior to each use. Continued inspections by each contractor having equipment or machinery shall be made at such intervals as necessary to ensure a safe operating condition and proper maintenance. Any machinery or equipment found to be in an unsafe operating condition shall be tagged at the operator's position "Out of Service - Do Not Use", and its use prohibited until unsafe conditions have been corrected.

All repairs on machinery or equipment shall be made at a location that will provide a safe place for repairmen. Hazardous energy must be adequately controlled in accordance with manufacturer recommendations and applicable regulations prior to any repairs being made. Any guard or safety device removed or made ineffective shall be replaced or restored to safe operating condition immediately after completion of work that required its removal.

7) Recognition and Discipline

This APP has been developed for this project to achieve the following objectives:

- Establish a site-specific safety program;
- Communicate this program to our personnel and Trade Partners;
- Provide a method for continuous development and updating of this Accident Prevention Program; and
- To create a culture of safety and health awareness in management, field supervisory and craft personnel that all accidents are preventable, and we are all accountable for the safety of each other.
- Safety Incentive
 - Reaching 100 work days with zero recordable injuries and zero lost time injury.
 - This goal can be reached up to 3 times depending on the project duration and do not have to be consecutive.
 - Each safety incentive of \$2,000.00 is to fund a special event on the jobsite for Project team members and tradesmen (i.e. safety barbecues)
 - Allowable expenditures can include food, non-alcoholic beverages, catering costs, event provisions, raffles prizes, signage, press releases, and/or other related cost as agreed to by the Project Management Team.

Policies and Procedures for Non-Compliance:

"COMPANY NAME" uses our Safety Accountability for Everyone (SAFE) Program as the primary method for observing and correcting the unsafe behaviors of workers and unsafe environmental conditions. SAFE requires a one-on-one interaction between the observer and the worker once an unsafe act is observed. This interaction provides the observer with the opportunity to discuss with the employee the hazards of the unsafe act observed and the actions to prevent recurrence. Through a questioning dialogue with the worker, the observer finds ways to prevent the unsafe act(s) from occurring again.

SAFE also recognizes safe behavior of workers by thanking them for a job well done and reinforcing their safe behavior. The individual will be recognized for their continued effort and encouraged to continue working safely.

If the observer is unable to affect the desired change in behavior of a worker committing an unsafe act or causing an unsafe condition to exist, using SAFE, the employer's disciplinary program must be implemented. If the employer's disciplinary program is not implemented the individual and / or the supervisor will be removed from the project.

There are some circumstances where a violation will result in immediate removal from the site. These inviolable rules will be communicated to all persons entering the site during the site-specific safety orientation and include:

- Fall protection;
- Poor safety attitude;
- Lock out / tag out;
- Confined space;
- Trench / excavation;
- Removal of safety devices;
- Horseplay or fighting; and
- Drug or alcohol use.

In the event a Trade Partner has safety issue(s) on the project, "COMPANY NAME" may require the Trade Partner to furnish a full-time safety professional for the project. "COMPANY NAME" reserves the right to terminate this subcontract in whole or in part at any time for unresolved safety issues or repeat safety violations.

8) Accident, Incident and Near Miss Reporting

All accidents, incidents, and near misses must be reported to the "COMPANY NAME" Project Superintendent immediately. These events must be investigated and a report indicating actions to prevent recurrence given to "COMPANY NAME" within 24 hours of the accident. In the event an employee is injured, "COMPANY NAME" must be kept informed on their status.

Accident Reporting: A copy of each accident report, which the Contractor or subcontractors submit to their insurance carries, shall be forwarded to the University's Representative as soon as possible, but in no event later than seven (7) calendar days after the day the accident occurred.

Any accident arising out of a Trade Partner or tier contractor's work shall be discussed at the next Contractor's Safety Committee meeting, to determine causes, methods of prevention and lessons learned. At that meeting, an officer, executive or owner of the company shall explain, in person, the cause of the accident and the actions the Trade Partner shall take to prevent similar accidents in the future.

Return to Work Program:

All contractors on the project are required to have a return to work program where injured employees are offered light duty tasks or jobs when recommended by a health care provider as a result of work-related injury or illness. Physical demands must be assessed for modified duty jobs to ensure they can be performed safely by injured employees and doctor recommendations on limitations must be followed. Supervisory personnel must be provided with any physician's restrictions to ensure that the restrictions are followed. All medical records for injured employees must be maintained by the employer and kept confidential.

Trade Partner must make every effort necessary to get the injured employee back to a full duty status and employees must be trained on the employer's program.

Local health care providers must be made aware of the return to work program when the clinic is established and describe details of how the company provides modified work to employees who are unable to perform their regular duties.

Monthly Report:

No later than the 10th of each month, each Trade Partner must report to the "COMPANY NAME" Project Manager the following information:

- Total work hours for the previous month;
- Total OSHA Recordable Incidents for the previous month;
- Total Lost Time Injury cases for the previous month, including total days lost;
- Total Modified, Transferred or Restricted cases for the previous month;
- Total DART (days away, restricted, transferred) cases for the previous month; and
- Other accident information that is required for the project.

9) Personal Protective Equipment

As a minimum, everyone entering this project will be required to wear:

- Hard hats will be worn with bill facing forward unless the hardhat is designed to be worn with the brim to the back and the task or job being performed requires that the brim be positioned to the back of the head;
- ANSI Z87.1 safety-glasses with rigid side shields (prescription lenses must meet the same standard);
- Construction grade work boots;
- Work shirt with t-shirt length sleeves; and
- Sturdy pants.
- Class II High Visibility Vest

Prior to initiating a new definable feature of work, a hazard assessment will be conducted using the Activity Hazard Analysis process to determine the need for additional personal protective equipment. No loose or frayed clothing can be worn, especially near machinery or other moving parts.

All "COMPANY NAME" and Trade Partner employees shall be trained on the types of personal protective equipment that will be used. This training may be conducted in orientation, classroom and/or through toolbox talk trainings. Certification of this training will be maintained by signing an orientation safety sign in sheet and/or on the toolbox talk documentation.

Respiratory Protection:

Prior to the use of respiratory protection, the use of feasible engineering and administrative controls will be evaluated by a qualified person to see if they can effectively eliminate, reduce or control the hazard to an acceptable exposure. Where feasible engineering or administrative controls do not adequately address the hazard, respiratory protection will be used to provide exposed workers with proper protection. If respiratory protection is necessary, the contractor must submit a written respiratory protection plan that meets applicable regulations. It is the responsibility of each contractor to evaluate the hazards of any substance they will be using and take appropriate measures to protect their employees and other personnel in the area. "COMPANY NAME" may request that any operations producing a potential respiratory hazard to be analyzed by an Industrial Hygienist at the Trade Partner's expense.

General Guidelines:

- Workers wearing respiratory protection must be medically evaluated and fit tested prior to wearing respirators.
- Respirators must be kept clean and stored in accordance with manufacturer recommendations.
- Workers wearing respirators must be clean shaven to maintain a tight seal with the respirator.
- Contractors must verify that respiratory equipment is appropriate for the exposure(s).
- Respirators must be NIOSH approved.
- Workers must be trained in accordance with applicable regulations.

10) Emergency Response

Procedures and Tests:

If there is an event that requires "COMPANY NAME" to evacuate the project, "COMPANY NAME" will use air horns to notify personnel that an emergency situation exists. Continuous blasts of air horns around the project will notify project personnel to report to the assembly area located at Gate 4 at the southwest corner of the project site as a primary assembly point, as well as the main front entrance of the building off of University Dr as a secondary assembly point. Designated personnel will do a head count of all personnel to assure all employees are accounted for. If the head count determines that any are missing, immediately report the information to the Superintendent. This information will be communicated to the Crisis Team Leader and the Crisis Management Plan will be implemented. This plan will be periodically updated once the erection of the building has commenced and include posting of exit routes.

At the beginning of the project and thereafter on a periodic basis, the Superintendent will invite police, emergency services and the fire department to the jobsite. The purpose of the visit will be to familiarize them with the job and the location.

Major Injury:

In the event of a serious injury to an employee or general public:

- The person with authority at the scene will take charge until the Superintendent arrives.
- Notify "COMPANY NAME" giving the location of the accident, the number of people injured, and the nature of the accident.
- Limit communication systems to emergency use only.
- The field office personnel will call emergency services giving them the number of people injured, cause of injury, and directions to the accident scene.
- Designate persons to meet the ambulance at the entrance to the jobsite to escort emergency personnel to the accident scene.
- Emergency first aid may be administered. The injured person is not to be moved unless further injury is imminent.
- Support personnel are to keep all nonessential people away from the emergency scene and maintain emergency access.

- In case of injury or alleged injury to the general public, get their name, address, and phone, and give the information to the Superintendent.
- If necessary, "COMPANY NAME" will initiate the Crisis Management Plan and notify necessary parties.

Fire Fighting Plan:

In the event there is a fire, follow these steps:

- Notify the "COMPANY NAME" field office giving the exact location and type of fire;
- The field office will notify the Superintendent;
- All communications systems will be limited to emergency use only;
- The person in authority at the scene will take charge until the Superintendent arrives;
- If necessary, field office personnel will notify emergency services, giving the nature of the fire and location;
- Designate persons to meet the Fire Department at the jobsite entrance to escort them to the fire; and
- Unless life threatening, personnel on the job may attempt to fight the fire using fire extinguishers until the Fire Department arrives. In cases of heavy smoke or fumes, an order to evacuate will be issued. When the Fire Department arrives, the scene will be turned over to them.

Posting of Emergency Telephone Numbers:

Near all telephones in the job trailer and the bulletin board, the following emergency phone numbers will be posted:

CLINICS

Med Stop Urgent Care
Urgent Care Clinic
283 Madonna Rd Ste B
San Luis Obispo, CA 93405
805-549-8880

Cottage Urgent Care San Luis Obispo
Foothill Plaza
Urgent Care Clinic
777 E Foothill Blvd
San Luis Obispo, CA 93405
805-762-4348

Option Care
Walk In Clinic
2945 Mcmillan Ave Ste 248
San Luis Obispo, CA 93401
805-639-0917, 888-579-0917

HOSPITALS

Adventist Health Medical Center
Hospital
115 Mall Dr
Hanford, CA 93230
559-582-9000

PHYSICIANS

Chak, Kathleen, DO
Med Plus Pismo Beach
Internal Medicine
877 Oak Park Blvd
Pismo Beach, CA 93449
805-474-8450

Sorensen, Eric N., MD
Urgent Care of Morro Bay
Family Practice
General Practice
783 Quintana Rd ste 100
Morro Bay, CA 93442
805-771-0108

Hadley, Michael Delane, MD
Akeso - Templeton
Family Practice
350 Posada Ln Suite 102
Templeton, CA 93465
805-434-3699

Sorensen, Eric N., MD
Urgent Care of Atascadero
Family Practice
General Practice
9700 El Camino Real suite 100
Atascadero, CA 93422
805-466-1330

Pomerantz, Mark Ford, MD
Akeso occupational Health
General Practice
350 Posada Ln Suite 203
Templeton, CA 93465
805-434-3699

Sorensen, Eric N., MD
Urgent Care of Pismo Beach
Family Practice
General Practice
2 James Way suite 214
Pismo Beach, CA 93449
805-295-6594

11) Medical Support

Medical Support:

First aid kits will be provided in the appropriate numbers and will conform to the applicable regulatory requirements. Weekly checks will be made to ensure the kits are properly stocked and located. Trade Partners are responsible for maintaining adequately stocked first aid kits for their employees. Toolbox meetings will be held to discuss the location and contents of the first aid kits.

Directions from Project to Clinic:

“Provide Map Here”

Med Stop Urgent Care

“Provide Map Here”

Cottage Urgent Care

“Provide Map Here”

Option Care – Walk In Clinic

“Provide Map Here”

12) Site Sanitation

Potable water will be obtained from locations identified by the Superintendent. Common water containers (if used) must have disposable paper drinking cups obtainable from a dispenser and receptacles for disposal of the paper cups will be provided. All containers will be clearly marked “DRINKING WATER” and will be kept in a clean and sanitary condition. Trade Partners are responsible for providing their own source of potable water for their employees.

Toilets will be provided based on the following schedule:

Number of Employees	Minimum Number of Toilets
20 or Fewer	1
20 or Greater	1 toilet seat and 1 urinal per 40 workers
200 or Greater	1 toilet seat and 1 urinal per 50 workers
Wash facilities will be provided near toilet facilities.	

“COMPANY NAME” and Trade Partners must be aware of their responsibility and the necessity of cleaning their respective work areas throughout the day. Failure to maintain a clean work area will result in mandatory waste/debris removal at the Trade Partner’s expense. It is the expectation of “COMPANY NAME” that every Trade Partner removes their generated trash and construction debris as it is generated. Trash carts and cans shall be provided by the Trade Partner as a means of removing trash and construction debris from the project and deposited in trash dumpsters daily, at a minimum, and more frequently as conditions warrant.

Any rag or waste soiled by combustible materials, shall be stored in tightly closed metal containers and disposed of properly. Timber and forming materials shall be stacked so as to be stable and self-supporting. Used lumber and forming material shall have all nails (or similar impalement hazards) withdrawn as they are taken apart.

13) Indoor Air Quality Management

It is the responsibility of each Trade Partner working on the project to report any worker concerns related to indoor air quality to “COMPANY NAME” immediately. In addition, each Trade Partner on the project must maintain good indoor air quality conditions associated with their work.

General Guidelines:

- Activities that involve usage of chemicals or solvents that are hazardous will be conducted after normal working hours, where possible, or in a manner that will prevent exposure to other workers.
- Gas powered equipment cannot be used in an enclosed area unless sufficient precautions are taken and continuous air monitoring is conducted. Examples of sufficient precautions include use of scrubbers and ventilation systems.
- Smoking is only allowed in designated areas.
- Water will not be allowed to accumulate and will be cleaned up immediately.

14) Abrasive Blasting

This plan provides general guidelines to address hazards associated with abrasive blasting. If any abrasive blasting will be conducted on this project, the contractor is required to submit an Activity Hazard Analysis to address the hazards associated with the work and to protect anyone in the area of this operation.

General Guidelines:

- ☐ Only trained and authorized personnel are allowed to perform abrasive blasting.
- ☐ Any abrasive blasting will comply with SLOAPCD Rule 403

Standard Specifications

- ☐ All portable abrasive blast equipment will be registered with CARB
- ☐ Blasting media must be non-silica base and must minimize exposure to silica and any hazards substances that could be generated during the blasting process.
- ☐ Prior to blasting, a qualified person must evaluate the blasting media, surface coatings and any dusts or fumes that could be generated during the operation. The associated hazards and controls will be documented in the Activity Hazard Analysis.
- ☐ Blast operators will wear down draft hood, NIOSH approved, air-fed respirators with breathing air that meets grade D quality standards. A respiratory protection program meeting applicable requirements must be submitted to "COMPANY NAME" prior to beginning this operation.
- ☐ Blasting operations must take place after normal work hours or the area must be contained so only authorized personnel are allowed.
- ☐ Blasting media must be cleaned up at the end of each shift.
- ☐ Do not blast objects that are not properly secured.
- ☐ Blasting of areas used to store flammable materials is not allowed.
- ☐ Hose couplings safety pins and air hose whip checks must be installed on all air and blast hoses.
- ☐ Do not aim the nozzle towards anyone.

Pressurized Pot Procedures:

- ☐ Do not perform any maintenance on any abrasive blaster or blasting equipment while it is pressurized. Depressurize the blaster and pot before loading abrasive material or performing any maintenance. Disconnect the air supply prior to performing maintenance or loading abrasive.
- ☐ Inspect the pot and hoses before each use to ensure there is no damage, leaks, corrosion, or worn parts.
- ☐ Follow the manufacturer's instructions on maximum allowable working pressure. Do not exceed the pressure recommended by the manufacturer.
- ☐ All safety devices including pressure relief devices must be operational.

15) Respirable Crystalline Silica

It is the responsibility of each employer whose employees are potentially exposed to respirable crystalline silica above 25 µg/m³, as an 8-hour time weighted average (TWA), and under any foreseeable conditions, to establish a written Exposure Control Plan in accordance with applicable regulations. Applicable employers must identify and provide a competent person that is able to identify existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or control them. Each jobsite operation will be evaluated through the Activity Hazard Analysis process that could potentially result in the generation of crystalline silica. The designated competent person will also make frequent and regular inspections of the project, materials, and equipment to effectively implement the written exposure control plan.

Exposure Controls:

Acceptable engineering and/or work practice controls must be used to reduce the level of exposure to employees and others in the work area. If applicable, employers may use OSHA's Specific Exposure Control Methods - Table 1 (*Form C14.01*) if the controls are properly and fully implemented.

If all controls are not properly or fully implemented or if the task is not listed in OSHA's Specific Exposure Control Methods - Table 1 (*Form C14.01*):

- The employer may also assess and limit the exposure to the workers and others in the area to respirable silica above the permissible exposure limit of 50 µg/m³, as an 8-hour time weighted average (TWA).
- Conduct exposure assessments in accordance with applicable regulatory requirements.

When engineering controls are not feasible and/or not effective in the reduction of crystalline silica the use of respiratory protection will be used and the contractor's written respiratory protection plan implemented. Note that general dilution ventilation is not a solution to controlling silica dust.

Where respiratory protection is required, each employer must submit a written Respiratory Protection Program to "COMPANY NAME" and must meet all applicable OSHA requirements. Refer to section 10 of this manual for additional information.

Monitoring for Crystalline Silica:

The project will be visually inspected for operations that may produce airborne crystalline silica. Any suspect operations will be communicated to the Superintendent and applicable Trade Partner. The Activity Hazard Analysis for the operation will be reviewed and amended as necessary to reduce the potential of over exposure to crystalline silica.

Air monitoring by an Industrial Hygienist may be requested to determine effectiveness of controls for airborne crystalline silica. Trade Partners and/or tier contractors will be responsible for arranging any necessary testing at their own cost.

Any Trade Partner responsible for conducting air monitoring shall provide to "COMPANY NAME" a copy of the air monitoring results to determine effectiveness of control methods. A copy of the air monitoring report shall be maintained and placed in the safety point file system.

Where air monitoring is performed to comply with the requirements of this section, provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to respirable crystalline silica.

Within five working days after completing an exposure assessment, post the results in an appropriate location accessible to all affected employees. If an exposure assessment indicates that employee exposure is above the PEL, describe in writing, the corrective action being taken to reduce employee exposure below the PEL and submit this to "COMPANY NAME". Work cannot be performed until an acceptable plan is developed.

Housekeeping:

To prevent the dispersal of silica dust, housekeeping practices will be implemented to reduce the buildup of silica dust. Dry sweeping, use of blowers and the use of compressed air for the cleaning of floors, clothing, and other surfaces is prohibited where crystalline silica is present. If vacuuming is used, the exhaust air shall be HEPA filter protected to prevent generation of airborne respirable silica concentrations. Gentle wash down of surfaces is preferred but not in areas where mold generation could occur. Processes such as dry sweeping and dry scraping of fire proofing is also prohibited if silica is present in the product.

Medical Surveillance:

Medical surveillance must be available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under this section to use a respirator for 30 or more days per year. These medical examinations must be performed by a PLHCP and in accordance with applicable regulations.

General Guidelines - Miscellaneous:

- Medical surveillance will be provided in accordance with applicable regulatory requirements.
- Respirable crystalline silica should be incorporated into the Hazard Communication Program.
- Workers covered by this section must be able to demonstrate knowledge and understanding of:
 - The health hazards associated with exposure to respirable crystalline silica.
 - Specific tasks that could result in exposure to respirable crystalline silica.
 - Measures that have been implemented to limit exposure.
 - The identity of the employer's competent person.
 - The purpose and description of the medical evaluation procedures.
- Appropriate recordkeeping must be maintained in accordance with applicable regulatory requirements.
- Access to areas where respirable silica dust is being produced will be controlled to minimize the number of people exposed, when necessary. Examples of acceptable methods to control access include:
 - Creating a controlled access area with the use of hard barricades, danger tape, snow fence, or another equally effective method. Signage must be in place informing personnel to keep out because silica dust producing operations are being performed.
 - Performing operations at times when other personnel are not on the project such as night shift or weekends.
- Prior to reopening an area to other personnel, it is required that any silica dust that was produced during the operations be removed through HEPA vacuuming or dry sweeping to minimize any potential exposure to others.
- Compressed air or leaf blowers are not to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air or no alternative method is feasible.

16) Barricades

It is the responsibility of the contractor performing work in an area where access is restricted or where personnel need to be warned of a potential hazard to install, maintain and remove the barricade once work is complete. Warning type barricades are not allowed to be used when there is a fall exposure or potential of serious injury. In these cases, a protective type

barricade must be used.

General Guidelines:

- Personnel are not allowed to cross any barricade unless they are authorized to do so and fully understand the hazards associated with crossing into a barricaded area.
- Maintain barricades so they effectively keep unauthorized personnel out of the area.
- Barricades are required and will be used around trenches, unprotected roof edges, and under overheadwork.
- In some circumstances, an area may be barricaded warning personnel of multiple hazards. An example of this is a barricade around numerous excavations.
- Types of barricades include:
 - Warning – These call your attention to a hazard and keep people away from the area but offer no physical protection.
 - Caution Tape (yellow) implies that personnel can enter the area using caution after they have determined what the hazards are.
 - Danger Tape (red) indicates a high degree of hazard and that only authorized people associated with the work being performed can enter the area.
 - Danger tape is not a substitute for protective barriers, guardrails, or hole protection.
 - Signage should be placed in danger areas indicating the hazard and responsible supervisor with contact information.
 - Snow Fence (orange) may also be used as a barricade in certain situations.
 - Protective – These barricades provide physical protection from falling and other hazards and must never be crossed without special consent and precautions. Examples of protective barricades include guardrail systems.

17) Lighting

The Activity Hazard Analysis process will be used for the identification and review of the lighting requirements for each definable feature of work. In addition, lighting will be evaluated as part of our SAFE and safety audit process. Personnel will not be allowed to work in an area that doesn't have sufficient light. When light levels are found to be in question, a light meter will be used to measure light readings and the levels will be recorded.

It is the responsibility of the foreman to ensure that temporary lighting brought to the project meets the minimum lighting requirements as identified below.

It is the responsibility of the Trade Partner to provide task/temporary lighting, temporary illumination devices will meet applicable requirements for employees to work in a properly lighted environment.

Facility or Function	Foot Candles
General construction area lighting	5
General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance	3
Indoors: warehouses, corridors, hallways, and exits	5
Tunnels, shafts, and general underground work areas	5
General construction plant and shops	10
First aid stations, infirmaries, and offices	30

18) Traffic Control

Traffic control on roads shall be accomplished in accordance with DOT Federal Highway Administration's MUTCD and local regulatory requirements. A traffic control plan developed by a qualified person must be submit prior to the start of this work.

General Guidelines:

- Personnel exposed to traffic will wear, at a minimum, ANSI Class II high visibility vests or equivalent. There may be situations where a higher rated vest is required (night work, high traffic speed, lowvisibility).
- Only trained flaggers will be used to control traffic.
- Traffic control systems must be maintained.
- Pedestrian exposure must be controlled.

19) Fire Prevention

Fire Extinguishers:

Fire extinguishers will be located around the project for general use. In addition, fire extinguishers shall be provided at points of hot work, fuel areas, and as required in storage and building areas. All extinguishers will be inspected, serviced and maintained in accordance with applicable regulatory regulations. Monthly Inspections will be documented on the tag attached to each extinguisher and extinguishers will be serviced annually. The number, type and location of fire extinguishers are outlined below. Note that local fire codes may have more strict requirements. Personnel should be trained on the use of fire extinguishers at least annually.

Location	Type	Minimum Number
"COMPANY NAME" Vehicles and Equipment	2.5 ABC	1
Field Offices	10 ABC	1
Material Storage	10 ABC	1
Where flammable liquid or gas is being used	10 ABC	1 within 30 feet
All other buildings	10 ABC	One per each 3,000 square feet or not more than 75 feet from any location

Hot Work Permits:

A Hot Work Permit must be obtained from the designated "COMPANY NAME" representative prior to commencing work involving welding, cutting, and brazing (hot work). The hot work permit is valid for the work day and must be posted adjacent to the hot work activity.

Fire Watches:

Fire watches shall be maintained for 30 minutes after the conclusion of the hot work activity. This requirement may be extended as conditions warrant. Fire watch shall include the entire work area. Vertical and horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to ensure that exposed areas are monitored. Individual(s) designated to fire watch shall have fire extinguishing equipment with a minimum rating suitable for the hot work operation available and shall be trained in the use of such equipment. Where hose lines are required, they shall be connected, charged, and ready for operation.

Flammable Liquids:

All flammable liquids, including paints, will be handled and stored in a manner to conform to applicable regulations. The storage area will be located at a designated area. "No Smoking within 50 Feet" signs will be posted in and on all required storage areas and materials. Only authorized personnel will be allowed access to these areas. When access is not required, the area will be secured.

20) Electrical Safety

This procedure establishes general guidelines for electrical safety.

Cords:

- All cords must be inspected prior to each use. Damaged cords must be immediately removed from service, red tagged or made inoperable. Do not use the cord.
- Extension cords must be a minimum of 12 gauge and rated for hard duty or extra hard duty.
- All extension cords must have a ground prong.
- Do not repair cords with tape. Only qualified personnel may make repairs. Follow manufacturer instructions.
- Route cords along walls or suspend them with nonconductive material like zip ties. Keep cords out of access areas

- where they are a trip hazard or will be damaged by equipment.
- If a cord must pass through a door or other pinch point, protect the cord to prevent damage.

Ground Fault Circuit Interrupters:

- Ground fault circuit interrupters (GFCI) must be used at the source for all activities requiring power on a jobsite, including plugging into permanent power.
- Test the GFCI before each use by pressing the “test” button and then the “reset” button.

Generators:

- Follow manufacture recommendations for grounding. Some generators are internally grounded.
- When refueling generators, make sure to shut off the power and use a funnel to avoid potential fuel spills and fire.
- Follow applicable requirements that are specified in the Storm Water Pollution Prevention Program.

Overhead Power Line:

- Keep equipment, cranes, and other material away from energized overhead power lines.
- If you must work within 20 feet of overhead power lines, notify “COMPANY NAME” prior to engaging in the work activity.

Arc Flash Hazard Analysis:

No work is allowed on or near any unprotected energized electrical systems greater than 50 volts. If this work is required and there are no other feasible options to de-energize a system, the following must be submitted to “COMPANY NAME”:

- Written confirmation from the project owner allowing work to occur on the energized system;
- The qualified electrical contractor performing this work must submit justification as to why de-energizing the system is not feasible;
- An arc flash hazard analysis prepared in accordance to NFPA 70E must be submitted to “COMPANY NAME”; and
- Qualifications of the personnel performing the work and of the person that developed the hazard analysis.

PPE that provides appropriate arc flash protection is required for all personnel working on or near exposed energized electrical equipment operating at 50 volts or more.

Temporary Power:

- Each contractor responsible for temporary power systems outlined below must inspect these systems using a qualified electrician at least monthly. Inspections must be documented and submitted to “COMPANY NAME” following the inspection.
 - Temporary power panels
 - Spider boxes, temporary power stations and cords connected to these stations.

21) Hazardous Energy

If any contractor will be working on or near any system that produces, uses, or stores hazardous energy, a written Lock-out/Tag-out program for the control of hazardous energy that meets or exceeds applicable standards must be submitted to “COMPANY NAME” for review before the work begins. An Activity Hazard Analysis for the specific operation must also be developed and submitted to “COMPANY NAME”.

General Guidelines:

- No work is to be done on any operable equipment until a zero-energy state is achieved and verified.
- Danger tags and locks will be used to prohibit operation of a valve, switch, or piece of power equipment.
- Only authorized personnel will place locks and tags.
- When tags are used, they will be single use and filled out completely. The tag should include the date, signature, and the name of the person using the tag. Tags will be attached securely.
- Tags are never to be reused but destroyed immediately on removal. No alterations are permitted.

- No device shall be operated with tag or lock attached.
- Employees must affix their own lock/tag.
- Only a qualified person will place "multi-lock" devices when other crafts are involved in the shutdown.
- No one can remove the lock except the person who put it in place.
- Moveable parts shall be mechanically blocked or locked out prior to cleaning, servicing, or adjusting operations.
- Employees who are authorized and affected by the Lockout/ Tagout program shall be trained in the provisions set forth by their employer's program and applicable regulations.

22) Crane Safety

Crane Submittal Documents:

Prior to assembling any crane onsite, the following documents must be submitted to "COMPANY NAME":

- **Manufacturer's Crane Data:**
 - The manufacturer's crane instructions;
 - Information used by the qualified person to select the crane. This include crane dimensions, footprint, capacity, assembly sections, etc.; and
 - Verify that the load charts supplied are specific to the model/type crane, car body / counterweights, boom & jib configuration, wire rope size and blocks selected.
- **Ground Condition Checklist:**
 - Define the manufacturer's ground bearing pressure requirements for the specific configuration of the selected crane; include crane weight, load weight and radius of loads;
 - The crane manufacturer has calculators to compute this, attach sheets to your plan.
 - The equipment shall not be assembled or used unless ground conditions are firm, drained (except for marshes/wetlands), and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials (blocking, mats, cribbing), the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met;
 - Reference the Geotechnical subsurface exploration information which identifies the allowable soil bearing pressure (Hard or Soft Conditions);
 - The user of the equipment and the operator must know the location of hazards beneath and adjacent to the equipment set-up/operation area (voids, tanks, trenches, utilities); and
 - Verify each question on the Crane Ground Condition's Checklist is accurately answered, provide documentation as required. Complete a separate form for each crane.
- **Power Lines:**
 - If power lines are present, before assembling or disassembling a crane, determine if any part of the crane, load line or load (including rigging and lifting accessories) could get, in the direction or area of assembly, within 20 feet of a power line during the assembly/disassembly process. If yes, the following forms are required:
 - Power Line Planning Meeting Agenda;
 - Power Line Safety Preparatory Agenda; and
 - Notification of Equipment Working Near Overhead Power Lines.
- **Site Logistics:**
 - Provide detailed information of area/s to be used to:
 - Traffic impacts;
 - Stage arriving trucks;
 - Unload trucks;
 - Stored unloaded crane components;
 - Crane assembly area;
 - Load test area; and FAA permits.

- **Crane Delivery Plan:**
 - Describe the dates, times and sequence of crane section delivery;
 - Define unloading storage areas;
 - Plan routes for delivery truck; and
 - Provide detailed information on support equipment (Forklifts) needed to support the crane component delivery. (Operator Training Certification, Inspections, Cribbing, Barricades).
- **Crane Assembly / Disassembly Procedures:**
 - Describe assembly/disassembly procedures to be used for each crane, if using the manufacturer's assembly procedures provide documentation of the procedures.
 - If using Crane Company procedure, provide approved procedure and verification of the credentials of the approving authority.
 - Complete a Crane Pre-Assembly/Disassembly Checklist for each crane to record key information including:
 - Provide documentation, including source of certification for the A&D Director.
 - Provide training records and documentation of training for assembly crew, qualified riggers, and qualified signal persons.
 - Fall Protection requirements for assembly crew:
 - Need details of method to be used: Fall Arrest/Restraint, ladders, AWP's (provide training certifications/documentation, type of equipment to be used, inspection records).
 - List the assist crane loads, rigging requirements, boom pick points:
 - List details of each pick
 - Include rigging angles
 - Weights of all rigging
 - Actual loads seen on rigging
 - Overall height of rigging from bottom of crane hook to bottom of the load.
 - Include rigging inspections
- **Crane Assembly Activity Hazard Analysis:**
 - Prepare an AHA specific for the assembly, inspection, pre-operational testing of the cranes to be used on this project;
 - The Activity Hazard Analysis should be specific to the assembly of the crane selected; and
 - Verify that whenever there is a concern as to safety, the operator shall have the authority to stop and refuse to handle loads until a qualified person has determined that safety has been ensured.
- **Crane Inspections:**
 - Required for each crane (must be specific, including the crane serial number for cranes to be brought on site);
 - Copy of Annual Inspection (verify it is current);
 - Copy of Proof of Insurance (verify it is current);
 - Arrival Inspection, (prior to allowing crane access to operational areas);
 - Prior to beginning any crane assembly ensure a Crane Pre-Assembly/Disassembly Checklist has been completed for each crane;
 - Post Assembly Inspection (Upon completion of assembly, the equipment shall be inspected by a qualified person to ensure that it is configured in accordance with manufacturer equipment criteria). Provide documentation, including source of certification; Independent 3rd Party Inspection; Proof Load test; and
 - Pre-operation (before each shift).
- **Crane Operation:**
 - Provide documentation, including source of certification (NCCCO) for each crane operator;
 - Verification that the crane operator has been trained on the safe operation of the equipment they will be using and evaluated;
 - Methods for transmission of signals;

- Methods to control the swing radius;
- Plan to keep personnel clear of overhead loads;
- Signal person training records;
- Rigging operator certifications; and
- Maximum wind velocity recommendations of crane manufacturer.

23) Critical Lifts

This plan establishes the requirements to be followed for critical lifts using load handling equipment, which are non-routine lifts requiring detailed planning and additional safety precautions. Critical lifts include:

- Lifts made when the load weight is 75% (or greater) of the rated capacity of the crane;
- Lifts that require the load to be lifted, swung, or placed out of the operator's view;
- Lifts involving more than one crane;
- Lifts involving non-routine or technically difficult rigging arrangement;
- Lifts involving the hoisting of personnel;
- Lifts involving hazardous materials (e.g., explosives, highly volatile substances);
- Lifts involving submerged loads;
- Lifts without the use of outriggers using "On-Rubber Tire" load charts;
- Lifts where the center of gravity of the load could change;
- Any lift that the crane operator believes should be considered critical; or
- Any lift that the lift or crane operator believes should be considered critical.

Prior to making a critical lift, a qualified person shall prepare a critical lift plan. The crane operator, lift supervisor, and rigger shall participate in the plan preparation. A Critical Lift Planning Worksheet shall be filled out by the Trade Partner or tier-contractor and submitted for review before work may begin. As a minimum, the plan shall specify:

- The specific make and model of each piece of load handling equipment, the line, boom, and swingspeeds.
- The exact size and weight of the load to be lifted and all load handling equipment and rigging components that add to the weight. The manufacturer's maximum load limits for the entire range of the lift, as listed in the load charts.
- The plan shall specify the lift geometry and procedures, including the load handling equipment position, height of the lift, the load radius, and the boom length and angle, for the entire range of the lift.
- Site drawing shall be included to identify placement/location(s) of load handling equipment, adjacent equipment and/or facilities, etc.
- The operator, lift supervisor, and rigger and include their qualifications.
- A rigging plan that shows the lift points and describes rigging procedures and hardware requirements.
- The ground conditions, outrigger or crawler track requirements, and, if necessary, the design of mats, necessary to achieve a level, stable foundation of sufficient bearing capacity for the lift.
- For floating load handling equipment, the plan shall describe the operating base (platform) condition and any potential maximum list / trim.
- Environmental conditions under which lift operations are to be stopped.
- Coordination and communication requirements for the lift operation.
- For tandem lifts, identify the requirements for an equalizer beam if applicable.

24) Rigging

This procedure establishes general guidelines for rigging.

General Guidelines:

Standard Specifications

- Only qualified and authorized personnel may perform rigging. These personnel must be identified in the Activity Hazard Analysis.
- An activity hazard analysis (AHA) shall be completed prior to any rigging activity being performed and shall be reviewed by all personnel involved in the rigging/hoisting operation(s) to be performed.
- Rigging equipment shall be inspected as specified by the manufacturer, by a Qualified Person, before each use on each shift and as necessary thereafter to ensure that it is safe.
- Never use a sling or lifting device that is damaged or missing the manufacturer supplied tag or label. All tags and labels must be legible.
- Keep unauthorized personnel out from under suspended loads. This may require barricading an area or using horns.
- Ensure that no sling will come in contact with a sharp edge or surface when it is loaded. Padding or other softeners must be used to prevent this condition from happening and must be of sufficient material/strength to protect the sling.
- The use and maintenance of rigging equipment shall be in accordance with the rigging and equipment manufacturer. Rigging equipment shall not be loaded in excess of its working load limit (WLL). Always reference the manufactures data for multipoint rigging. Slings and hardware lose capacity as the angle changes.
- All hooks must have a safety latch. An exception to this is shakeout hooks used to unload material that is not being lifted overhead.
- Custom fabricated slings, grabs, hooks, clamps, or other lifting accessories (e.g., equalizing beams, lifting or spreader beams, etc.) for such units as modular panels, prefabricated structures, and similar materials shall be designed by a Registered Professional Engineer (RPE), marked to indicate the WLL and shall be proof-tested before initial use, to 125% of their WLL.
- Chain slings must be rated for lifting and have a manufacturer supplied tag on them indicating capacity.
- Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored and maintained in a safe condition.
- A tag line(s) shall always be used unless it would create an unsafe condition that has been determined by a qualified person. Never tie a knot, or a loop in a tag line and ensure that it is free from entanglement. Tag lines should be of appropriate length to adequately control the load.

25) Fall Protection

This procedure establishes general guidelines for fall protection and control measures for situations that potentially contain fall hazards.

The supervisor for the contractor performing the work is responsible for the assessment, planning, training, implementation and monitoring for every task that requires the use of fall protection. If personnel on the project must wear personal fall protection equipment, a designated competent person must be onsite to oversee the operation and be designated in the Activity Hazard Analysis.

Contractors that install fall protection systems such as guardrails or hole / opening covers are responsible for the maintenance of these systems unless ownership is transferred to another company on the project.

Planning:

Prior to the use of fall protection systems, alternative methods to protect workers must be evaluated through the AHA process. Examples of alternative methods of fall protection include guardrails or scaffolds equipped with guardrails. The AHA must contain:

- The specific practices, equipment and control measures used to protect workers from falling;
- Identification of the competent and qualified persons with proof of competency attached to the Activity Hazard Analysis;
- Training, inspection, and maintenance requirements of the fall protection equipment;
- Anticipated hazards and fall prevention and control;
- Rescue plan and procedures; and
- Design of anchorages/fall arrest and horizontal lifelines systems.

Standard Specifications

The Activity Hazard Analysis for activities requiring the use of fall protection systems must address the safe use of these systems. During this planning process, the following items should be considered:

- Walking/Working Surfaces:
 - Determine if the walking/working surfaces on which employees work have the strength and structural integrity to support employees safely. Employees shall be allowed to work on those surfaces only when the surfaces have the requisite strength and structural integrity.
- Unprotected Sides and Edges:
 - Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, personal fall arrest systems, or other acceptable systems. This may apply to:
 - Leading edges, floor / roof / wall openings;
 - Hoist areas;
 - Framework, reinforcing and structural steel;
 - Ramps, runways, walkways and walking/working surfaces not otherwise addressed;
 - Dangerous equipment;
 - Overhand bricklaying and related work;
 - Roofing work; and
 - Precast concrete erection.

Design of Anchorages, Fall Arrest and Horizontal Life Line Systems:

It is the responsibility of the competent person to verify that any anchorage being used for fall arrest will hold at least 5,000 pounds per person attached. Fall arrest and horizontal life line systems must be designed by a qualified person or purchased from a manufacturer qualified in the design and building of these systems. Areas where anchorage systems will be installed will be verified to be able to support at least a 5,000 pound load.

Inspection, Maintenance and Storage of Fall Protection Equipment:

All fall protection equipment shall be inspected prior to each use. Equipment must be cleaned and maintained in accordance with the manufacturer's recommendations. Field repairs are not allowed on fall protection equipment or devices.

Fall protection equipment shall not be stored in the sun where UV damage can deteriorate the equipment. The equipment shall not be stored around other equipment that may accidentally result in damage such as cuts and abrasions. Where possible, the equipment should be stored in jobsite trailers, conex boxes, specialty manufacture bags, dry locations and away from sun light.

Floor, Roof, Wall Openings:

All covers used to protect floor, roof, or wall openings must be able to hold at least two times the maximum intended load; including any equipment in the area. Covers must be clearly labeled "opening, do not remove" and physically secured to prevent inadvertent movement of the cover.

Rescue Plan and Procedure:

When personnel are required to wear a personal fall arrest system, a fall rescue plan shall be developed. The rescue plan should be reviewed during the Activity Hazard Analysis for that operation. Devices such as suspension trauma safety straps may be used to increase the time before orthostatic intolerance develops on a suspended victim; however, they cannot be the primary solution.

Self-rescue involves the employee rescuing themselves by pulling up or stepping to a surface removing them from a position of hanging in the harness. This type of rescue is completely dependent on the location of the fall and whether the victim is conscious or unconscious.

Assisted rescue involves rescue internally on the jobsite by trained personnel and will only be performed where relatively low skill sets are required. Proper training on the capabilities and requirements shall be completed prior to reliance on those systems for rescue. The following are examples of assisted rescues that could be performed by supervisory personnel from the jobsite:

- Manufactured rescue systems;
- Moving a ladder into position that permits an employee to stand on it and disconnect from a lanyard or retractable;
- Rolling mobile scaffolding under a suspended victim; or

- Utilizing an aerial lift to retrieve someone;

Rescue that requires personnel to perform complicated forms of rescue such as repelling down interior building shafts or the exterior of a building is not allowed. Assisted rescue using External Emergency Services cannot be relied on as the only means of fall rescue.

26) Excavation and Trenching

This procedure establishes requirements concerning the inspection, barricading, shoring, and sloping of excavations. A designated competent person must inspect any excavation or trench, prior to each shift, before work begins, and as conditions warrant. An Activity Hazard Analysis must be developed for operations involving any excavation or trenching activities and submit to "COMPANY NAME" before the operation can begin. This competent person must be designated in the Activity Hazard Analysis and present during that operation.

General Guidelines:

- Underground installations such as sewer, telephone, fuel, electric, water lines, or any other underground installations shall be located prior to start of actual excavation. An Excavation Utility Permit (*Form C30.01*) shall be completed by each contractor prior to the start of each excavation / trench.
- The One-Call Center request will only be valid for a short period of time from the date and time the request was submitted. Verify the timeframes before making the request. If the operation requires more time to complete, then the One-Call Center must be updated at least 2 days (Saturday and Sunday excluded) prior to the expiration of the current staking request. In addition, if an operation is to be placed on stand-by or abandoned for a period of time the One-Call Center should be kept updated through the down time. This will prevent any delay in the restart of an operation.
- Newly constructed work is not covered by the One-Call Centers (e.g., drainage, ITS, electrical Trade Partner new / temporary installations). As built drawings and plans must be maintained and will need to be referred to for locations of this work.
- Utilities located by the One-Call Center will have a safe zone that is determined by the authority having jurisdiction. Verify with the One-Call Center the measurement of your safe zone. Generally, this is 18 inches (24 inches in California).
- Before excavating operations begin, potholing for existing utilities will be performed by the contractor performing the installation of a new utility.
- A minimum of 36 inches must be maintained between a marked and unexposed underground utility and the cutting edge or point of any power operated excavation equipment. If excavation is required within 36 inches parallel of any marking, the excavation will be performed with care utilizing hand tools and/or vacuum excavation techniques.
- Rescue procedures must be preplanned when workers are at depths greater than 5 feet.
- Operations near high priority subsurface installations (e.g., high pressure pipelines, natural gas/petroleum pipelines, electrical lines greater than 60,000 volts) that are located within 10 feet of the proposed excavation will require a meeting with the owner of the line or utility prior to the start of the operation.
- Means of egress from trench excavations of 4 or more feet in depth will consist of a stairway, ladder, or ramp located within 25 feet of employees working in the excavation/trench.
- Ladders used as an access egress shall extend from the bottom of the excavation to not less than 3 feet above the surface. The bottom and top of the ladder shall be secured and a rope shall be provided for the hoisting of tools.
- Spoil piles and equipment must be maintained at least 2 feet from the edge of excavations.
- Adequate stop logs or berms will be used if equipment is required to be working in the area of an excavation or trench.
- Excavations must be sloped, benched or shored when 5 feet in depth or greater or when the competent person determines protective measures are necessary.
- Any trench or excavation greater than 20 feet in depth require engineering for all protective systems.
- Where excavations are to be performed in areas known or suspected to contain explosives, unexploded munitions, or military ordnance, surface and subsurface clearance by qualified explosive ordnance disposal (EOD) personnel shall be accomplished prior to excavation work.

Standard Specifications

27) Confined Space Entry

Employers that will be working in permit required confined spaces shall have a written permit required confined space entry program that meets or exceeds applicable standards. This program must be submitted to "COMPANY NAME" for review before the work begins. Any potential hazards that may be confronted or created in or around the space must be communicated to "COMPANY NAME".

Prior to work at the project site, each Trade Partner must ensure that a competent person identifies all confined spaces in which one or more employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary. It is the responsibility of each Trade Partner to supply the necessary equipment that is required for confined space testing and entry at no cost to their employees or "COMPANY NAME".

General Guidelines – All Confined Spaces:

- All employees involved in confined space entry will be trained in their applicable duties before entering a confined space. Employees will be retrained when conditions change or when there are deviations from the established procedures or when there are inadequacies in the employee's knowledge of the procedures.
- All persons entering the confined space shall be instructed as to the hazards involved, the precautions to be taken, the use of protective and emergency equipment, and the use of rescue equipment, as necessary.
- A means of quick, safe entry and exit shall be provided and be available during the occupancy of the confined space.
- When there are fall hazards (e.g., manholes) guardrails will be installed. If a guardrail cannot be installed or will interfere with the work being performed, personal fall arrest must be used if personnel are exposed to a fall.
- Protection will be provided for falling objects if there is a potential that something may fall into the space.
- Prior to employees entering a confined space, atmospheric testing for oxygen, combustible gases and vapors, and potential toxic air contaminants will be completed with a calibrated instrument that the user has been trained on how to use. Testing will be conducted before changes to the space's natural ventilation are made. Any party entering the confined space will be allowed to observe atmospheric testing and see the results of the test. Any party involved in the entry can request that we reevaluate a confined space.
- If there is a hazard observed or detected at any time while in the confined space, all entrants must exit the space immediately.
- Lighting equipment must meet the requirements of 1926.56, that is approved for the ignitable or combustible properties of the specific gas, vapor, dust, or fiber (intrinsically designed) that will be present, and that is sufficient to enable employees to see well enough to work safely and exit the space quickly in an emergency.

Permit Required Confined Spaces:

- All permit required confined spaces must be adequately protected to keep unauthorized personnel from entering the space. Caution or danger tape is not an acceptable barricade. Entry employers are responsible to ensure that adequate measures are taken before, during and after an entry.
- The entrance to permit space must have danger signs identifying the existence and location of each permit space.
- If more than one entity enters a space or when permit space entry is performed at the same time as other activities, this could result in a hazard in the space, "COMPANY NAME" will coordinate the entry.
- Before entry operations begin, each entry employer must:
 - Obtain all of the "COMPANY NAME" information regarding permit space hazards and entry operations; and
 - Inform "COMPANY NAME" of the permit space program that the entry employer will follow including any hazards likely to be confronted or created in the space.
- Prior to anyone entering a permit space, the entry employer's competent person must identify and evaluate the hazards of the space. No one is allowed to enter the space until acceptable entry conditions are met and these conditions are documented on the entry employer's permit and the entry supervisor signs the document. The conditions on the permit will be verified by the competent person and "COMPANY NAME" Area and Project Superintendent.
- Executed permits must be posted at the entrance to the confined space. A copy of the terminated permit must be supplied to "COMPANY NAME" once work in the space is complete.
- Executed permits are only valid for the specified work, location, and time period indicated on the permit.
- Continuous air monitoring will be conducted for all permit required confined spaces and any permit space that has

been declassified to a non-permit space.

- After entry into a confined space, all entry employers must inform "COMPANY NAME" of the program that was followed and any hazards confronted or created in the space during the entry.
- A continuous means of communication shall be maintained between the entrants and the attendant. If electronic communication equipment is used (e.g., radios) the must also be intrinsically designed. Communication methods will be outlined on the confined space permit.
- Conditions in the permit space must be maintained and verified as acceptable for entry throughout the duration of entry and there may be no hazardous atmosphere within the space at any time when an employee is inside the space.
- Sufficient manpower shall be available outside the confined space to help rescue if it becomes necessary. At least one standby attendant, having available the same protective equipment and clothing as the person inside the confined space, shall be present at the entry point throughout the occupancy and must maintain communications with the persons inside. The rescue system used for the space must be rehearsed prior to entry into the space.

List of Permit Required Confined Spaces:

The following is a list of the identified permit required confined spaces on the project. This list will be communicated to everyone on the project through the Site-Specific Safety Orientation. Workers will be reminded of these spaces and informed when this list changes through tailgate meetings. Concerns about potential permit required confined spaces must be brought to the attention of "COMPANY NAME" so this list can be updated and the appropriate action taken.

Permit Space	Location	Hazard	Precautions
Concrete Mechanical Shafts	Four (4) location SW,SE,NE,NW	Egress	All work will be performed outside of the shafts
Elevator Pits	Freight Elevator SE	Egress	LOTO, Signage Recovery plan, Forced Area and Continuous Monitoring as needed.
Utility Vaults	Dexter Rd	Egress	All work will be performed outside of the vault.

28) Ladders

General Information:

- Ladder users must be trained and understand how to safely use a ladder before use.
- Ladders must be inspected before use. Never use a damaged ladder. Tag the ladder "DO NOT USE" and remove it from service.
- Ladders must be set up on firm, level, and stable ground. Access at the top and bottom of the ladder must be kept clear and free of trip hazards.
- If it is necessary to place a ladder in a doorway, barricade the door and post warnings signs.
- Review and follow manufacturer guidelines.
- Check the capacity of the ladder and verify that you will not exceed it. Be sure to include the weight of any tools or material that you will be handling.
- Ladders must be rated as Type I or greater.
- When handling material, consider using a boom lift or scaffold instead of a ladder.
- Do not paint or modify ladders.
- Ladders can only be used for their designed purpose. As an example, do not use ladders for skids, braces, workbenches, or scaffold plank supports.
- Do not carry anything in your hands when climbing up or down a ladder. Maintain at least 3 points of contact. If

- necessary, use a rope to raise tools or equipment to an elevated level.
- Face the ladder at all times.
- Portable metal ladders are not allowed.
- Keep your body within the rails of the ladder. Do not reach out too far.
- Fall protection is required when working in areas near a shaft, over a guardrail, or adjacent to stairs.
 - An alternative may be to work from a rolling scaffold or boom lift.

Step Ladders:

- Step ladders must be fully opened with the spreaders locked in place. A step ladder should never be leaned against a wall.
- Do not stand on or above the top rung. Follow the warning label for maximum working height.
- Do not straddle a ladder.
- Do not leave tools or material on the top cap of the ladder.
- Do not sit or stand on the top cap of the ladder.
- Only stand and climb on designated ladder rungs.

Straight and Extension Ladders:

- Do not set up ladders near live overhead power lines.
- Set up ladders at a 4:1 ratio.
- Ladders used to access an elevated level must extend at least 3 feet above the landing.
- When used for access, secure ladder at the top and the bottom.
- Do not separate extension ladders.
- Maintain the rope and pulley system on extension ladders.
- Once an extension ladder has been raised to the desired height, check to see that the safety latches are engaged.
- Maintain adequate overlap of extension ladder sections. Manufacturer requirements may vary, but generally require 3 or 4 rungs of overlap.
- Do not stand on the top 3 steps of an extension ladder.

Job-Made Ladders:

- Only trained and authorized personnel can construct job-made ladders.
- Job-made ladders must be made in accordance with applicable OSHA requirements.
- Use of job-made ladders is the same as straight ladders.

29) Scaffolds

This procedure establishes general guidelines for scaffold use. It is required that a registered professional engineer design any scaffold when it exceeds 50 feet in height. Their stamped drawings must be submitted to "COMPANY NAME" before scaffold erection. This does not apply to stair towers.

General Guidelines:

- Only personnel that have been trained can access scaffolds.
- Only personnel that are trained, authorized, and directed by the competent person can modify scaffolds.
- A competent person must inspect each scaffold before use and be onsite when any work on the scaffold is being performed.
- A scaffold tag is required at each access point.
 - A green tag with a current inspection noted on the tag indicates the scaffold is safe for use.
 - A red tag indicates that the scaffold is not safe.

Standard Specifications

- Never access an unsafe (red tag) scaffold.
- Do not work on scaffolds during high winds, during storms, or when covered with ice or snow.
- Guardrails or other adequate fall protection must be provided at heights above 6 feet. Cross braces cannot be used as a complete guardrail system. They can be used as either a top rail or mid rail, but not both.
- Planks must be scaffold grade. Manufactured aluminum planks can only be used on scaffolds designed for their use and must be used in accordance with manufacturer recommendations.
- Scaffold must be fully planked with no holes or openings.
- Scaffolds planks cannot be damaged. Examples of damage include cracks or saw cuts on the scaffold plank.
- The base of the scaffold must be on firm footing (baseplates with mudsills or casters).
- Adjusting screws must not be overextended. As a general rule, no more than 12 inches of thread should be showing.
- Safe access must be provided to scaffolds. Examples of safe access includes stair towers or ladders.
- Debris, tools and material are not allowed to accumulate on the scaffold or at access points.
- Scaffold must be supported to keep it from falling or tipping by means of ties to the structure or bracing. Note this is only required if the scaffold exceeds a 4:1 height to width ratio (3:1 in California).
- Scaffolds must be level, square, and plumb.
- Toeboards or adequate falling object protection must be provided when personnel may pass next to or under the scaffold.
- All wheels must be locked on mobile scaffolds when in use. Surfing or self-propelling is not allowed.
- Scaffold parts and sections made by different manufacturers cannot be used together unless the components fit together without force and the structural integrity is maintained.
- Work on suspended scaffolds requires specialized training. Personnel are required to have guardrails and tie off on suspended scaffolds.
- Mobile scaffolds are required to have a diagonal brace or decking installed in accordance with manufacturer recommendations to prevent racking.

30) Powered Industrial Equipment

This procedure establishes general guidelines for using powered industrial equipment.

General:

- Only qualified and authorized employees may operate equipment. If applicable, proof of training must be submitted to "COMPANY NAME" with the Activity Hazard Analysis for the operation.
- Trade partners, suppliers and delivery companies are prohibited from borrowing equipment from "COMPANY NAME" unless a "COMPANY NAME" trained, and authorized operator runs the equipment.
- "COMPANY NAME" prohibits borrowing equipment from trade partners unless the trade partner provides a qualified operator.
- Keep personnel away from moving equipment and out of pinch points.
- All machinery must be inspected at the beginning of each shift. Unsafe equipment must be tagged and taken of service immediately. Refer to operator manual for inspection criteria.
- Backup alarms must be operational and able to be heard above surrounding noise.
- Never allow riders on the machine.
- The operator's manual and load charts (if applicable) must be available on the machine.
- Personal protective equipment must be worn within the cab unless all doors and windows are closed and the cab is fully enclosed.
- All lifting equipment, including spreaders, must have the capacity clearly marked on the equipment.
- Equipment attachments must be allowed by the manufacturer.

- No modifications to equipment is allowed unless authorized by the manufacturer. Proof of authorization is required to be with the equipment.

Operating Practices:

- Seatbelts must be worn at all times.
- Before digging, know the location of all aboveground and underground utilities. Ensure they are properly marked.
- Use a spotter in tight or congested areas and in areas with a limited view.
- When driving, keep the boom, blade, or bucket low to the ground to improve stability and to avoid hitting overhead obstructions.
- Keep machinery far enough away from trenches to keep them from collapsing.
- Park equipment on a level surface and lower the blades / bucket or boom. Set the parking brakes and put the controls in park / neutral.

31) Boom and Scissor Lifts

This procedure establishes general guidelines for using boom and scissor lifts. Aerial boom lifts require a daily permit for operation, please refer to the Boom Permit Risk Assessment (*Form C18.03*) to be completed prior to use and be available on the equipment during operation. This permit is in addition to the pre-operation inspection that must be conducted by the users. A daily risk assessment for scissor lifts must also be conducted but is not required to be documented.

General Guidelines:

- Only trained and authorized personnel are allowed to operate boom or scissor lifts.
- Trade partners, suppliers and delivery companies are prohibited from borrowing equipment from "COMPANY NAME" unless a "COMPANY NAME" trained, and authorized operator runs the equipment.
- "COMPANY NAME" prohibits borrowing equipment from trade partners unless the trade partner provides a qualified operator.
- Lifts must be inspected prior to use. Make sure the controls and all safety devices are working properly. Equipment that is not safe will be taken out of service immediately.
- Tie off is required using fall restraint in boom lifts. Follow manufacturer instructions for tie off procedures in scissor lifts.
- Personnel are only allowed to stand on and work from the work platform.
- Survey the work area before each operation. Be aware of ground conditions, overhead conditions, obstructions, and power lines.
- Holes, trenches, excavations, drop-offs and similar hazards must be protected from boom and scissor lifts by the use of stop logs.
- No modifications to equipment is allowed unless authorized by the manufacturer. Proof of authorization is required to be with the equipment.

32) Hazard Communication Plan

Responsibilities:

The Superintendent at each job is designated as the person responsible for implementing this written program. The elements of this program may be delegated to other personnel on the project with oversight from the Project Superintendent.

Definitions:

- Chemical: any substance, or mixture of substances.
- Hazardous chemical: any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.
- Hazard statement: a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
- Pictogram: a composition that may include a symbol plus other graphic elements, such as a border, background

Standard Specifications

- pattern, or color that is intended to convey specific information about the hazards of a chemical.
- Precautionary statement: a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.
- Safety Data Sheet (SDS): a written or printed material concerning a hazardous chemical that is prepared by the producer of the chemical.
- Signal word: a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label.

Compliance Procedures:

This written Hazard Communication Program is available upon request to employees and their designated representative at any time. The location of the Hazard Communication Program will be discussed in the site-specific safety orientation.

Each project will maintain a list of chemicals that are on each jobsite using MSDS Online. Safety Data Sheets (SDS) for all chemicals on the jobsite will be retained in this system.

Train employees on chemicals they work with utilizing the SDS and manufacturer supplied labels. Provide information and training to all employees relative to the Hazard Communication Regulation and about any known potential exposure to hazardous chemicals. Trade Partners are responsible to train their employees.

Records of employee accidental overexposure to hazardous chemicals will be retained in the incident reporting site.

Make available to and share with other contractors or Trade Partners the SDS information on hazardous chemicals on the jobsite.

Identification of Hazardous Substances:

All chemicals used on this project (including Trade Partners) will be entered into MSDS Online. Trade Partner chemicals brought onto site will be entered into MSDS Online and entered into the "ebinder" under their name for that project. Those chemicals that meet the definition of "hazardous waste" and fall into the criteria of the site-specific contingency plan will be noted accordingly in the Safety Data Sheet "ebinder" by checking the hazardous material box.

Safety Data Sheet (SDS):

SDSs for all chemicals that employees may be exposed are kept in the jobsite "ebinder" or other designated location. Safety Data Sheets will be available to employees wherever they are working. This will primarily be accomplished using signage posted around the site with a QR code (form A03.04) allowing access for anyone to view the SDS. All personnel will be trained in this system during Safety Orientation. In some circumstances it may be necessary to have a printed copy of this information available. Each project should also create a backup of the project's SDS Log and "ebinder" on a designated computer after the SDS inventory is updated. In some cases, this back up may need to be available on a designated computer available to all personnel.

When ordering chemicals, all supervisors will request an SDS for that chemical. If an SDS is missing or incomplete, a new SDS will be requested from the manufacturer or supplier. Hazardous Communication Safety Data Sheets (SDS) (Form A03.05) describes all required elements of a SDS. The Superintendent or their designated representative will review incoming safety data sheets for new and significant health and safety information. They will ensure that any new information is passed on to the affected employees.

Safety Data Sheet (SDS) Access During Emergencies:

Each project should create a backup of the project's SDS Log and "ebinder" on a designated computer after the SDS inventory is updated. This will be done so that this information is available in the event Wi-Fi or power is down. In some circumstances it may be necessary to have a printed copy of this information available. Note that if a SDS is not available during an emergency, or you need exposure support, you can call our 24/7/365 Chemical Emergency Response Hotline at 1.800.255.3924 to get a copy of a SDS. You will need to provide the manufacturer name, product name, and an email or fax number.

Labeling:

Material received at the jobsite must be properly labeled by the manufacturer or supplier (refer Hazard Communication Standard Labels (Form A03.06) for an example). If labels are not provided, illegible, or incomplete, do not accept the material. Labels must never be removed and should be replaced if they become illegible.

Manufacturer supplied labels must provide the following:

- Identity of the chemical products or substances in the container;
- Signal word;
- Hazard statement(s);

Standard Specifications

- Pictogram(s) (*Form A03.07* shows Hazard Communication Standard Pictograms);
- Precautionary statement(s); and
- Name, address, and telephone of the chemical manufacturer, importer, or other responsible party.

Only those chemicals that can be classified as "Immediate use" and are under the control of the person who transferred it are exempt from the labeling procedures detailed above. These containers must be labeled with the contents of the container.

Training:

Employee training will be conducted at various frequencies, including:

- Site-Specific Safety Orientation;
- Toolbox Meetings;
- Activity Hazard Analysis review;
- Safety Task Assignment; and
- Formal safety training.

Depending on the scope of the training, training topics may include information on the following:

- An overview of the requirements contained in the Hazard Communication Program, labeling requirements and overview of the safety data sheet.
- Inform employees of any operation in their work area where hazardous chemicals are present.
- Location and availability of the written Hazard Communication Program.
- Location of Safety Data Sheets and the associated list of hazardous chemicals on the project.
- Physical and health effects of the hazardous chemicals.
- Methods and observation techniques used to determine the presence of or the release of hazardous chemicals in the work area.
- How to lessen or prevent exposure to these hazardous substances through the use of engineering controls, work practices, and/or the use of personal protective equipment.
- Steps the company has taken to lessen or prevent exposure to these chemicals.
- Emergency and first-aid procedures to follow if employees are exposed to hazardous substances.
- How to read labels and review an SDS to obtain appropriate hazard information.

For non-routine tasks, employees will be trained on the hazards through a tailgate meeting, activity hazard analysis review or through a Safety Task Assignment.

General Contractor and Trade Partner Responsibilities:

When employees of a Trade Partner may be exposed to hazardous chemicals on the jobsite, "COMPANY NAME" will make available a list of the hazardous chemicals and the applicable SDSs. Each Trade Partner is required to have their own Hazard Communication Program.

Trade Partners must provide the appropriate SDSs to "COMPANY NAME" for all chemicals being used by their company at the jobsite. They must also retain a copy of any SDS for all chemicals being used by their employees. Trade Partners will complete the Trade Partner Chemical Questionnaire (*Form A03.08*) and the Trade Partner SDS Log (*Form A03.09*). The chemicals that the trade partners submits to "COMPANY NAME" will be transferred to the project's Safety Data Sheet "ebinder" in MSDS Online.

Each employer is responsible for the appropriate training of his or her employees.

Recordkeeping:

The following documentation is required to be maintained at each project for review by any employee or their designated representative upon request:

- Safety Data Sheet Log (MSDS Online)
- Trade Partner Chemical Questionnaire (*Form A03.08*);
- Safety Data Sheets for all chemicals being used on the project;

- Records of any employee accidental over-exposure to a hazardous chemical;
- Records of any atmospheric testing;
- This written Hazard Communication Program; and
- Employee training records.

33) Hazardous Material and Waste Site-Specific Safety Plan

This plan applies to the performance of any work related to the project which will directly, or indirectly, result in the handling of hazardous materials or generation of hazardous waste. Project personnel (including "COMPANY NAME" employees and Trade Partners and their employees) are responsible for complying with this plan.

Identification of Waste / Generation Activities:

Trade Partners must provide the appropriate SDSs to "COMPANY NAME" for all chemicals being used by their company at the jobsite. They must also retain a copy of any SDS for all chemicals being used by their employees. Trade Partners will complete the Trade Partner Chemical Questionnaire (*Form A03.08*) and the Trade Partner SDS Log (*Form A03.09*). The chemicals that the Trade Partner submits to "COMPANY NAME" will be transferred to the project's "ebinder" in MSDS Online. Each employer is responsible for the appropriate training of his or her employees.

The project will use MSDS Online to maintain the Safety Data Sheet Log from "COMPANY NAME" Hazard Communication Program to track hazardous materials on the jobsite. Check the "hazardous" box if the material falls into this program.

The project may generate hazardous waste from the following sources:

- Scope of work includes the abatement and/or remediation of the following known hazardous materials:
 - Abatement and remediation of asbestos at L1, L2 and L5 Quarry Tile
 - L1 Bathroom tile,
 - Lead Paint from demoed railings.
- Currently "COMPANY NAME" does not anticipate the handling, removal or demolition of any material requiring abatement.
- Work to be self-performed on the project will entail the handling and/or disposal of the hazardous materials indicated:

Work Performed	Associated Hazardous Materials
Excavations and Footings	Hydraulic fluid, gasoline, diesel
Formwork	Form oil
Concrete placement	Curing compound
Doors and hardware	Epoxy adhesives

- Certain trade partners' work will require the use of hazardous materials and/or the generation of hazardous waste. The trade partners have been notified through the use of the Trade Partner Chemical Questionnaire (*Form A03.08*) that the safe management of hazardous materials and proper disposal of hazardous waste is the sole responsibility of the Trade Partner.
- "COMPANY NAME", during project closeout, will likely generate a small amount of hazardous waste from surplus hazardous materials that cannot be transferred to another jobsite or returned for beneficial use.

Note: A container that once stored a hazardous material and is now "empty" does not require any special handling or disposal as a hazardous waste. Empty is defined as: a) an aerosol or otherwise pressurized container that approaches atmospheric pressure; b) No more than one inch of unused product at the bottom of the container; or c) three percent by weight for containers less than 110 gallons and 0.3 percent by weight if the container is greater than 110 gallons.

Each Trade Partner is responsible to dispose of their waste in accordance with applicable regulatory requirements. If the owner has agreed to provide an EPA generator ID, contact "COMPANY NAME" for this number.

General Requirements:

The storage areas for hazardous materials for the project are identified on "The Site Plan" included within this plan. Storage areas designated for storage of hazardous materials shall have the following qualities:

- Two points of egress from the area in the event of a release or spill, or from the storage area if larger than 500 square feet.
- Appropriate protection from severe or inclement weather.
- Well ventilated and, if required based on local climatic conditions and materials involved, temperature controlled.
- Appropriate separation from other general traffic project areas.
- The entrance to the storage area shall clearly indicate the storage of hazardous materials and that access is restricted.
- All storage containers shall have appropriate labels describing the contents and nature of each container (to prevent mixing of incompatible materials).
- All containers will be labeled with the Trade Partner's name.

Prior to and during use, hazardous materials shall be stored in the manufacturer supplied containers or in storage containers approved by the manufacturer or supplier and by applicable regulation. Secondary containment shall be used in the storage area if a hazardous material spill has the potential for entering floor drains or the ground, or for creating additional hazards. All containers must remain closed when not in use.

Upon completion of a project and the determination that surplus hazardous materials will require off-site disposal, hazardous waste stored in the storage area shall be removed from the site for disposal by a qualified hazardous waste disposal company to a qualified disposal facility in accordance with manufacturers' recommendations and regulatory requirements.

Hazardous waste shipped off-site must be transported by a qualified and licensed transporter to a qualified and licensed storage or disposal facility. "COMPANY NAME" will not transport hazardous waste materials. A manifest will accompany any hazardous waste offered for shipment off-site.

Spill Containment Equipment:

Spill containment equipment shall be strategically located within 50 feet of the storage area to allow immediate response to small spills or fires. The following spill containment equipment is recommended:

- ABC-type fire extinguisher (20 lb.) for ordinary combustibles, flammable liquids and gases, and electrical equipment fires;
- One air horn for sounding alarm;
- One 55-gallon drum of dry sorbent material (i.e., sawdust) for containing and preventing the spread of spills;
- One empty 55-gallon drum for collection of spill soaked sorbent material;
- One scoop shovel for clean-up purposes;
- Personal protective equipment as required and as described by the chemical SDS sheet.

The inventory of spill containment equipment shall be stored outside of the storage area. Signs will be posted to identify the location of emergency response equipment and the storage area.

Storm Water Pollution Prevention Plan:

- "COMPANY NAME" to implement and maintain a Storm Water Pollution Prevention Plan for the duration of this project.
- This plan will have a special emphasis on the protection of the Storm Water drain on the Cal Poly Campus; as the drains lead directly into nearby streams, Brizzolara and Stenner Creek.
- Throughout the project "COMPANY NAME" will be taking the necessary protective measures to ensure there are no spills into the storm drain system.
 - In order to ensure no spill will happen, monthly inspections will be made by "COMPANY NAME" to ensure the quality of the protective measures are maintained and sufficient.

- All trades before starting on site will be trained on the SWPPP measures and how to prevent spills on site before the start of work

Please see the attached plan below for your reference.

Provide Map/Drawing indicating SWPPP controls here:

Recordkeeping:

The following recordkeeping must be maintained, and copies submitted to "COMPANY NAME":

- In the event of any spill or release, this must be reported to Cal Poly EHS and "COMPANY NAME" immediately
- Documentation of Hazard Communications training.
 - As applicable, include training for hazardous materials.
- The contractor responsible for characterizing, packaging, transporting, and disposing of hazardous waste for a project shall provide copies of all manifests and land disposal restriction notifications.
- The signed, returned manifest from the qualified Treatment, Storage and Disposal Facility (TSDF) acknowledging the receipt of hazardous waste shipment.
 - If a signed manifest is not received within 35 days, contact the TSDF by telephone to verify shipment status; and
 - If a signed manifest has not been received within 45 days, prepare and submit an exception report, as required by the EPA.
- Safety Data Sheets (SDS) shall be readily available.

Trade Partner Data:

The Project Superintendent and Project Manager shall be responsible for obtaining completed Trade Partner Chemical Questionnaires and Trade Partner SDS Logs to identify potential sources of hazardous materials and the subsequent

generation of hazardous waste that occur during the performance of the Trade Partner's work. An example Trade Partner Chemical Questionnaire (*Form A03.08*) is provided in this SSCP. The associated Trade Partner Safety Data Sheet Log must also be completed by each Trade Partner, identifying all hazardous materials by checking the "hazardous material column" (*Form A03.09*). Deciding Whether Hazardous Waste Regulations Apply to You (*Form A03.10*) should be attached to the Trade Partner SDS Log when sent to the Trade Partner to help them identify their hazardous material. Once the Trade Partner submits their SDS Log to "COMPANY NAME", the information will be transferred to the project's SDS Log (*Form A03.04*) so a complete list of chemicals on the site is maintained.

Audits/Inspections:

Weekly inspections of the hazardous materials storage areas and emergency equipment storage areas will be conducted by "COMPANY NAME". The inspection reports shall be maintained in the project safety records. A Hazardous Materials Storage Area Weekly Inspection Summary (*Form A03.11*) is included in this SSCP. Trade Partners are responsible to inspect their storage areas and the corresponding emergency equipment.

Upon completion of a project the following documents shall be distributed and maintained for the period of time indicated.

A complete record of disposal manifests, land ban restrictions, and incident reports shall be submitted to the Owner, or the responsible entity identified as the Generator (listed on application for an identification number).

Emergency Response Procedures:

If a spill, fire, or explosive condition is observed during regular working hours, the person observing the condition shall follow notification chain (below). The Project Superintendent (or most senior person onsite) will determine the urgency of the situation and take appropriate action according to "Containment / Clean-up" (below).

In the event of an emergency, the following persons shall be notified in order of appearance:

Standard Specifications

- All personnel in the vicinity of the hazard shall be warned of the hazardous situation.
- If a situation exists that is immediately dangerous to life and health (such as a fire or explosive situation) or a serious injury has occurred, call 911
- Notify the following personnel, as applicable:
 - Name Here, Project Superintendent (###)-###-####
 - Name Here, District Safety and Health, (###)-###-####
 - Company Name Here, Hazardous Spill Cleanup Company, (###)-###-####
 - Name Here, Project Manager, (###)-###-####
 - Name Here, Cal Poly P Project Manager, (###)-###-####
 - Melonee Cruse, Cal Poly Department of Environmental Health and Safety, (909) 553-6533
- Note that if a SDS is not available during an emergency, or you need exposure support, you can call our 24/7/365 Designated Emergency Response Personnel at (###)-###-#### to get a copy of a SDS. You will need to provide the manufacturer name, product name, and an email or fax number.

Evacuation Plan:

An evacuation of the building shall be called if a hazardous situation exists that immediately threatens the life or health of the occupants. The building shall be evacuated according to "The Emergency Response Plan" (Appendix B). The evacuation routes may be deviated from, depending on the location of the hazard. Generally, evacuation shall be away from the hazard to the nearest available exit.

No one will be permitted back inside the building until the fire department, emergency response unit, or the Project Superintendent has evaluated and determined that the hazardous situation is no longer present.

Containment/Clean-up:

In case of unplanned release or spill of hazardous or potentially hazardous materials:

- To the air:
 - Ventilate the space; and
 - Reseal/close containers.
- To the soil:
 - Contain/stop the flow of hazardous liquid;
 - Use sorbent material to minimize release into ground;
 - Place contaminated soil and sorbent material into empty 55-gallon disposal drum; and
 - Contact a qualified hazardous materials disposal contractor to remove all contaminated material.
- To the groundwater:
 - Contain/stop the flow of hazardous liquid;
 - Use sorbent material to minimize release and impact to groundwater; and
 - Conduct site characterization to assess the extent of impact.
- To surface water:
 - Contain/stop the flow of hazardous liquid;
 - Use sorbent material to minimize release to surface waters;
 - Place contaminated water and sorbent material into empty 55-gallon disposal drum; and
 - Contact a qualified hazardous materials disposal contractor to remove all contaminated material.
- In case of fire:
 - Sound alarm and evacuate area;
 - Extinguish fire with ABC-type extinguisher (unless you are uncertain of the nature of the fire);
 - Do not breathe in vapors or smoke;
 - Be aware of explosive hazards;
 - If explosive hazard is present, evacuate and call the emergency number;

Standard Specifications

- If fire cannot be extinguished, call the emergency number; and
- After fire is extinguished, clean-up debris and place into empty 55-gallon disposal drum.
- In case of explosion or potential explosion:
 - If explosion occurs:
 - If fire erupts, follow fire procedures (above).
 - If spill results, follow applicable section above.
 - If explosion potential exists:
 - Sound alarm and evacuate area; and
 - Call the emergency number

Training:

"COMPANY NAME" personnel shall be made aware of the Hazardous Materials and Waste Management Program and the project's Site-Specific Contingency Plan through "COMPANY NAME" existing Hazard Communication training and the Hazardous Material and Waste Management Awareness Training. Trade Partner employees must be trained by their employer in accordance with applicable regulations.

34) Severe Weather

[Severe Weather - Cal/OSHA Wildfire \(Form A03.12\)](#)

[Severe Weather – Hurricane \(Form A03.13\)](#)

[Severe Weather – Tornado Form A03.14\)](#)

35) Heat/Cold Stress

The purpose of this plan is to define hazards associated with working in inclement weather environments, to prevent injury, temperature related illness, establish protocols for treating affected employees, and to establish adequate controls.

Hot Environments:

This plan should be implemented when the heat index exceeds 80 degrees Fahrenheit. When working in hot environments, the Project Superintendent is responsible to monitor temperature and implement this plan when necessary. Drinking water will be made available as outlined in the site sanitation plan. Each Trade Partner is responsible for providing water for their crew. In hot environments, reasonably cool drinking water will be available to personnel and they will be encouraged to drink water frequently. All common drinking water containers must be supplied with potable water, individual drinking cups and a trash can. Employees will be encouraged to drink plenty of fluids throughout the workday.

Training will be conducted as necessary using formal training, toolbox meetings, and / or Safety Task Assignments. Employee training should include:

- Hazards of heat related illness;
- Prevention methods;
- Recognizing signs and symptoms of heat illness;
- First aid and emergency response;
- The effects of certain prescription / illegal drugs, alcohol, caffeine, certain medical conditions, and other factors that may increase the risk of heat illness;
- Procedures in place at the site.

Heat stress will be addressed in Activity Hazard Analysis, as applicable. Considerations in the development of the Activity Hazard Analysis will include:

- Work conducted on days when the heat index exceeds 80 degrees Fahrenheit;
- Hot / dry or hot / humid environments;
- Work in semi-permeable or impermeable clothing and/or heavy clothing such as arc-rated suits;
- Work in confined spaces;

- Work in areas with limited or no air movement; and
- Work around heat-producing equipment, furnaces, boilers, asphalt pots, engines, compressors, etc.

The following are examples of controls that should be used to help prevent heat illness, as applicable:

- Acclimatization of new or returning workers and acclimatization during heat waves or during first hot temperatures of the year.
- Rescheduling work for cooler parts of the day will be implemented, when feasible;
- Take frequent breaks;
- Shade sources located adjacent to work;
- Increase the location of water stations in work areas;
- Use of fans, misters, or other air moving equipment;
- Employee rotation;
- Buddy system;
- Wear loose fitting clothes that help disperse heat and cool the body; and
- Work / rest regiments.

If someone is showing signs or symptoms of heat illness it is important to activate the project's emergency action plan immediately.

Cold and Wet Environments:

Employees who become wet while working in cold weather should immediately change into dry clothes and seek warmer environments to prevent hypothermia.

If the likelihood for employees to get wet while performing work in cold weather is high then blankets or an effective means to warm workers will be made available in case they are needed to prevent hypothermia. Workers should bring a change of clothing if there is an opportunity that an employee can become wet.

Employees shall be trained in the following:

- To identify the signs and symptoms of cold stress resulting including frost bite or hypothermia.
 - Any employee exhibiting these indicators shall be taken to a warm shelter to allow the body to adjust and his/her supervisor should be notified.
- The effects of wind chill and control measures that will be taken.
- Proper clothing that will be worn including hats, gloves, and masks to protect exposed skin.
 - Proper warm weather gloves shall be worn if the task does not call for manual dexterity. If manual dexterity is required then periods of warming the hands shall be assessed in order to keep the employee from getting frost bite.
 - Proper eyewear shall be worn at all times to ensure no injury to the eyes through light, glare, or flying ice/snow.
- The importance of proper intake of liquids and the effects of caffeinated drinks and alcohol on the body.

When the wind chill drops below 0 degrees, the following provisions will apply:

- Workers will use the buddy system to watch for signs and symptoms of cold related injuries or illness;
- Heat shelters must be provided for your employees;
- Acclimatization of new workers; and
- The air temperature and wind speed will be monitored every 2 hours.

36) Forms

- Activity Hazard Analysis (AHA) Form
- Weekly Safety Audit Form
- Boom Permit Risk Assessment

- Specific Exposure Control Methods – Table 1
- Excavation Utility Permit
- Hazard Communication Safety Data Sheets (SDS)
- Hazardous Communication Standard Labels
- Hazard Communication Standard Pictograms
- Trade Partner Chemical Questionnaire
- Trade Partner SDS Log
- Determining Whether Hazardous Materials Regulations Apply to You
- Hazardous Materials Storage Area Weekly Inspection Summary

Exhibit C CSU Site Safety Plan Template



CSU Site Safety Plan Template

This template is designed to guide the design team when submitting a site fire safety plan as part of the construction documents submittal to the Office of Fire Safety (OFS). This template is to be used and include and all 13 components listed shall be addressed with project specific information and procedures. A fire safety plan is not one size fits all.

The owner or owner's authorized agent shall be responsible for the development, implementation and maintenance of an approved, written site safety plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, repair, alteration, or demolition work. The plan shall address the requirements of this chapter and other applicable portions of this code, the duties of staff and staff training requirements. The plan shall be submitted and approved before a building permit is issued. Any changes to the plan shall be submitted for approval.

During construction, a building is at its most vulnerable state. Buildings under construction or renovation may have any of these conditions that supports fire development and spread:

- Combustible material and waste material are present in significant amounts.
- Buildings under construction are generally unprotected. Fire protection systems, detection systems, and compartmentation is unavailable or incomplete.
- Hot work: such as, welding, cutting, soldering, brazing, and grinding are performed.
- Fire apparatus access and fire protection water supply may be limited or hampered due to conditions present at the construction site.
- Use of temporary heating and cooking devices.

This requirement is intended to prescribe minimum safeguards for new building construction and significant building alteration projects in order to provide a reasonable degree of safety to life and property from fire. The requirement is based on the provisions for fire safety during building construction and demolition as set forth in Chapter 33 of the California Building Code, California Fire Code; and 2019 edition of NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations. This requirement shall not be construed to be in lieu of any other applicable State or Federal law, or regulation related to construction site safety. The general contractor or other designee of the building owner shall be responsible for compliance with these standards. When the term "shall" is used in this document, it means a mandatory requirement.

For additional questions or assistance, please contact the Office of Fire Safety at 562-544-0693

PROJECT NAME

Site Safety Plan

Site Safety Director	Phone Number
	Email

Project Scope of Work:

Site Safety Plan (SSP)

The SSP shall be consistent with the fire safety precautions as specified in this document, and the CFC and its referenced standards. The _____ or other designee of the building owner is responsible for carrying out the provisions of the SSP and communicating it to all subcontractors. The SSP shall include the following:

1. Name and contact information of the site safety director.
2. Documentation of the training of the site safety director and fire watch personnel.
3. Procedures for reporting emergencies.
4. Fire department vehicle access routes.
5. Location of fire protection equipment, including portable fire extinguishers, standpipes, fire department connections and fire hydrants.
6. Smoking and cooking policies, designated areas to be used where approved, and signage locations in accordance with Section 3305.8.
7. Location and safety considerations for temporary heating equipment.
8. Hot work permit plan.
9. Plans for control of combustible waste material.
10. Locations and methods for storage and use of flammable and combustible liquids and other hazardous materials.
11. Provisions for site security.
12. Changes that affect this plan.
13. Other site-specific information required by the fire code official.

Site Safety Director

Authority and Training: The owner shall designate a person to be the site safety director. The site safety director shall be responsible for ensuring compliance with the site safety plan. The site safety director shall have the authority to enforce the provisions of this chapter and other provisions as necessary to secure the intent of this chapter. Where guard service is provided in accordance with NFPA 241, the site safety director shall be responsible for the guard service. Training of fire watch and other responsible personnel in the use of fire protection equipment shall be the responsibility of the site safety director. Records of training shall be kept and made a part of the written plan for the site safety plan.

Plan/Solution:

Emergency Reporting Procedures: Emergency telephone facilities with ready access shall be provided in an approved location at the construction site, or an approved equivalent means of communication shall be provided. The street address of the construction site and the emergency telephone number of the fire department shall be posted adjacent to the telephone. Alternatively, where an equivalent means of communication has been approved, the site address and fire department emergency telephone number shall be posted at the main entrance to the site, in guard shacks and in the construction site office.

Plan/Solution:

Access and Parking

Fire Department Access Roadways: All construction sites shall be accessible by fire department apparatus by means of roadways having an all-weather driving surface of not less than 20 feet of unobstructed width. The roads shall have the ability to withstand the live loads of fire apparatus and have a minimum 13½ feet (13 feet 6 inches) of vertical clearance. Dead end fire access roads in excess of 150 feet in length shall be provided with approved turnarounds.

When approved by the Fire Code Official, temporary access roadways may be utilized until such time as permanent roadways are installed. As a minimum, the roadway shall consist of a compacted sub-base and 6 inches of road base material (Class 2 aggregate base rock) both compacted to a minimum 95%. The perimeter edges of the roadway shall be contained and delineated by curb and gutter or other approved method. The use of geotextile reinforcing fabric underlayment or soils lime-treatment may be required if so, determined by the project civil engineer. Provisions for surface drainage shall also be provided where necessary. The integrity of the roadway shall be maintained at all times.

Plan/Solution:

Site Plan: Provide site plan that shows the following:

- Fire department vehicle access routes.
- Location of fire protection equipment, including portable fire extinguishers, standpipes, fire department connections and fire hydrants.
- Locations and methods for storage and use of flammable and combustible liquids and other hazardous materials

Plan/Solution:

Premises Identification: The address numbers of the property or project location shall be plainly visible and legible from the street or road fronting the property at the fire apparatus access point or as otherwise approved.

Plan/Solution:

Vehicle Parking: All vehicles shall be parked a minimum of 20 feet from new buildings under construction.

Exceptions: a.) Vehicles that are temporarily parked for loading/unloading or other construction related operations. Such vehicles shall not be left unattended. b.) Private vehicles may be parked in parking garages of Type I construction if the automatic fire sprinkler system is in service and vertical openings are protected.

Plan/Solution or N/A:

Site Security: The site shall be secured by fencing designed to prevent climbing and monitored periodically so that the site is secure. A fire watch shall be provided during nonworking hours for construction that exceeds 40 feet in height above the lowest adjacent grade or when otherwise required as an element of the SSP.

Plan/Solution or N/A:

Fire Protection Systems

Fire Hydrants: Where underground water mains and hydrants are required for the building(s) under construction, they shall be installed, completed, and in service prior to combustible construction materials accumulating on site.

Plan/Solution or N/A:

Water Supply: When combustible building materials of the building under construction are delivered to a site, a minimum fire flow of 500 gallons per minute shall be provided. The fire hydrant used to provide this fire-flow supply shall be within 500 feet of the combustible building materials, as measured along an approved fire apparatus access lane. Where the site configuration is such that one fire hydrant cannot be located within 500 feet of all combustible building materials, additional fire hydrants shall be required to provide coverage in accordance with this section.

Plan/Solution or N/A:

Standpipes: Where standpipes are required, the standpipes shall be installed when the progress of construction is not more than 40 feet in height above the lowest level of the fire department vehicle access. Standpipes shall be provided with fire department hose connections and outlets at accessible locations adjacent to usable stairs. The standpipe system shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring. Each floor shall be provided with a 2½-inch valve outlet for fire department use. Where construction height requires installation of a Class III standpipe, fire pumps and water main connections shall be provided to serve the standpipe.

Plan/Solution or N/A:

Standpipe Supply: Regardless of the presence of combustible building materials, the construction type, or the fire separation distance, where a standpipe is required in accordance with Section 3314, a water supply providing a minimum flow of 500 gallons per minute shall be provided. The fire hydrant used for this water supply shall be located within 100 feet of the fire department connection supplying the standpipe.

Plan/Solution or N/A:

Fire Walls: When fire walls are required, the wall construction shall be completed (with all openings protected) immediately following framing so no more than two upper stories of active construction have incomplete fire walls or unprotected fire wall openings at any point in time.

Plan/Solution or N/A:

Fire Sprinkler Systems: Where automatic fire sprinkler systems are required to be installed in new buildings, the system shall be placed in service as soon possible. Immediately upon the completion of sprinkler pipe installation on each floor level, the piping shall be hydrostatically tested and inspected. After inspection approval, each floor level of sprinkler piping shall be connected to the system supply riser and placed into service with all sprinkler heads uncovered. Protective caps may be installed on the active sprinklers during the installation of drywall, texturing and painting, but shall be removed immediately after this work is completed. For system activation notification, an exterior alarm bell can be installed and connected to the sprinkler water flow device prior to installation of the monitoring system. For buildings equipped with fire sprinkler systems that are undergoing alterations, the sprinkler system(s) shall remain in service at all times except when system modifications are necessary. Fire sprinkler systems undergoing modifications shall be returned to service at the end of each workday unless otherwise approved by the Site Safety Director. The General contractor or his/her designee shall check the sprinkler control valve(s) at the end of each workday to confirm that the system has been restored to service.

Plan/Solution or N/A:

Fire Alarm Systems: Fire alarm systems shall be maintained operational at all times during building alterations. When an alteration requires modification to a portion of the fire alarm system, the portion of the system requiring work shall be isolated and the remainder of the system shall be kept in service whenever practical. When it is necessary to shut down an entire fire alarm system, a fire watch or other mitigation approved by the Site Safety Director shall be implemented by the general contractor until the system is returned to full service.

Plan/Solution or N/A:

Fire Extinguishers: Portable fire extinguishers shall be provided and shall be mounted on a wall or post at each usable stairway and such that the travel distance to any extinguisher does not exceed 75 feet. Mounting height to the top of the extinguisher shall not exceed 5 feet. Extinguishers shall not have less than a 2A10BC rating or as otherwise directed by the fire department. The general contractor shall ensure that an adequate number of individuals are trained in the proper use of portable fire extinguishers.

Plan/Solution or N/A:

General Precautions

Smoking: Smoking is prohibited anywhere inside or on the roof of new buildings under construction or in the project work area of buildings undergoing alteration. A suitable number of 'No Smoking' signs shall be posted to ensure that smoking is controlled.

Plan/Solution or N/A:

Telephone Service: Provisions shall be provided at the construction site for emergency notification of the fire department via telephone. The street address of the construction site shall be posted adjacent to the telephone, along with the number for the public safety answering point. Alternatively, where an equivalent means of communication has been approved, the site address and fire department emergency telephone number shall be posted at the main entrance to the site, in guard shacks and in the construction site office.

Plan/Solution or N/A:

Exit Requirements

Minimum Number of Exits: All new buildings under construction shall have a least one unobstructed exit. All exits shall be identified in the SSP.

Plan/Solution or N/A:

Multi-Story Buildings: Each level above the first story in new multi-story buildings shall be provided with at least two usable exit stairs after the floor decking is installed. The stairways shall be continuous and discharge to grade level. Stairways serving more than two floor levels shall be enclosed (with openings adequately protected) after exterior walls/windows are in place. Exit stairs in new and in existing, occupied buildings shall be lighted and maintained clear of debris and construction materials at all times.

Exception: Where building construction exceeds 40 feet in height above the lowest level of fire department vehicle access, a temporary or permanent stairway shall be provided. As construction progresses, such stairway shall be extended to within one floor of the highest point of construction having secured decking or flooring.

Plan/Solution or N/A:

Assembly Points: Designated exterior assembly points shall be established for all construction personnel to relocate to upon evacuation.

Plan/Solution or N/A:

Flammable and Combustible Liquids

Storage Areas: Storage areas shall be kept free of weeds and extraneous combustible material. Open flames and smoking shall be prohibited in storage areas.

Plan/Solution or N/A:

Containers: Metal containers for Class I or II liquids shall be in accordance with DOT requirements or shall be of an approved design. Discharge devices shall not cause an internal pressure on the container. Individual containers shall not be interconnected and shall be kept closed when not in use.

Plan/Solution or N/A:

Secondary Containment: Secondary containment or a means of spill control, drainage control, and diking shall be required for containers and tanks as approved by the fire department and, if applicable, local hazardous materials program agency.

Plan/Solution or N/A:

Marking: Tanks and containers shall be marked with the name of the product and “FLAMMABLE — KEEP FIRE AND FLAME AWAY.” Tanks (i.e., containers in excess of 60 gallons) shall also be labeled “KEEP 50 FEET FROM BUILDINGS.”

Plan/Solution or N/A:

Fueling of Equipment: All fueling of equipment must take place outside of the structure under construction and away from any potential ignition sources.

Plan/Solution or N/A:

Tank Installation Plans/Permit: Plans for the installation/use of any aboveground storage tank (i.e., container greater than 60 gallons) shall be submitted to OFS for review and permit prior to the proposed tank arriving at the site.

Plan/Solution or N/A:

Other Combustible Materials

Combustible Material Storage: Combustible construction materials shall be stored a minimum of 20 feet from buildings under construction or undergoing remodel.

Exceptions: a.) Materials that are staged for installation on a floor level. b.) When approved by the Site Safety Director, materials may be stored in parking garages of Type I construction if the automatic fire sprinkler system is in service and vertical openings are protected.

Plan/Solution or N/A:

Garbage Chutes and Dumpsters: All combustible garbage chutes must have an automatic sprinkler head recessed into the top of the chute and supplied by a temporary water supply. The supply must be a commercial rubber hose a minimum of 3/4" diameter. Dumpsters must be removed from the site as soon as filled to prevent debris from clogging the chute. Dumpsters, not associated with a garbage chute, must be a minimum of 20' away from the structure under construction where practicable.

Plan/Solution or N/A:

Combustible Debris: Wood, cardboard, packing material, form lumber, and similar combustible debris shall not be accumulated within buildings. Such debris, rubbish, and waste material shall be removed from buildings on a daily basis.

Plan/Solution or N/A:

Oily Rags: Oily rags and similar material shall be stored in metal or other approved containers equipped with tight-fitting covers.

Plan/Solution or N/A:

Compressed Gases

Protection of Gas Containers: Gas containers/cylinders shall be protected as follows:

- Combustible materials shall be kept a minimum of 10 feet from gas containers.
- Cylinders shall be protected against physical damage.
- Cylinders shall be stored upright and secured to prevent falling.
- Cylinders shall not be placed near elevators, unprotected platform edges or other areas where they would drop more than 2 feet.
- Cylinders shall not be placed in areas where they may be damaged by falling objects.
- When cylinders are not in use, valve protective caps shall be in place.
- Ropes, chains or slings shall not be used to suspend gas cylinders, unless the cylinder was manufactured with appropriate lifting attachments.

Plan/Solution or N/A:

Separation: When stored, gas cylinders shall be separated from each other based on their hazard classes.

Plan/Solution or N/A:

Marking: Gas cylinders shall be marked with the name of the contents.

Plan/Solution or N/A:

Liquefied Petroleum Gas (LP-Gas)

Use in Buildings: Propane containers may be used in buildings under construction or undergoing major renovation as a fuel source for temporary heating for curing concrete, drying plaster and similar applications in accordance with the following:

- Heating elements (other than integral heater-container units) shall be located at least 6 feet from any LP- Gas container.
- Integral heater-container units specifically designed for the attachment of the heater to the container, or to a supporting standard attached to the container, may be used provided they are designed and installed so as to prevent direct or radiant heat application to the LP-Gas

container.

- Blower and radiant type units shall not be directed toward any LP-Gas container within 20 feet.
- Heat producing equipment shall be installed with clearance to the combustibles in accordance with the manufacturer's installation instructions.
- Cylinders shall comply with DOT cylinder specifications and shall be secured in an upright position.
- Regulators shall be approved for use with LP-Gas. Fittings shall be designed for at least 250 p.s.i.g. service pressure.
- Hose shall be designed for a working pressure of at least 350 p.s.i.g. (unless limited to 5 p.s.i.g.) and shall be a maximum of 6 feet in length.
- Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas to the main burner and to the pilot in the event of flame extinguishment or combustion failure. Portable heaters with an input of more than 50,000 Btu/hr shall be equipped with either a pilot that must be proved before the main burner can be turned on or an approved electronic ignition system.

Plan/Solution or N/A:

Occupied Buildings: In addition to the above, for LPG storage/use in buildings undergoing alteration and that are fully or partially occupied, the following shall also apply:

- Specific approval must be obtained from the site safety director prior to bringing LP-Gas containers on-site.
- The maximum water capacity of individual containers shall be 5-gallon water capacity and the number of containers in the building shall not exceed the number of workers assigned to using the LP-Gas.
- Containers having a water capacity greater than 2½ pounds (1 quart) shall not be left unattended.

Plan/Solution or N/A:

Hot Work

Hot work includes any work involving operations capable of initiating fires or explosions, including cutting, welding, brazing, soldering, grinding, thermal spraying, thawing pipe, torch applied roofing, or any other similar activity.

Hot work shall only be conducted in areas designed or authorized for that purpose by the personnel responsible for a hot work program. Hot work shall not be conducted in the following areas unless approval has been obtained from the fire code official:

- Areas where the sprinkler system is impaired.
- Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids or vapors are present.
- Areas with readily ignitable materials, such as storage of large quantities of bulk sulfur, baled paper, cotton, lint, dust or loose combustible materials.
- On board ships at dock or ships under construction or repair.
- At other locations as specified by the fire code official.

Plan/Solution or N/A:

Area Reviews: Before hot work is permitted and not less than once per day while the permit is in effect, the area shall be inspected by the individual responsible for authorizing hot work operations to ensure that it is a fire safe area. Information shown on the permit shall be verified prior to signing the permit.

Plan/Solution or N/A:

Pre-Hot-Work Check: A pre-hot-work check shall be conducted prior to work to ensure that all equipment is safe and hazards are recognized and protected. A report of the check shall be kept at the work site during the work and available upon request. The pre-hot-work check shall determine all of the following:

- Hot work equipment to be used shall be in satisfactory operating condition and in good repair.
- Hot work site is clear of combustibles or combustibles are protected.
- Exposed construction is of noncombustible materials or, if combustible, then protected.
- Openings are protected.
- Floors are kept clean.
- Exposed combustibles are not located on the opposite side of partitions, walls, ceilings or floors.
- Fire watches, where required, are assigned.
- Approved actions have been taken to prevent accidental activation of fire protection system equipment in accordance with Sections 3504.1.8 and 3504.1.9.
- Fire extinguishers and fire hoses (where provided) are operable and available.

Plan/Solution or N/A:

Fire Watch: The sole duty of fire watch personnel shall be to watch for the occurrence of fire during and after hot work operations. Individuals designated to fire watch duty shall have fire extinguishing equipment readily available and shall be trained in the use of such equipment. Personnel assigned to fire watch shall be responsible for extinguishing spot fires and communicating an alarm. Hot work conducted in areas with vertical and horizontal fire exposures that cannot be observed by a single individual shall have additional personnel assigned to fire watches to ensure that all exposed areas are monitored.

Plan/Solution or N/A:

Post-Work Inspection: The fire watch shall be maintained a minimum of 30 minutes after the conclusion of the work to look out for leftover sparks, slag or smoldering combustibles.

Plan/Solution or N/A:

Weather: On red flag declared fire days (due to temperature, humidity and/or wind conditions), hot work operations shall be curtailed, and the fire watch shall be extended through the night.

Plan/Solution or N/A:

Special Equipment

Motorized Equipment: Motorized equipment, including internal-combustion-powered construction equipment, shall be used in accordance with the following:

- Fuel for equipment shall be stored in an approved area outside of the building.
- Equipment shall not be refueled while in operation.
- Equipment shall be located so that exhausts do not discharge against combustible materials.
- When possible, exhausts should be piped to the outside of the building.

Plan/Solution or N/A:

Temporary Heating Equipment: Temporary heaters, such as those that are LPG fueled, shall be listed and shall be installed, used, and maintained in accordance with the manufacturer's instructions (See LPG storage and use requirements, above). Heating devices shall be secured properly and kept clear from combustible materials. Refueling operations shall be conducted in an approved manner.

Plan/Solution or N/A:

Asphalt and Tar Kettles: Asphalt kettles shall not be located within 20 feet of any combustible material, combustible building surface or building opening. With the exception of thermostatically controlled kettles, an attendant shall be within 100 feet of a kettle when the heat source is operating. Ladders or similar obstacles shall not form a part of the route between the attendance and the kettle. Kettles shall be equipped with tight-fitting covers. A minimum 20-B:C rated portable fire extinguisher shall be located within 30 feet of each asphalt kettle when the heat source is operating. Minimum 20-B:C rated portable fire extinguishers also shall be located on roofs during asphalt coating operations.

Plan/Solution or N/A:

Daily Fire Safety Inspection

The site safety director shall be responsible for completion of a daily fire safety inspection at the project site. Each day, all building and outdoor areas shall be inspected to ensure compliance with the inspection list in this section. The results of each inspection shall be documented and maintained on-site until a certificate of occupancy has been issued. Documentation shall be immediately available on-site for presentation to the fire code official upon request.

- Any contractors entering the site to perform hot work each day have been instructed in the hot work safety requirements in CFC Chapter 35, and hot work is performed only in areas approved by the site safety director.
- Temporary heating equipment is maintained away from combustible materials in accordance with the equipment manufacturer's instructions.
- Combustible debris, rubbish and waste material is removed from the building in areas where work is not being performed.
- Temporary wiring does not have exposed conductors.
- Flammable liquids and other hazardous materials are stored in locations that have been approved by the site safety director when not involved in work that is being performed.

- Fire apparatus access roads required by CFC Section 3311 are maintained clear of obstructions that reduce the width of the usable roadway to less than 20 feet.
- Fire hydrants are clearly visible from access roads and are not obstructed.
- The location of fire department connections to standpipe and in-service sprinkler systems are clearly identifiable from the access road and such connections are not obstructed.
- Standpipe systems are in service and continuous to the highest work floor, as specified in CFC Section 3313.1.
- Portable fire extinguishers are available in locations required by CFC Sections 3316 and 3318.3.

Plan/Solution:

CALIFORNIA STATE UNIVERSITY-
OFFICE OF FIRE SAFETY



CHECK LIST
for
Daily Fire Safety Inspection
(2022 California Fire Code, NFPA 241)

Inspector: _____

Date: _____

Project Name: _____

Permit Number: _____

This checklist is to be used by the Site Safety Director when performing a daily fire safety inspection as required in the 2022 California Fire Code (CFC) Chapter 33. Per CFC Section 3303.3.1, upon the third offense, the fire code official is authorized to issue a stop work order in accordance with CFC Section 113.

Daily Fire Safety Inspection Items:
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	In Compliance	Violation	N/A
1. Any contractors entering the site to perform hot work each day have been instructed in the hot work safety requirements in Chapter 35, and hot work is performed only in areas approved by the site safety director:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Temporary heating equipment is maintained away from combustible materials in accordance with the equipment manufacturer's instructions:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Combustible debris, rubbish and waste material is removed from the building in areas where work is not being performed:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Temporary wiring does not have exposed conductors:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Flammable liquids and other hazardous materials are stored in locations that have been approved by the site safety director when not involved in work that is being performed:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Fire apparatus roads required by CFC Section 3311 are maintained clear of obstructions that reduce the width of the usable roadway to less than 20 feet wide and/or 13 feet 6 inches clear height:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Fire hydrants are clearly visible from access roads and are not obstructed:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The location of fire department connections to standpipe and in-service sprinkler systems are clearly identifiable from the access road and such connections are not obstructed:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Standpipe systems are in service and continuous to the highest work floor as specified in CFC Section 3314.1 (installed prior to construction exceeding 40 feet):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Portable fire extinguishers are available in locations required by CFC Section 3316 and CFC Section 3318.3:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> At each stairway on all floor levels where combustible materials have accumulated In every storage and construction shed Additional portable fire extinguishers shall be provided where special hazards exist, including but not limited to, the storage and use of flammable and combustible liquids There shall be not less than one multiple-purpose fire extinguisher with a minimum 3-A 40-B:C rating on the roof being covered or repaired during roofing operations 	Inspection Notes: _____ _____ _____ _____ _____ _____ _____		

Inspector Signature: _____

END OF SECTION 01 35 05 SAFETY AND HEALTH PROCEDURES

SECTION 01 35 53 - SECURITY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Contractor Security requirements.

1.3 SECURITY (Also refer to Contract General Conditions)

- A. Protect the Work from theft, vandalism and unauthorized entry. Contractor shall have sole responsibility for job site security.
- B. Maintain security throughout construction until the University's occupancy or acceptance.
- C. Provide keying different from permanent keying of locks and include organized, locked and supervised storage for receiving and dispensing items of finish hardware throughout the construction.
- D. Provide the Project Inspector with keys necessary to gain access to locked areas of the Work. The Project Inspector will be responsible for such keys and will return them to the Contractor upon acceptance of the project or area as complete.

1.4 ENTRY CONTROL

- A. Restrict entrance of persons and vehicles into project site.
- B. Allow building entrance only to authorized persons with proper identification.

1.5 PERMANENT KEYS

- A. Immediately upon receipt of permanent keys for whatever purpose (finish hardware, mechanical equipment, casework, dispensers, lockers, switches, equipment items, etc.), tag

or otherwise clearly identify keys according to one approved system and turn them over to the University prior to any opportunity of access to keys by parties other than the University.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 35 53

SECTION 01 41 00 - Regulatory Requirements

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 AUTHORITY AND PRECEDENCE OF CODES, ORDINANCES AND STANDARDS

- A. Authority: All codes, ordinances and standards referenced in the Drawings and Specifications shall have the full force and effect as though printed in their entirety in the Specifications.
- B. Precedence:
 - 1. Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.
 - 2. Where the Drawings or Specifications require or describe products or execution of better quality, higher standard or greater size than required by applicable codes, ordinances and standards, the Drawings and Specifications shall take precedence so long as such increase is legal.
 - 3. Where no requirements are identified in the Drawings or Specifications, comply with all the requirements of the Current Published Cal Poly Construction Standards (Campus Standard Specifications & Campus Standard Details)
<https://afd.calpoly.edu/facilities/planning-capital-projects/construction-standard/>
all applicable codes, ordinances, and standards of authorities having jurisdiction.

1.3 APPLICABLE CODES, LAWS AND ORDINANCES

- A. Applicable Codes, Laws and Ordinances: Refer also to Section 01 11 00 - Summary of the Work regarding permits and licenses.
 - 1. Performance of the Work shall meet or exceed the minimum requirements of the California Code of Regulations (CCR), Title 24, including but not limited to the following:
 - a. Building Standards Administrative Code, Part 1, Title 24 C.C.R.
 - b. California Building Code, Vol. 1 & 2 (CBC), Part 2, Title 24 C.C.R. (Current Adopted International Building Code, as amended by California) Current Office of State Fire

Marshal/CSU Adopted Edition

- c. California Electrical Code (CEC), part 3, title 24 C.C.R. (Current Adopted National Electrical Code, as amended by California) Current Office of State Fire Marshal/CSU Adopted Edition
- d. California Mechanical Code (CMC), Part 4, Title 24 C.C.R. (Current Adopted Uniform Mechanical Code, as amended by California) Current Office of State Fire Marshal/CSU Adopted Edition
- e. California Plumbing Code (CPC), Part 5, Title 24 C.C.R. (Current Adopted Uniform Plumbing Code, as amended by California) Current Office of State Fire Marshal/CSU Adopted Edition
- f. California Energy Code, Part 6, Title 24 C.C.R. Current Office of State Fire Marshal/CSU Adopted Edition
- g. California Fire Code (CFC), Part 9, Title 24 C.C.R. (Current Adopted International Fire Code, as amended by California), Current Office of State Fire Marshal Adopted Edition
- h. California Referenced Standards, Part 12, Title 24 C.C.R. (partial list, see CBC chapter 35 & CFC Chapter 45) Current Office of State Fire Marshal Adopted Edition
- i. NFPA 13 Sprinkler Systems Current Office of State Fire Marshal Adopted Edition (CA amended)
- j. NFPA 14 Standpipe & Hose Current Office of State Fire Marshal Adopted Edition (CA Amended)
- k. NFPA 17 Dry Chemical Systems, Current Office of State Fire Marshal Adopted Edition
- l. NFPA 17a Wet Chemical Systems, Current Office of State Fire Marshal Adopted Edition
- m. NFPA 20 Pumps for Fire Protection, Current Office of State Fire Marshal Adopted Edition
- n. NFPA 24 Fire Service Mains and The Appurtenances, Current Office of State Fire Marshal Adopted Edition
- o. NFPA 72 National Fire Alarm Code (California Amended), Current Office of State Fire Marshal Adopted Edition
- p. NFPA 253 Critical Radiant Flux of Floor Covering Systems, Current Office of State Fire Marshal Adopted Edition
- q. NFPA 2001 Clean Agent Fire Extinguishing Systems, Current Office of State Fire Marshal Adopted Edition
- r. Reference Code Section for NFPA Standards- CBC (SFM) Chapter 35
- s. California Code, Education Code ED 66606

- t. California Code, Education Code ED 89031
 - u. California Code, Health and Safety Code HSC 18934.5
 - v. Government Code Section 4450
 - w. Health & Safety Code, Section 13108 (c)
 - x. Health & Safety Code, Section 13143
 - y. SUAM Section X: 9203 – Codes & Regulations
 - z. SUAM Section XI; 9232 – Building Code Enforcement
 - aa. Title 19, California Code of Regulations, Section 3.28(b)
 - bb. Chapter 11B of the California Building Standards Code
 - cc. Current Published Cal Poly Construction Standards (Campus Standard Specifications & Campus Standard Details) Refer to the following link:
<https://afd.calpoly.edu/facilities/planning-capital-projects/construction-standard/>
2. Performance of the Work shall also comply with applicable requirements of California Code of Regulations (CCR) as follows:
- a. Title 19 - Public Safety, Current Office of State Fire Marshal Adopted Edition
 - b. Title 22 - Social Security, Current Office of State Fire Marshal Adopted Edition
3. References on the Drawings or in the Specifications to "code", "Code" or "building code" similar terms, not otherwise identified, shall mean the codes specified above, together with all additions, amendments, changes, and interpretations adopted by code authorities of the jurisdiction having authority over the Project.
4. The applicable edition of all codes shall be that adopted at the time of issuance of permits by the authority having jurisdiction and shall include all modifications and additions adopted by that authority. The applicable date of laws and ordinances shall be that of the date of performance of the Work.
5. Any modification to the campus standard specifications or details on a project level must be approved in writing, on an executive level by Cal Poly FPCP & FMD. Contractor/Project shall use form 01_41_00_Exhibit_A_Request_Modification_To_Campus_Standards. Native MS Excel Spreadsheet available in Division 01 - General Requirements at the The following link:
<https://afd.calpoly.edu/facilities/planning-capital-projects/construction-standard/>

B. Other Applicable Laws, Ordinances and Regulations:

1. Work shall be accomplished in conformance with all applicable laws, ordinances, rules and regulations of Federal, State, County, City and special district agencies and jurisdictions having authority over the Project.
2. Performance of the Work shall be accomplished in conformance with all rules and regulations of public utilities, utility districts and other agencies serving the facility.
3. Where such laws, ordinances, rules and regulations require more care or greater time to accomplish Work, or require better quality, higher standards or greater size of products, Work shall be accomplished in conformance to such requirements with no change to the Contract Time and Contract Sum, except where changes in laws, ordinances, rules and regulations occur subsequent to the execution date of the Agreement.
4. The Cal Poly Building Official shall provide direction when coordination with outside regulatory agencies is needed, other than the Office of the State Fire Marshal, OFS, CSU, DSA, SLO County APCD, or OSHA.
5. The County of San Luis Obispo (SLO) has no jurisdiction at Cal Poly, other than SLO County APCD.
 1. Refer to Current Published Cal Poly Construction Standards (Campus Standard Specifications & Campus Standard Details) at the link provided in section 01 41 00, 1.3.
6. The City of San Luis Obispo (SLO) has no jurisdiction at Cal Poly, other than the City of SLO Fire Department. It is the sole responsibility of the Contractor to review the City of SLO Fire Department requirements. Note: the City of SLO Fire Department cannot reduce the minimum requirements of the most current edition of the Office of State Fire Marshal adopted California Building Code and California Fire Code, or other Office of State Fire Marshal requirements.
 1. Refer to Current Published Cal Poly Construction Standards (Campus Standard Specifications & Campus Standard Details) at the link provided in section 01 41 00, 1.3.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION 01 41 00

01 41 00 Exhibit A – Request Modification To Campus Standards

BLDG. #: PROJECT NAME:										
Cal Poly Campus Standards Comments										
Contract Number:										
Lead Design Firm:										
Contractor:										
Cal Poly Design Manager:										
Cal Poly Project Manager:										
Number	Division #	Detail	Comment Date	Reason for Request	Design Build Team Comment	Response Date	Campus Engineer Response	Owner Response	Notes/Reference	Cal Poly Executive Approving of Deviation from Campus Standards
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SECTION 01 42 00 - Reference Standards and Abbreviations

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Use of references in Drawings and Specifications, including requirements for copies of reference standards at Project site.
- B. Definitions of terms used in Specifications and Drawings, including abbreviations, acronyms, names and terms which may be used in Specifications.

1.3 RELATED SECTIONS

- A. Section 01 41 00 - Regulatory Requirements: Identification of applicable building Code and other codes, ordinances and regulations applicable to performance of the Work.

1.4 USE OF REFERENCES

- A. References: The Drawings and Specifications contain references to various standards, standard specifications, codes, practices and requirements for products, execution, tests and inspections. These reference standards are published and issued by the agencies, associations, organizations and societies listed in this Section or identified in individual product specification Sections.
 - 1. Wherever term "Agency" occurs in Standard Specifications, it shall be understood to mean the term used for University for purposes of the Contract.
 - 2. Wherever term "Engineer" occurs in Standard Specifications, it shall be understood to mean Architect or other responsible design professional for purposes of the Contract.
 - 3. Where reference is made to Standard Details, such reference shall be to the Standard Details accompanying the Standard Specifications.
- B. Relationship to Drawings and Specifications: Such references are incorporated into and made a part of the Drawings and Specifications to the extent applicable.
- C. Referenced Grades Classes and Types: Where an alternative or optional grade, class or type of

product or execution is included in a reference but is not identified on the Drawings or in the Specifications, provide the highest, best and greatest of the alternatives or options for the intended use and prevailing conditions.

D. Copies of Reference Standards:

1. Reference standards are not furnished with the Drawings and Specifications because it is presumed that the Contractor, subcontractors, manufacturers, suppliers, trades and crafts are familiar with these generally-recognized standards of the construction industry.
2. Copies of reference standards may be obtained from publishing sources.

REVIEW LIST AGAINST ACTUAL TYPE AND SIZE OF PROJECT AND SELECT ACCORDINGLY. COMPLETE LIST IS COSTLY AND MAY ONLY BE WARRANTED ON LARGE, COMPLICATED PROJECTS.

E. Jobsite Copies:

1. Contractor shall obtain and maintain at the Project site copies of reference standards identified on the Drawings and in the Specifications in order to properly execute the Work.
2. At a minimum, the following shall be readily available at the site, as applicable to the Work:
 - a. State Building Codes: As referenced in Section 01 41 00 - Regulatory Requirements.
 - b. Safety Codes: Occupational Safety and Health Act (OSHA) regulations and State of California, California Administrative Code, California Code of Regulations (CCR), Title 8 - Industrial Relations, Chapter 4, Subchapter 7, General Industry Safety Orders (Cal-OSHA), to extent applicable to the Work.
 - c. General Standards:
 - 1) CCR Title 24, Part 2, Volume 3: Current edition California Building Code (CBC) Material, Testing and Installation Standards.
 - 2) CCR Title 24, Part 12: California Referenced Standards Code, current edition.
 - 3) Underwriters Laboratories, Inc. (UL) Building Products Listing.
 - 4) Factory Mutual Research Organization (FM) Approval Guide.
 - 5) American Society for Testing and Materials (ASTM) Standards in Building Codes.
 - 6) American National Standards Institute (ANSI) standards.
 - d. Fire and Life Safety Standards: All referenced standards pertaining to fire rated construction and exiting.
 - e. Common Materials Standards: American Concrete Institute (ACI), American Institute of Steel Construction (AISC), American Welding Society (AWS), Gypsum Association (GA), National Fire Protection Association (NFPA), Tile Council of America (TCA) and Woodwork Institute of California (WIC) standards to the extent referenced within the Contract Specifications.

- f. Research Reports: ICC Evaluation Service, Inc. (ICC-ES), formerly ICBO Evaluation Service, Inc. (ICBO ES) Research Reports and National Evaluation Service, Inc. Reports (NER), for products not in conformance to prescribed requirements stated in California Building Code (CBC).
- g. Product Listings: Approval documentation, indicating approval of authorities having jurisdiction for use of product within the applicable jurisdiction.

F. Edition Date of References:

*CONSULT WITH UNIVERSITY'S REPRESENTATIVE AND DETERMINE WHICH OPTION IN
PARAGRAPH BELOW APPLIES.*

- 1. When an edition or effective date of a reference is not given, it shall be understood to be the current edition or latest revision published as of the date of the Agreement, Contract Drawings and Contract Specifications.
 - 2. All amendments, changes, errata and supplements as of the effective date shall be included.
- G. ASTM and ANSI References: Specifications and Standards of the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI) are identified in the Drawings and Specifications by abbreviation and number only and may not be further identified by title, date, revision or amendment. It is presumed that the Contractor is familiar with and has access to these nationally- and industry-recognized specifications and standards.

1.5 DEFINITIONS OF TERMS

- A. Basic Contract Definitions: Words and terms governing the Work are defined in the Contract General and Supplementary Conditions, as referenced in the Agreement.
- B. Words and Terms Used on Drawings and in Specifications: Additional words and terms may be used in the Drawings and Specifications and are defined as follows:
 - 1. "Applicable:" As appropriate for the particular condition, circumstance or situation.
 - 2. "Approve(d):" Approval action shall be limited to the duties and responsibilities of the party giving approval, as stated in the Conditions of the Contract. Approvals shall be valid only if obtained in writing and shall not apply to matters regarding the means, methods, techniques, sequences and procedures of construction. Approval shall not relieve the Contractor from responsibility to fulfill Contract requirements.
 - 3. "And/or:" If used, shall mean that either or both of the items so joined are required.

4. "Directed:" Limited to duties and responsibilities of the University's Representative or Architect as stated in the Contract General Conditions, meaning "as instructed by the University's Representative or Architect, in writing, regarding matters other than the means, methods, techniques, sequences and procedures of construction. Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the University's Representative or Architect", "requested by the University's Representative or Architect", and similar phrases. No implied meaning shall be interpreted to extend the responsibility of the University's Representative, Architect or other responsible design professional into the Contractor's supervision of construction.
5. "Equal" or "Equivalent:" As determined by Architect or other responsible design professional as being equivalent, considering such attributes as durability, finish, function, suitability, quality, utility, performance and aesthetic features.
6. "Furnish:" Means "supply and deliver, to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
7. "Indicated:" The term indicated refers to graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as "shown", "noted", "scheduled", and "specified" are used to help the reader locate the reference. There is no limitation on location.
8. "Install:" Describes operations at the Project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations.
9. "Installer:"
 - a. "Installer" refers to the Contractor or an entity engaged by the Contractor, such as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - b. "Experienced Installer:" The term "experienced," when used with "installer" means having a minimum of 5 previous Projects similar in size to this Project, knowing the precautions necessary to perform the Work, and being familiar with requirements of authorities having jurisdiction over the Work.
10. "Jobsite:" Same as site, Area of Work, or other similar term referencing the physical property where the work is to be carried out upon.
11. "Necessary:" With due considerations of the conditions of the Project and as determined

in the professional judgment of the Architect or other responsible design professional as being necessary for performance of the Work in conformance with the requirements of the Contract Documents, but excluding matters regarding the means, methods, techniques, sequences and procedures of construction.

12. "Noted:" Same as "Indicated."
13. "Per:" Same as "in accordance with," "according to" or "in compliance with."
14. "Products:" Material, system or equipment.
15. "Project Site:" Same as "Site." See definition of "Jobsite" above.
16. "Proper:" As determined by the Architect or other responsible design professional as being proper for the Work, excluding matters regarding the means, methods, techniques, sequences and procedures of construction, which are solely the Contractor's responsibility to determine.
17. "Provide:" Means "furnish and install, complete and ready for the intended use."
18. "Regulation:" Includes laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, as well as and rules, conventions and agreements within the construction industry that control performance of the Work.
19. "Required:" Necessary for performance of the Work in conformance with the requirements of the Contract Documents, excluding matters regarding the means, methods, techniques, sequences and procedures of construction, such as:
 - a. Regulatory requirements of authorities having jurisdiction.
 - b. Requirements of referenced standards.
 - c. Requirements generally recognized as accepted construction practices of the locale.
 - d. Notes, schedules and graphic representations on the Drawings.
 - e. Requirements specified or referenced in the Specifications.
 - f. Duties and responsibilities stated in the Bidding and Contract Requirements.
20. "Scheduled:" Same as "Indicated."
21. "Selected:" As selected by the University's Representative, Architect or other responsible design professional from the full selection of the manufacturer's products, unless specifically limited in the Contract Documents to a particular quality, color, texture or price range.
22. "Shown:" Same as "Indicated."

23. "Site:" Same as "Site of the Work" or "Project Site;" the area or areas or spaces occupied by the Project and including adjacent areas and other related areas occupied or used by the Contractor for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings, and may or may not be identical with the description of the land upon which the Project is to be built.
24. "Supply:" See "Furnish."
25. "Testing Laboratory" or "Testing Laboratories:" An independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests. Refer to Section 01458 - Testing Laboratory Services.
26. "Testing and Inspection Agency:" Same as "Testing Laboratory."

1.6 ABBREVIATIONS, ACRONYMS, NAMES AND TERMS, GENERAL

- A. Abbreviations, Acronyms, Names and Terms: Where acronyms, abbreviations, names and terms are used in the Drawings, Specifications or other Contract Documents, they shall mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable.
- B. Abbreviations, General: The following are commonly-used abbreviations which may be found on the Drawings or in the Specifications. Refer to the Drawings for additional abbreviations or acronyms. This is a partial list. If there is any discrepancy or confusion, notify the University in writing by RFI:

AC or ac	Alternating current or air conditioning (depending upon context)
AMP or amp	Ampere
C	Celsius
CFM or cfm	Cubic feet per minute
CM or cm	Centimeter
CY or cy	Cubic yard
DC or dc	Direct current
DEG or deg	Degrees
F	Fahrenheit
FPM or fpm	Feet per minute
FPS or fps	Feet per second
FT or ft	Foot or feet
Gal or gal	Gallons
GPM or gpm	Gallons per minute
IN or in	Inch or inches

Kip or kip	Thousand pounds
KSI or ksi	Thousand pounds per square inch
KSF or ksf	Thousand pounds per square foot
KV or kv	Kilovolt
KVA or kva	Kilovolt amperes
KW or kw	Kilowatt
KWH or kwh	Kilowatt hour
LBF or lbf	Pounds force
LF or lf	Lineal foot
M or m	Meter
MPH or mph	Miles per hour
MM or mm	Millimeter
PCF or pcf	Pounds per cubic foot
PSF or psf	Pounds per square foot
PSI or psi	Pounds per square inch
PSY or psy	Per square yard
SF or sf	Square foot
SY or sy	Square yard
V or v	Volts

- C. Abbreviations and Acronyms for Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- D. Undefined Abbreviations, Acronyms, Names and Terms: Words and terms not otherwise specifically defined in this Section, in the Instructions to Bidders, in the Contract General Conditions, on the Drawings or elsewhere in the Specifications, shall be as customarily defined by trade or industry practice, by reference standard and by specialty dictionaries such as the following:

1. Dictionary of Architecture and Construction, Third Edition (Cyril M. Harris, McGraw-Hill Book Company, 2000).
2. The American Institute of Architects (AIA) Document M101, "Glossary of Construction Industry Terms."
3. Encyclopedia of Associations, published by Gale Research Co., commonly available in public libraries.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION 01 42 00

SECTION 01 45 00 - Quality Control

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Regulatory requirements for testing and inspection.
- B. Contractor's quality control.
- C. Quality of the Work.
- D. Inspections and tests by authorities having jurisdiction.
- E. Inspections and tests by serving utilities.
- F. Inspections and tests by manufacturer's representatives.

1.3 RELATED SECTIONS

- A. Section 01 31 00 - Coordination: Coordination of Work under Contract.
- B. Section 01 41 00 - Regulatory Requirements: Compliance with applicable codes, ordinances and standards.
- C. Section 01 45 29 - Testing Laboratory Services: Selection of independent testing and inspection laboratory; tests and inspections conducted by testing laboratory.
- D. Section 01 61 00 - Basic Product Requirements: Product options, substitutions, transportation and handling requirements, storage and protection requirements, and system completeness requirements.

1.4 REGULATORY REQUIREMENTS FOR TESTING AND INSPECTION

- A. Building Code Requirements: Comply with requirements for testing and inspections in the California Building Code (CBC), as interpreted by authorities having jurisdiction. Additional requirements for testing and inspection, as adopted by authorities having jurisdiction, shall be

included in the Contract Sum and Contract Time.

- B. Requirements of Fire Regulations: Comply with testing and inspection requirements of the Fire Marshal having jurisdiction. All tests and inspections shall be included in Contract Sum and Contract Time.

1.5 CONTRACTOR'S QUALITY CONTROL

- A. Contractor's Quality Control: Contractor is solely responsible for the quality of Work. Contractor shall ensure that products, services, workmanship and site conditions comply with requirements of the Drawings and Specifications by coordinating, supervising, testing and inspecting the Work and by utilizing only suitably qualified personnel.
- B. Quality Requirements: Work shall be accomplished in accordance with quality requirements of the Drawings and Specifications, including, by reference, all Codes, laws, rules, regulations and standards. When no quality basis is prescribed, the quality shall be in accordance with the best accepted practices of the construction industry for the locale of the Project, for projects of this type.
- C. Quality Control Personnel: Contractor shall employ and assign knowledgeable and skilled personnel as necessary to perform quality control functions to ensure that the Work is provided as required.
- D. Coordination of Field Quality Control: The General Contractor is solely responsible to coordinate and schedule field quality assurance activities of University's testing and inspection agency and inspectors from authorities having jurisdiction. The University will not coordinate or schedule quality assurance activities on behalf of the Contractor.
- E. If a worker or management personnel under the contract of the General Contractor or Construction Manager appears to the Owner to be incompetent or acts disorderly or improperly, the General Contractor or Construction Manager shall discharge the worker or management personnel immediately upon request by the Cal Poly representative, at no cost to the Owner. The General Contractor or Construction Manager shall not employ (directly or indirectly) or assign this worker or management personnel again on the project or on any future projects at Cal Poly.

1.6 QUALITY OF THE WORK

- A. Quality of Products: Unless otherwise indicated or specified, all products shall be new, free of defects and fit for the intended use.
- B. Quality of Installation: All Work shall be produced plumb, level, square and true, or true to Quality Control

indicated angle, and with proper alignment and relationship between the various elements.

- C. Protection of Existing and Completed Work: Take all measures necessary to preserve and protect existing and completed Work free from all damage, deterioration, soiling and staining, until Acceptance by the University. This includes but is not limited to rain and wind conditions, subcontractor damage of installed or existing products, or similar conditions. All damage shall be deemed non-conforming until such time the work is corrected to the satisfaction of the contract documents.
- D. Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Unless more stringent requirements are indicated or specified, comply with manufacturer's instructions and recommendations, reference standards and building code research report requirements in preparing, fabricating, erecting, installing, applying, connecting and finishing Work.
- E. Deviations from Standards and Code Compliance and Manufacturer's Instructions and Recommendations: Document and explain all deviations from reference standards and building code research report requirements and manufacturer's product installation instructions and recommendations, including acknowledgement by the manufacturer that such deviations are acceptable and appropriate for the Project.
- F. Verification of Quality: Work shall be subject to verification of quality by the University, Campus Engineers/Consultants, or Architect in accordance with provisions of the Contract General Conditions.
 - 1. The Contractor shall cooperate by making Work available for inspections and observations by the University's Representative, FMD, Campus Engineers/Consultants, Project Architect, and their consultants. Refer to 01 45 00 Exhibit A - Milestones for Trade Shop Observation Walk-Downs for typical required walk-down items by the campus facilities trade shops. The contractor shall include these milestones in the baseline schedule, monthly schedule updates, and look-ahead schedules. The contractor shall notify the Cal Poly Project Management team a minimum of 5 days prior to the scheduling of the milestone Trade Shop Observation Walk-Downs. The Contractor is solely responsible for providing the coordination and notification to the Cal Poly Project Management team to ensure the proper scheduling among the trade shops for the milestone walk-downs. Note the Milestone walk-downs included in Exhibit A are typical milestones and shall not be considered an all-inclusive list of items to be included in the milestone walks. Based on the scope of work and the complexity of systems, the University reserves the right to revise the milestone activities to include additional activities to ensure the verification of quality and compliance with the Campus Standard Specifications and Details.
 - 2. Such verification may include mill, plant, shop, or field inspection, as required.

3. Provide access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated.
 4. Provide all information and assistance as necessary, including that from subcontractors, fabricators, materials suppliers and manufacturers, for verification of quality by University's Representative or Architect.
 5. Contract modifications, if any, resulting from such verification activities shall be governed by applicable provisions in the Contract General Conditions.
- G. Observations by Architect and Architect's Consultants: Periodic and occasional observations of Work in progress will be made by Architect and Architect's consultants as deemed necessary to review progress of Work and general conformance with the plans and specifications.
- H. Limitations on Inspection, Test and Observations: Employment of an independent testing and inspection agency and observations by Architect and Architect's consultants shall not relieve Contractor of the obligation to perform Work in full conformance to all requirements of Contract Documents and applicable Building Code and other regulatory requirements.
- I. Rejection of Work: The University reserves the right to reject any and all Work not in conformance to the requirements of the Contract Documents.
- J. Correction of Non-Conforming Work: Non-conforming Work shall be modified, replaced, repaired or redone by the Contractor at no change in Contract Sum or Contract Time.
- K. Acceptance of Non-Conforming Work: Acceptance of non-conforming Work, without specific written acknowledgement and approval of the University's Representative, shall not relieve the Contractor of the obligation to correct such Work.
- L. Contract Adjustment for Non-conforming Work: Should University's Representative determine that it is not feasible or not in University's interest to require non-conforming Work to be repaired or replaced, an equitable reduction in Contract Sum shall be made by agreement between University's Representative and Contractor. If an equitable amount cannot be agreed upon, a Field Instruction will be issued and the amount in dispute resolved in accordance with applicable provisions of the Contract General Conditions.
- M. Non-Responsibility for Non-Conforming Work: Architect and Architect's consultants disclaim any and all responsibility for Work produced that is not in conformance with the Contract Drawings and Contract Specifications.

1.7 INSPECTIONS AND TESTS BY AUTHORITIES HAVING JURISDICTION

- A. Inspections and Tests by Authorities Having Jurisdiction: Contractor shall cause all tests and inspections required by authorities having jurisdiction to be made for Work under this Contract.

1. Except as specifically noted, scheduling, coordinating and conducting such inspections and tests shall be solely the Contractor's responsibility.
2. All time required for inspections and tests by authorities having jurisdiction shall be included in the Contract Time.
3. Costs for inspections and tests by authorities having jurisdiction will be paid by University. Any re-test or additional cost incurred due to initial failure or a lack of preparedness shall be charged to the Contractor and a deductive change order processed.

1.8 INSPECTIONS AND TESTS BY SERVING UTILITIES

- A. Inspections and Tests by Serving Utilities: Contractor shall cause all tests and inspections required by serving utilities to be made for Work under the Contract.
1. Except as specifically noted, scheduling, coordinating and conducting such inspections and tests shall be solely the Contractor's responsibility. All time required for inspections and tests by serving utilities shall be included in the Contract Time.
 2. Except as specifically noted, all costs for inspections and tests by serving utilities shall be included in the Contract Sum. All costs for retest due to the original test failure will be paid for by the Contractor.

1.9 INSPECTIONS AND TESTS BY MANUFACTURER'S REPRESENTATIVES

- A. Inspections and Tests by Manufacturer's Representatives: Contractor shall cause all specified tests and inspections to be conducted by materials or systems manufacturers. Additionally, all tests and inspections required by materials or systems manufacturers as conditions of warranty or certification of Work shall be made, the cost of which shall be included in the Contract Sum.
1. Scheduling, coordinating and conducting such inspections and tests shall be solely the Contractor's responsibility. All time required for inspections and tests by manufacturer's representatives shall be included in the Contract Time.
 2. All costs for inspections and tests by manufacturer's representatives shall be included in the Contract Sum.

1.10 INSPECTIONS BY INDEPENDENT TESTING AND INSPECTION AGENCY

- A. Inspections by independent Testing Laboratory: Refer to Section 01 45 29 - Testing Laboratory Services.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION 01 45 00

01 45 00 Exhibit A - Milestones for Trade Shop Observation Walk-Downs

Milestones for Trade Shop Observation Walk-Downs

Examples:

PL Shop Milestone:

1. Utility installation and testing for tie-ins or modifications to existing connections
2. Rough underground prior to backfill
3. In wall rough before closing of walls
4. Placement of valves (*Before installation)
5. Access Panels location. (*Before installation)
6. Placement of Cleanouts. (*Before installation)
7. Setting of Finish. (Witness a few settings of finish)
8. Final walk after all finish is set prior to acceptance

Engineering Services Milestones:

1. Air Handler installation.
2. The chilled water pump room build/finish.
3. Mechanical room pump installations/alignment.
4. Isolation valves. Verify that they are accessible.
5. Controls Installation. Verify that they are accessible.

Electrical Shop Milestones

1. See attached Energization Milestones
2. Utility installation and testing for tie-ins or modifications to existing connections

3. Rough underground prior to backfill
4. In wall rough before closing of walls and ceilings

Central Plant (Underground Hydronics) Milestones

1. Utility installation and testing for tie-ins or modifications to existing connections
2. Rough underground prior to backfill
3. Preinstallation Conference prior to connection to the Campus Loop

Landscape Shop Milestones

1. Material ID
2. Prior to installation of plumbing (backflow, piping, irrigation conduit, wiring
3. Prior to backfill, Pressure Test. After mainline, laterals,
4. Handoff: Functional Training and associated Timer Training for Facilities
5. As Built walkdown of installation

SECTION 01 45 05 - Mock Ups

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Full scale mock-ups for visual qualities.

1.3 RELATED SECTIONS

*THE FOLLOWING ARE EXAMPLES ONLY. LIST SECTIONS APPLICABLE TO PROJECT, REQUIRING
MOCK-UPS.*

- A. Section 07 10 00 – Dampproofing and Waterproofing
- B. Section 08 80 00 - Glazing
- C. Section 09 21 00 – Plaster and Gypsum Board Assemblies
- D. Section 09 30 00 - Tiling
- E. Section 09 60 00 - Flooring
- F. Section 09 68 00 - Carpeting
- G. Section 09 90 00 – Painting and Coating
- H. Section 10 14 00 – Signage
- I. Section 10 26 00 - Wall and Door Protection
- J. Section 12 30 00 – Casework

- K. Section 12 36 00 - Countertops
- L. Section 22 40 00 - Plumbing Fixtures
- M. Section 26 50 00 – Lighting
- N. Section 32 05 23 - Portland Cement Concrete Paving (for review of color and finish)
- O. Section 32 13 73 – Concrete Paving Joint Sealants
- P. Section [] - [[Exterior Cladding for water test](#)].
- Q. Section [] - [].
- R. Section [] - [].

1.4 DEFINITIONS

- A. Mock-Ups: Full-size, physical example assemblies to illustrate finishes and materials.
 - 1. Mock-ups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.
 - 2. Mock-ups establish the standard by which the Work will be judged.

1.5 SUBMITTALS

- A. Product Data and Shop Drawings: For each product or system that will be incorporated in the mock-ups, submit required submittals as specified in applicable product Section of the Specifications.

1.6 QUALITY ASSURANCE

- A. Mock-Ups: Before installing portions of the Work requiring mock-ups, build mock-ups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mock-ups in location and of size indicated or, if not indicated, as directed by University's Representative.

2. Notify University's Representative and Architect minimum of seven days in advance of dates and times when mock-ups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain review and acceptance of mock-ups by Architect and University's Representative before starting Work, including fabrication and installation construction.
5. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mock-ups when directed, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MOCK-UPS FOR VISUAL QUALITIES

- A. Mock-Ups for Visual Qualities: Before installing portions of the Work requiring a mock-up, build the mock-ups with each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 1. Construct field mock-ups as indicated on the Drawings, indicating assemblies and interfaces of materials.
 2. Construct mock-ups at location where directed by University's Representative.
 3. Demonstrate the proposed range of visual effects, qualities and workmanship.
 4. Provide structural substrate for mock-ups as suitable. Mock-ups shall be free standing and self-supporting.
 5. Maintain mock-ups during construction in an undisturbed condition as a standard for judging completed Work.
 6. Demolish and legally dispose of mock-ups when directed, unless otherwise indicated.

PART 3 - EXECUTION

3.1 CONSTRUCTION OF MOCK-UPS FOR VISUAL QUALITIES

- A. Mock-Ups for Visual Qualities, General: Construct mock-ups as noted on the Drawings and specified in individual product Sections of the Specifications, including but not limited to the the

following:

THE FOLLOWING ARE EXAMPLES. EDIT TO SUIT PROJECT REQUIREMENTS.

1. Casework:

- a. Typical base cabinet, plastic laminate countertop and wall cabinet, including ceiling and wall trim.
- b. [*DESCRIPTION*].

2. Ceramic tile: Toilet room, floor and wall tile including:

- a. Intersections of floor-wall and wall-ceiling.
- b. Transition from wall tile finish to gypsum board finish (including wallcovering, where applicable).
- c. Inside corner of tile covered wall.
- d. Shower curb.

3. [*DESCRIPTION*].

- a. [*DESCRIPTION*].
- b. [*DESCRIPTION*].
- c. [*DESCRIPTION*].

B. [*DESCRIPTION*] Room Mock-Ups:

THE FOLLOWING IS EXAMPLE TEXT ONLY. EDIT TO SUIT PROJECT REQUIREMENTS. TEXT SHOULD DESCRIBE THE SPECIFIC LEVEL OF FINISH REQUIRED OF THE PROJECT AND TO THE EXTENT THE MOCK UP SHOULD BE CONSTRUCTED.

1. Construct mock-up where indicated on the Drawings or, if not indicated, where designated by University's Representative.
2. Construct wall and ceiling framing for gypsum board finish, gypsum board finish, paint, door frames and doors (with hardware), floor fill at Corridor door, floor coverings and base, wallcoverings, dummy lighting fixtures, dummy electrical and signal outlets, dummy plumbing fixtures, casework and trim.
3. Remove, reconstruct and refinish products as necessary to achieve fit, finish and tolerances

acceptable to University's Representative and Architect.

ADD ADDITIONAL PARAGRAPHS AS NECESSARY TO DESCRIBE MOCK-UPS.

END OF SECTION 01 45 05

SECTION 01 45 23 - Testing and Inspecting Services

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Administrative and procedural requirements for quality assurance services.
 - 1. Quality assurance services include inspections and tests and related actions including reports, performed by independent agencies, and governing authorities. They do not include Contract enforcement activities performed by the Trustees or Architect.
 - 2. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

1.3 RELATED SECTIONS

- A. Section 01 45 00 - Quality Control: General requirements for inspections and tests.
- B. Individual Product Specifications Sections: Specific requirements for inspections and tests.

1.4 RESPONSIBILITIES

- A. Testing Agency: For the purpose of this specification "Testing Agency" shall include any persons designated by the University to ensure the work is conforms to the contract documents. This definition shall include the Inspector of Record and Special Inspector. Trustees will engage and pay for the services of an independent agency to perform inspections and tests specified as the Trustees' responsibility for both on-site and off-site testing and inspecting. Refer to paragraph E for travel restrictions.
 - 1. Where the Trustees have engaged a testing agency or other entity for testing and inspection of a part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Trustees, unless otherwise agreed in writing with the Trustees.
- B. Retesting: The Contractor is responsible for the cost of retesting where results of required

inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

1. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.
- C. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested.
- D. Coordination: The Contractor, Project Manager/Inspector, and each agency engaged to perform inspections, testing and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition the Contractor shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests. All Projects require an Inspection Kickoff Meeting that the Contractor shall attend, prior to mobilization and beginning construction activities.
1. The Contractor is responsible for communicating to the Project Manager/Inspector the scheduling times for inspections, tests, taking samples and similar activities. The contractor shall formally request all inspections.
 2. All projects are required to use are required to use Cal Poly's instance of Procore to submit Formal requests for inspections. This is provided to the project free of charge and has an unlimited number of users per project. The University will NOT accept phone calls, SMS phone text messages, emails faxed, and/or hand-written documentation Inspection Requests; not received via the University's Procore. It shall be the sole responsibility of the contractor to request inspection requests to Cal Poly, it shall not be delegated to the Subcontractor or the Owner.
 3. All Projects that require a permit which require State Fire Marshal Inspections shall use the State Fire Marshal instance of Procore to submit formal requests for all inspections related/associated with he Fire, Life, and Safety (FLS) items or within the purview of the State Fire Marshal. All non-FLS inspections shall be submitted through Cal Poly's instance of Procore. It shall be the sole responsibility of the contractor to request inspection requests to the State Fire Marshal's instance of Procore , it shall not be delegated to the Subcontractor or the Owner. State Fire Marshal Inspection Requests (IR's) shall also include map attached to the inspection request otherwise no inspection shall be performed.
 - All IRs MUST have a map attached to the IR with the area highlighted that is being requested for inspection.
 - A printed 11x17 color map shall also be provided by the Contractor to Deputy State Fire Marshal at the time of inspection. The Contractor shall provide the State Fire Marshal with

11 X 17 binders for record copies of passed inspection maps.

Refer to the following guidance documentation and form:

- a) 01 45 23 Exhibit B - OSFM Info Bulletin FLS Inspections
- b) 01 45 23 Exhibit C - Public User OSFM Procore Directions
- c) 01 45 23 Exhibit D - OSFM Procore Intake Form

E. Payment for Testing Agency Services:

1. Unless otherwise specified, Trustees will pay for tests and inspections performed by Testing Agency, as specified in individual product Sections of the Specifications. Overtime costs due to scheduling for the convenience of the Contractor or to make up for Work behind schedule shall be deducted by Change Order from Contract Sum.
2. When tests and inspections are required on an overtime basis, initial payment will be made by the Trustees. All costs for overtime testing and inspections shall be deducted by Change Order from Contract Sum.
 - a. The deducted cost will be for the full amount and shall not include any mark-up factor.
3. Unless otherwise specified, Contractor shall be back-charged for mileage and travel time for inspection services requiring more than 100 miles from Project site to test products purchased or fabricated by Contractor.
 - a. Testing Agency shall forward all billings and records of such costs to University's Representative for approval.
 - b. Such costs, if determined by University's Representative to be attributable to the Contractor under this provision, shall be deducted by Change Order from Contract Sum.
4. Contractor shall pay all costs for repeated observations, re-inspection or retesting by Testing Agency due to non-conforming Work. Costs shall be deducted by Change Order from Contract Sum.
 - a. The deducted cost will be for the full amount and shall not include any mark-up factor.
5. Additional Tests, Inspections and Related Services: Contractor shall be charged costs for additional tests, inspections and related services, due to the following. Such costs shall be deducted by Change Order from Contract Sum.
 - a. Work is not ready to inspect when inspectors arrive.
 - b. Failure to properly schedule or notify testing and inspection agency or authorities

- having jurisdiction.
 - c. Changes in sources, lots or suppliers of products after original tests or inspections.
 - d. Changes in means methods, techniques, sequences and procedures of construction that necessitate additional testing, inspection and related services.
 - e. Changes in mix designs for concrete and mortar after review and acceptance of submitted mix design.
 - f. Multiple off-site fabrication sites.
 - g. Fabrication and installation errors.
 - h. Inefficient, sporadic, or poorly organized manufacturing that causes additional testing costs to be incurred.
- F. Segregation in Billing of Overtime Services: Billings for overtime services shall have straight time and overtime costs segregated and shall have substantiation by detailed explanations justifying necessity of services on overtime basis.
- G. Obligation to Perform Work According to Contract Documents: Employment of Testing Agency shall in no way relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents and applicable Codes.
- H. Limits on Testing Agency's Authority:
- 1. Testing Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Testing Agency may not approve or accept any portion of the Work. Inspection includes only a confirmation that the installation meets the details in the plans and specifications.
 - 3. Testing Agency may not assume any duties of Contractor and will not assist or direct work in any way nor will testing agency coordinate work of other contractors.
 - 4. Testing Agency shall have the authority to stop work when it in direct conflict with contract documents, code or when work poses a risk to the safety of personnel.
- I. Contractor shall make the Work in all stages of progress available for University personal and continuous observation by the Testing Agency.
- 1. Testing Agency shall have free access to any and all parts of the Work at all times.
 - 2. Contractor shall provide the Testing Agency with reasonable facilities for Testing Agency to obtain such information as Testing Agency determines is necessary for Testing Agency to be kept fully informed of the progress and manner of performance of the Work and character of products, according to Testing Agency's duties and responsibilities.

3. Observation and inspection of the Work by Testing Agency shall not relieve Contractor from any obligation to fulfill the requirements of the Contract.
- J. Retesting: When materials tested fail to meet requirements herein specified, they shall be promptly corrected or removed and replaced at the expense of the Contractor and retested in a manner required by University's Representative. Costs involved in retesting shall be deducted by Change Order from Contract Sum.

1.5 TESTS AND INSPECTIONS

- A. Tests and Inspections, General: All construction work shall be subject to inspection by the Trustees and the Architect and all such construction or work shall remain accessible and exposed for inspection purposes until approved by the Trustees.
 1. The Trustees will provide project personnel, including inspectors, to be available at the project site.
 2. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of the building code or of other ordinances of the jurisdiction, including plans and specifications. Inspections presuming to give authority to violate or cancel the provisions of code, or of plans and specifications shall not be valid.
 3. It shall be the duty of the contractor to cause the work to remain accessible and exposed for inspection purposes. Neither the Inspector nor the Trustees or Architect shall be liable for expense entailed in the removal or replacement of any material required to allow inspection. The Contractor shall be present at the time of the inspection. The Contractor shall not delegate the inspection responsibilities to a Subcontractor or the Owner.
- B. Inspection Requests: It shall be the duty of the Contractor doing the work to notify the Inspector that such work is ready for inspection. The Trustees require that such work is ready for inspection. The Trustees require that every request for inspection be filed at least two business days before such inspection is desired. Such requests shall be in writing. See 01 45 23, 1.4. D. RESPONSIBILITIES. State Fire Marshal inspection requests shall be submitted a minimum of 3 business days in advance. 5 days is recommended
 - a) Note to Contractor: The blocking of fire lanes at a project will result in failed State Fire Marshal inspections for the day.
- C. Approval Required: Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the Inspector. The Inspector, upon notification, shall make the requested inspections and shall either indicate in writing that portion of the construction is satisfactory as completed, or shall notify the Contractor that same fails to comply with plans and specifications. Any portions of Work that do not comply shall be

corrected by the Contractor, and such portion shall not be covered or concealed until authorized by the Inspector.

1. There shall be a final inspection and approval of all buildings and structures when completed and ready for occupancy and use.
- D. Inspection Coordination: Contractor shall provide, on a weekly basis, an anticipated Inspection Requirements Schedule, coordinated with the three-week look ahead schedule, showing the anticipated inspection needs for the following three weeks to facilitate appropriate campus coordination and interface as well as mobilization of required inspection staffing.
- E. Required Inspections: Reinforcing steel, structural framework, or interior wall and/or ceiling support framing of any part of any building or structure shall not be covered or concealed without first obtaining the approval of the Inspector.

1. Listed below are the minimum inspection requirements:

SECT #	SECTION NAME	TEST	INSPECTION	PAID BY
01 45 00	QUALITY CONTROL		• FINAL INSPECTION	UNIVERSITY
03 30 00	CAST-IN-PLACE CONCRETE	<ul style="list-style-type: none"> • MOLDED CYLINDER TEST • CONCRETE CONSISTENCY 	<ul style="list-style-type: none"> • WELDING CONTINUOUS INSPECTION • STRUCTURAL CONCRETE • SPECIAL INSPECTION • EPOXY ANCHOR CONCRETE • EMBEDS 	UNIVERSITY
05 12 00	STRUCTURAL STEEL FRAMING	<ul style="list-style-type: none"> • BOLT CONNECTION TEST • WELDING • LAMELLAR TEARING • PRIOR TESTING OF BASE MATERIAL 	<ul style="list-style-type: none"> • BOLT TORQUE • WELDING 	UNIVERSITY

SECT #	SECTION NAME	TEST	INSPECTION	PAID BY
05 30 00	METAL DECKING	• MILL ANALYSIS & TEST REPORTS	• WELDING • CRIMPING • CLOSURES	UNIVERSITY
05 41 00	STRUCTURAL METAL STUD FRAMING		• FIELD WELDS • MATERIAL & EQUIPMENT • SCREWS AND SPANS	UNIVERSITY
07 11 13	BITUMINOUS DAMPPROOFING	• SITE FLOOD TEST	• PERIODIC INSPECTION	UNIVERSITY
07 53 23	EPDM ROOFING	• DEFECT TESTING	• PERIODIC INSPECTION • MANUFACTURE S REP	UNIVERSITY
07 84 00	FIRESTOPPING		• GENERAL INSPECTION	UNIVERSITY
07 95 13	EXPANSION JOINT COVER ASSEMBLIES	• EXTERIOR JOINT COVERS • WATER TEST	• MANUFACTURE R'S FIELD INSPECTION • MILL CERTIFICATION	UNIVERSITY
08 51 13	ALUMINUM WINDOWS	• AIR INFILTRATION • WATER INFILTRATION	• FENESTRATION • SOLAR GAIN	UNIVERSITY
09 29 00	GYPSUM BOARD		• ROUGH GYPSUM BOARD INSPECTION • SCREWS	UNIVERSITY
14 21 00	ELECTRIC TRACTION ELEVATORS		• INSPECTIONS & PERMITS	CONTRACTOR
14 24 00	HYDRAULIC ELEVATORS		• INSPECTIONS & PERMITS	CONTRACTOR

SECT #	SECTION NAME	TEST	INSPECTION	PAID BY
22 05 00	COMMON WORK RESULTS FOR PLUMBING		<ul style="list-style-type: none"> • ROUGH PLUMBING INSPECTION • GENERAL PIPE TESTING • PRESSURE TESTING ON SUPPLY • DWV STACK TEST • GAS LINE PRESSURE TESTING • 	UNIVERSITY CONTRACTOR
23 05 00	COMMON WORK RESULTS FOR HVAC		<ul style="list-style-type: none"> • ROUGH MECHANICAL INSPECTION 	UNIVERSITY
23 08 00	COMMISSIONIN G OF HVAC	• COMMISSIONIN G		CONTRACTOR & UNIVERSITY
26 05 00	COMMON WORK RESULTS FOR ELECTRICAL	<ul style="list-style-type: none"> • ELECTRICAL TESTING 	<ul style="list-style-type: none"> • ROUGH ELECTRICAL INSPECTION • 	UNIVERSITY CONTRACTOR
26 08 00	COMMISSIONIN G OF ELECTRICAL SYSTEMS	• COMMISSIONIN G		CONTRACTOR & UNIVERSITY
27 05 00	COMMON WORK RESULTS FOR COMMUNICATIO NS		<ul style="list-style-type: none"> • ROUGH TELECOM INSPECTION 	UNIVERSITY
27 30 00	VOICE COMMUNICATIO NS			CONTRACTOR

SECT #	SECTION NAME	TEST	INSPECTION	PAID BY
31 23 00	EXCAVATION AND FILL	<ul style="list-style-type: none"> • SOILS DENSITY TESTS • FIELD DENSITY TESTS 		UNIVERSITY
31 23 13	SUBGRADE PREPARATION	<ul style="list-style-type: none"> • BACKFILLING & COMPACTION 		UNIVERSITY
32 11 23	AGGREGATE BASE COURSES	<ul style="list-style-type: none"> • COMPACTION 		UNIVERSITY
32 12 16	ASPHALT PAVING	<ul style="list-style-type: none"> • COMPACTION 	<ul style="list-style-type: none"> • SLOPE AND FLOW 	UNIVERSITY
32 13 13	CONCRETE PAVING	<ul style="list-style-type: none"> • SLUMP TEST/ COMPRESSION TEST 	<ul style="list-style-type: none"> • SLOPE AND FLOW 	UNIVERSITY
32 16 13	CONCRETE CURBS AND GUTTERS	<ul style="list-style-type: none"> • SLUMP TEST/ COMPRESSION TEST 	<ul style="list-style-type: none"> • SLOPE AND FLOW 	UNIVERSITY
32 84 00	PLANTING IRRIGATION	<ul style="list-style-type: none"> • HYDROSTATIC TEST • OPERATIONAL TESTING 		UNIVERSITY
32 93 00	PLANTING		<ul style="list-style-type: none"> • PRELIMINARY INSPECTION • FIELD INSPECTION 	UNIVERSITY
33 11 00	WATER UTILITY DISTRIBUTION PIPING	<ul style="list-style-type: none"> • HYDROSTATIC TESTS • PRESSURE TESTS • LEAKAGE TESTS 		UNIVERSITY
33 41 00	STORM UTILITY DRAINAGE PIPING	<ul style="list-style-type: none"> • HYDROSTATIC TEST ON WATERTIGHT JOINTS 		UNIVERSITY

(ARCHITECT TO REVISE/ ADD TO LIST AS REQUIRED BY PROJECT TECHNICAL DETAILS)

- a. Footings
- b. Underground utilities
- c. Rebar
- d. Fire sprinklers.

- e. Ceiling above t-bar
- f. Welding
- g. Roof/metal deck
- h. Roofing
- i. Insulation
- j. Rated wall penetrations
- k. Rated doors and access panels
- l. High voltage cable installation
- m. High pot high voltage cables

2. The Contractor shall be responsible for reviewing all of the Contract Documents for any additional inspection requirements.

1.6 SUBMITTALS

- A. Reports: Trustees' independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Architect, the Trustees, the Contractor, and the Project Manager/ Inspector.
- B. Report Data: Written reports of each inspection, test or similar service shall include, but not be limited to:

Date of issue

Project title and number

Name, address and telephone number of testing agency

Dates and locations of samples and tests or inspections

Names of individuals making the inspection or test

Designation of the Work and test method

Identification of product and Specification Section

Complete inspection or test data

Test results and an interpretation of test results

Ambient conditions at the time of sample-taking and testing

Comments or professional opinion as to whether inspected or tested

Work complies with Contract Document requirements

Name and signature of laboratory inspector

Recommendations on retesting.

1.7 SCHEDULES FOR TESTING

- A. Testing and Inspection Schedule: After discussion with University's Representative and Testing Agency in advance of performance of testing and inspection services, Contractor shall determine dates and times necessary for Testing Agency to schedule performance of required tests and inspections and determine due dates for issuance of reports.

1. Integrate Testing and Inspection Schedule with the Weekly Project Meetings specified in Section 01 31 19 – Project Meetings
 2. Determine and indicate in Testing and Inspection Schedule necessary time for preparation and submission of reports of tests and inspections.
- B. Revising Testing and Inspection Schedule: When changes of the construction schedule are necessary during construction, coordinate all such changes of schedule with the testing Agency as required.
- C. Adherence to Testing and Inspection Schedule: When the Testing Agency is ready to test according to the determined schedule but is prevented from testing or taking specimens due to incompleteness of the work, all extra costs for testing attributed to the delay may be back-charged to the Contractor and shall not be borne by the University.

1.8 CONTRACTOR'S RESPONSIBILITIES

- A. Contractor's Responsibilities for Inspections and Tests:
1. Notify Project Inspector and Testing Agency formally with an Inspection Request form a minimum of two (2) business days in advance of expected time for operations requiring inspection and testing services.
 - a. State Fire Marshal Inspections - Notify Project Inspector a minimum of three (3) business days in advance of expected State Fire Marshal Inspections.
 - b. Architect/Engineer Review – Notify Project Inspector, University Project Manager and Architect/Engineer a min of five (5) business days in advance of all quality assurance reviews.
 2. Deliver to Testing Agency or designated location, adequate samples of materials proposed to be used which require advance testing, together with proposed mix designs or other approved submittal documentation.
 3. Cooperate with University's Representative, Testing Agency, Project Inspector, Architect, Architect's consultants and other responsible design professionals. Provide access to Work areas and off-site fabrication and assembly locations, including during weekends and after normal work hours.
 4. Provide incidental labor and facilities to provide safe access to Work to be inspected and tested, to obtain and handle samples at the Work site or at source of products to be tested, and to store and cure test samples.
 5. Provide at least 14 days in advance of first inspection or test of each type, a schedule of

tests or inspections indicating types of tests or inspections and their scheduled dates.

1.9 INSPECTIONS AND TESTS BY OTHERS

- A. Inspections by Others: Refer to Section 01 45 00 - Quality Control for requirements regarding observations and inspections by University's Representative, Architect and Project Inspector.
- B. Tests by Others: Refer to Section 01 45 00 - Quality Control and individual product Specifications Sections for requirements regarding tests and inspections by product manufacturers and others, including serving utilities.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. Repair and Protection: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate all deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."
 - 1. Protect construction exposed by or for quality control and quality assurance service activities, and protect repaired construction.
 - 2. Repair and protection of all installed and stored materials is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01 45 23

Statement of Required Project Special Inspections

Project: _____
Location: _____
Owner: _____
Architect: _____

This Statement of Special Inspections is submitted in fulfillment of the requirements of CBC Sections 1704 and 1705 and summarizes the special inspections and tests required for this project. Additional tests and inspections may be called for at the discretion of the (deputy) building official.

This statement includes:

- Attachment A: List of the Testing Agencies and Inspectors retained to conduct the tests and inspections.
- Attachment B: Schedule of Special Inspections and tests applicable to this project:
 - ☐ Special Inspections per Sections 1704 and 1705
 - ☐ Special inspections for Seismic Resistance
 - ☐ Special inspections for Wind Resistance

Special inspections and testing shall be performed in accordance with the approved plans and specifications, this statement, and CBC sections 1704, 1705, 1707, and 1708. No less than CBC minimum requirements shall be observed.

Interim reports shall be coordinated by the project Inspector of Record (IOR) and submitted to the (Deputy) Building Official and Architect in accordance with CBC Section 1704.1.2.

A final report of special inspections and confirmation of resolution of discrepancies noted in the inspections shall be submitted by the IOR to the (Deputy) Building Official and Architect. The (Deputy) Building Official shall review and approve the final report as a prerequisite to the issuance of a Certificate of Occupancy.

Responsibility for payment for inspections and testing is defined in project agreements. Typically, it is trustee policy to pay for all initial and reasonable back check inspections.

This Statement has been developed with the understanding that the (Deputy) Building Official will personally or by delegation:

- Review and approve the qualifications of the Special Inspectors who will perform the inspections.
- Monitor special inspection activities on the job site to confirm that the Special Inspectors are qualified and are performing their duties as called for in this Statement of Special Inspection.
- Review submitted inspection reports, confirming resolution of discrepancies as the work progresses.
- Perform all inspections as required by the CBC building code and additionally as identified herein.

Architect:

Signature

Date

Authorization by Trustees

Signature

Date

(Deputy) Building Official Acceptance

Signature

Date

Attachment A - Testing Agencies, and Inspectors

Testing agencies and special inspectors retained to conduct tests and inspection on this project.

Responsibility	Firm	Address, Telephone, e-mail
1. Special Inspection (except for geotechnical)	<i>To Be Determined</i>	
2. Material Testing	<i>To Be Determined</i>	
3. Geotechnical Inspections	<i>To Be Determined</i>	
4. Other	<i>To Be Determined</i>	
5. Other	<i>To Be Determined</i>	

☐ Additional pages attached (if checked)

Attachment B - Special Inspections for Seismic & Wind Resistance

Seismic Requirements (Section 1705.3.1)

Summary description of seismic force resisting system and designated seismic systems requiring special inspections as per Section 1705.3.:

[Sample: Steel moment frame on pier foundation]

Wind Requirements (Section 1705.4.1)

Summary description of main wind force resisting system and designated wind resisting components requiring special inspections in accordance with Section 1705.4.2.:

1. Roof cladding and roof framing connections.
2. Wall connections to roof and floor diaphragms and framing.
3. Roof and floor diaphragm systems, including collectors, drag struts and boundary elements.
4. Braced frame, moment frame and shear walls
5. Braced frame, moment frame and shear walls connections to foundations

[Sample: All elements identified in CBC 1705.4.2. above. No additional items.]

Attachment B - Schedule of Special Inspections *(cont.)*

Verification and Inspection. (1)	C.	P	Notes
1704.2.1:- Inspect fabricators fabrication and quality control procedures.	---	---	
Table 1704.3 - Steel			
1. Material verification of high-strength bolts, nuts, and washers.			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.		X	
b. Manufacturer's certificate of compliance required.		X	
2. Inspection of high-strength bolting:			
a. Bearing type connections.		X	
b. Slip-critical connections	X	X	
3. Material verification of structural steel:			
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	---	---	
b. Manufacturer's mill test reports	---	---	
4. Material verification of weld filler materials:			
a. Identification markings to conform to AWS designation listed in the WPS.	---	---	
b. Manufacturer's certificate of compliance required.	---	---	
5. Inspection of welding:			
a. Structural steel			
1) Complete and partial penetration groove welds.	X		
2) Multipass fillet welds	X		
3) Single-pass fillet welds > 5/16"	X		
4) Single-pass fillet welds ≤ 5/16"		X	
5) Floor and roof deck welds.		X	
b. Reinforcing steel			
1) Verification of weldability of reinforcing steel other than ASTM A 706.		X	
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls, and shear reinforcement.	X		
3) Shear reinforcement.	X		
4) Other reinforcing steel		X	
6. Inspection of steel frame joint details for compliance with approved construction documents:		X	
a. Details such as bracing and stiffening.			
b. Member locations.			
c. Application of joint details at each connection.			

Verification and Inspection. (1)	C.	P	Notes
1704.3- Welded studs when used for structural diaphragms.		X	
1704.3- Welding of cold-formed sheet steel framing members.		X	
1704.3- Welding of stairs and railing systems		X	
Table 1704.4 - Concrete			
1. Inspection of reinforcing steel, including prestressing tendons and placement		X	
2. Inspection of reinforcing steel welding in accordance with Table 1704.3 Item 5b	---	---	
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased.	X		
4. Verifying use of required design mix.		X	
5. At time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of the concrete.	X		
6. Inspection of concrete and shotcrete placement for proper application techniques.	X		
7. Inspection for maintenance of specified curing temperature and techniques.		X	
8. Inspection of prestressed concrete			
a. Application of prestressing forces	X		
b. Grouting of bonded prestressing tendons in the seismic-force-resisting system	X		
9. Erection of precast concrete members.		X	
10. Verification of in-situ concrete strength, prior to stressing of tendons in postensioned concrete and prior to removal of shores and forms from beams and structural slabs.		X	
11. Inspect formwork for shape, location, and dimensions of the concrete member being formed.		X	
Table 1704.5.1 - Level 1 Masonry Inspections.			
1. At the start of masonry construction verify the following to ensure compliance:			
a. Proportions of site-prepared mortar.		X	
b. Construction of mortar joints.		X	
c. Location of reinforcement, connectors, prestressing tendons, and anchorages.		X	
d. Prestressing technique.		X	
e. Grade and size of prestressing tendons and anchorages.		X	
2. Verify:			
a. Size and location of structural elements.		X	
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.		X	

Verification and Inspection. (1)	C.	P	Notes
c. Specified size, grade, and type of reinforcement.		X	
d. Welding of reinforcing bars.	X		
e. Protection of masonry during cold weather (temperature below 40 degrees F) or hot weather (temperature above 90 degrees F)		X	
f. Application and measurement of prestressing force.		X	
3. Prior to grouting verify the following to verify compliance.			
a. Grout space is clean.		X	
b. Placement of reinforcement and connectors and prestressing tendons and anchorages.		X	
c. Proportions of site-prepared grout and prestressing grout for bonded tendons.		X	
d. Construction of mortar joints.		X	
4. Verify grout placement to ensure compliance with code and construction document provisions.	X		
a. Observe grouting of prestressing bonded tendons.	X		
5. Observe preparation of required grout specimens, mortar specimens, and/or prisms.	X		
6. Verify compliance with required inspection provisions of the construction documents and the approved submittals.		X	
Table 1704.5.3 - Level 2 Masonry Inspections			
1. From the beginning of masonry construction the following shall be verified to ensure compliance:			
a. Proportions of site-prepared mortar, grout, and prestressing grout for bonded tendons.		X	
b. Placement of masonry units and construction of mortar joints.		X	
c. Placement of reinforcement, connectors and prestressing tendons and anchorages.		X	
d. Grout space prior to grouting.	X		
e. Placement of grout.	X		
f. Placement of prestressing grout.	X		
2. Verify:			
a. Size and location of structural elements.		X	
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames and other construction.	X		
c. Specified size, grade, and type of reinforcement.		X	
d. Welding of reinforcing bars.	X		

Verification and Inspection. (1)	C.	P	Notes
e. Protection of masonry during cold weather (temperature below 40 degrees F) or hot weather (temperature above 90 degrees F)		X	
f. Application and measurement of prestressing force.	X		
3. Preparation of any required grout specimens, mortar specimens, and/or prisms shall be observed.	X		
4. Compliance with required provisions of construction documents and the approved submittals shall be verified.		X	
1704.6: -Inspect pre fabricated wood structural elements and assemblies in accordance with Section 1704.2	---	---	
1704.6:- Inspect site built assemblies.	---	---	
1704.6.1: Inspect high-load diaphragms :			
1. Verify grade and thickness of sheathing.	---	---	
2. Verify nominal size of framing members at adjoining panel edges.	---	---	
3. Verify: <ul style="list-style-type: none"> Nail or staple diameter and length, Number of fastener lines, Spacing between fasteners in each line and at edge margins. 	---	---	
Table 1704.7 - Inspection of Soils			
1. Verify materials below footings are adequate to achieve the desired bearing capacity.		X	
2. Verify excavations are extended to proper depth and have reached proper material.		X	
3. Perform classification and testing of controlled fill materials.		X	
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill.	X		
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly.		X	
Table 1704.8 - Pile Foundations			
1. Verify pile materials, sizes and lengths comply with the requirements.	X		
2. Determine capacities of test piles and conduct additional load tests, as required.	X		
3. Observe driving operations and maintain complete and accurate records for each pile.	X		

Verification and Inspection. (1)	C.	P	Notes
4. Verify locations of piles and their plumbness. a. Confirm type and size of hammer. b. Record number of blows per foot of penetration. c. Determine required penetrations to achieve design capacity. d. Record tip and but elevations and record any pile damage.	X		
5. For steel piles, perform additional inspections in accordance with Section 1704.3.	---	---	
7. For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	---	---	
8. For augered uncased piles and caisson piles, perform inspections in accordance with Section 1704.9.	---	---	
Table 1704.9 - Pier Foundations			
1. Observe drilling operations and maintain complete and accurate records for each pier.	X		
2. Verify locations of piers and their plumbness. Confirm: • Pier diameters, • Bell diameters (if applicable), • Lengths, embedment into bedrock (if applicable), • Adequate end strata bearing capacity.	X		
1704.10- Sprayed fire-resistant materials			
1. Inspect surface for accordance with the approved fire-resistance design and the approved manufacturer's written instructions.	---	---	
2. Verify minimum ambient temperature before and after application.	---	---	
3. Verify ventilation of area during and after application.		X	
4. Measure average thickness per ASTM E605 and Section 1704.10.3.	---	---	
5. Verify density of material for conformance with the approved fire-resistant design and ASTM E605.	---	---	
6. Test cohesive/adhesive bond strength per Section 1704.10.5.	---	---	
1704.11- Mastic and intumescent fire-resistant coating	---	---	
1704.12- Exterior insulation and finish systems (EIFS):-	---	---	
1704.13- Alternate materials and systems.	---	---	
1704.14- Smoke Control System	---	---	
1705.3: Seismic Resistance.			
1705.3 [4.3]:- Suspended ceiling systems and their anchorage.	---	---	

Verification and Inspection. (1)	C.	P	Notes
1705.4 Wind Resistance			
1705.4.2	---	---	
1. Roof cladding and roof framing connections.	---	---	
2. Wall connections to roof and floor diaphragms and framing.	---	---	
3. Roof and floor diaphragm systems, including collectors, drag struts and boundary elements	---	---	
4. Vertical wind force-resisting systems, including braced frames, moment frames, and shear walls.	---	---	
5. Wind force-resisting system connections to the foundation.	---	---	
6. Fabrication and installation of systems or components required to meet the impact resistance requirements of Section 1609.1.2	---	---	
Special Inspections for Seismic Resistance.			
1707.2:- Special inspection for welding in accordance with AISC 341.	X		
1707.3:- Structural Wood.			
1. Inspect field gluing operations of elements of the seismic-force-resisting system.	X		
2. Inspect nailing, bolting, anchoring, and other fastening of components within the seismic-force-resisting system, including: <ul style="list-style-type: none"> • wood shear walls, • wood diaphragms, • drag struts, braces, • shear panels, • hold-downs. 		X	
1707.4:- Cold-formed steel framing:			
1. Welding of elements of the seismic-force-resisting system.		X	
2. Inspection of screw attachments, bolting, anchoring, and other fastening of components within the seismic-force-resisting system including struts, braces, and hold-downs.		X	
1707.5: Pier Foundations			
1. Placement of reinforcing		X	
2. Placement of concrete	X		
1707.6:- Anchorage of storage racks and access floors 8 feet or greater in height.		X	
1707.7: Architectural Components			
1. Inspect erection and fastening of exterior cladding weighing more than 5 psf.		X	
2. Inspect erection and fastening of interior and exterior non-bearing walls weighing more than 15 psf.		X	
3. Inspect erection and fastening of interior and exterior veneer weighing more than 5 psf.		X	
1707.8: Mechanical and electrical components.			
1. Inspect anchorage of electrical equipment for emergency or stand-by power systems.		X	

Verification and Inspection. (1)	C.	P	Notes
2. Inspect anchorage of non-emergency electrical equipment		X	
3. Inspect installation of piping systems and associated mechanical units carrying flammable, combustible, or highly toxic contents.		X	
4. Inspect installation of HVAC ductwork that contains hazardous materials.		X	
5. Inspect installation of vibration isolation systems where required by Section 1707.8.		X	
1707.9: Verify that the equipment label and anchorage or mounting conforms to the certificate of compliance when mechanical and electrical equipment must be seismically qualified.	---	---	
1707.10- Seismic isolation system:- Inspection of isolation system per ASCE 7 – Section 17.2.4.8		X	
1708.1: Masonry Testing for Seismic Resistance			
1708.1.1- Verify certificates of compliance prior to construction.	---	---	
1708.1.2- Verification of f'_m and f'_{AAC} prior to construction.	---	---	
1708.1.2- Verification of f'_m and f'_{AAC} every 5000 square feet during construction.		X	
1708.1.4- Verification of proportions of materials in mortar and grout as delivered to the site.	---	---	
1708.3- Obtain mill certificates for reinforcing steel, verify compliance with approved construction documents, and verify steel supplied corresponds to certificate.	---	---	
1708.4- Structural Steel: - Invoke the QAP Quality Assurance requirements in AISC 341.	---	---	
1708.5- Obtain certificate that equipment has been tested per Section 1708.5.	---	---	
1708.6- Obtain system tests as required by ASCE 7 Section 17.8	---	---	

Notation:

Column headers:

C Indicates continuous inspection is required.

P Indicates periodic inspections are required. The Notes and or contract documents should clarify.

Box entries:

X Is placed in the appropriate column to denote either “C” continuous or “P” periodic inspections.

--- Denotes an activity that is either a one-time activity or one whose frequency is defined in some other manner.

Notes:

- (1) Additional detail regarding inspections and tests are provided in the project specifications and construction documents

Attachment B - Schedule of Special Inspection (cont.)

Other Inspections

Other inspections not listed previously or additional notes

[none]

--



CAL FIRE - OFFICE OF THE STATE FIRE MARSHAL

Information Bulletin 24-010

Issued: September 24, 2024

Fire and Life Safety Construction Inspections and Other Related Processes

CAL FIRE - Office of the State Fire Marshal (OSFM) Fire and Life Safety (FLS) Division is releasing this information to provide guidance for construction inspections and other related processes performed by the OSFM on all State Owned, Specified State-Occupied Buildings and State Institution projects. These inspections and other related processes are necessary to ensure compliance with California Statutes and Regulations for fire and panic safety.

Currently, the FLS Division utilizes specific permitting, plan review and inspection platforms: GOVMOTUS Fire, ProjectDox, and Procore.

A. GOVMOTUS Fire: Permit Software

1. GOVMOTUS is the permitting software which shall be utilized for issuing all permits regardless of type.
2. GOVMOTUS will serve as the official Job Card for all construction projects, functioning as the central platform for final approvals and the issuance of final acceptance for inspections conducted by the OSFM.
3. GOVMOTUS is the permitting software which shall be used to issue Temporary Certificate of Occupancy (TCO) and Certificate of Occupancy (CO).



C. Procore: Inspection

1. Procore is the software which shall be utilized for all construction projects effective Sept. 01, 2024, regardless of size or scope. This includes any site work, tenant improvements, etc.



CAL FIRE - OFFICE OF THE STATE FIRE MARSHAL

Information Bulletin 24-010

2. All construction inspections, Request for Information (RFI), deferred submittals, and any other project related documents or correspondence requiring OSFM review shall be submitted to the OSFM via Procore.
3. The OSFM shall create the project in Procore after the holder of a permit or their duly authorized agent has notified the OSFM that work is about to start or is requesting field review of any items.
4. All amended construction documents shall be in accordance with Item B.

Projects shall work through the FLS Area Supervisor, and the Deputy assigned to the project to ensure collaboration and communication within the project.

If you have any questions, please call (916) 568-3801.

OSFM Procore Directions

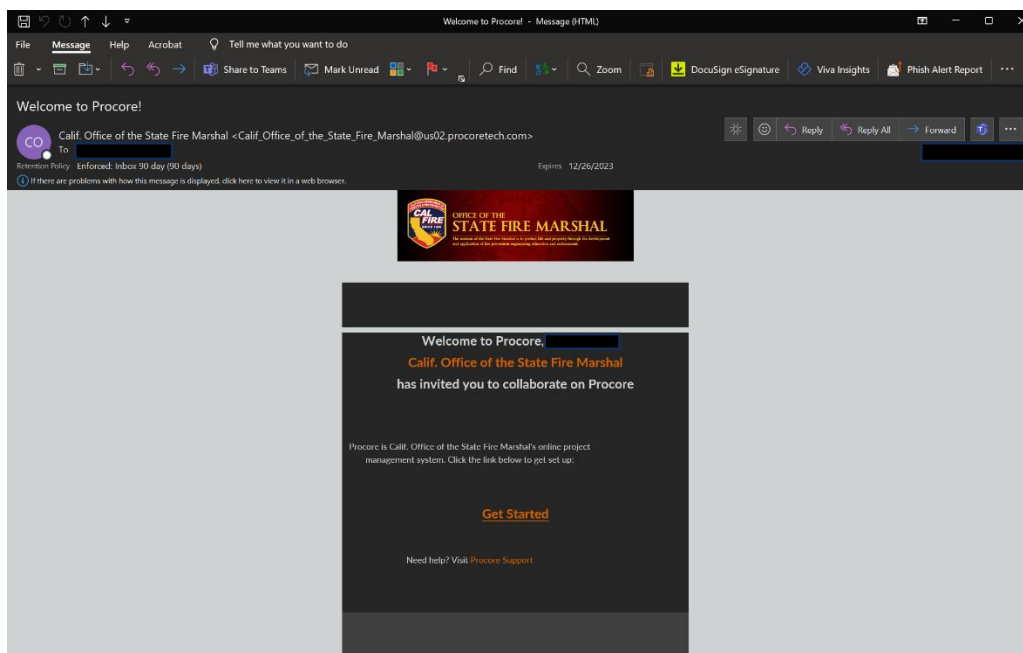
External Users

❖ REQUIRED USE

- The California Office of the State Fire Marshal (OSFM) started utilizing Procore manage its large and high-profile construction projects in early 2018. Since its inception, the OSFM has successfully tracked and managed billions of dollars' worth of projects for the State of California utilizing the Procore platform.
- The project is required to use the OSFM's instance of Procore to submit and/or request inspections, RFIs and field deferred submittals (not to be confused with deferred reviews which are required to go through the plan review process such as Fire Alarm drawings) to the OSFM for review. This is provided to the project free of charge and has an unlimited number of users per project.
- The OSFM shall not utilize any another instance of Procore for any communications and/or submittals of any kind. Currently, it is not possible for different instances of Procore to communicate to each other.

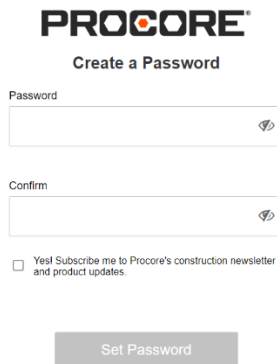
❖ Getting Started

- OSFM staff will add you to the project after we are notified by project management who they are requesting to be added to the project.
- If you have not been part of a previous project, you will receive an email from the OSFM's Procore account.



- You will be required to create a Password.

- If you already have a Procore account with the same email account you are currently using with any contractor or entity, login using that account and see bottom of Page 3 for existing account holders.



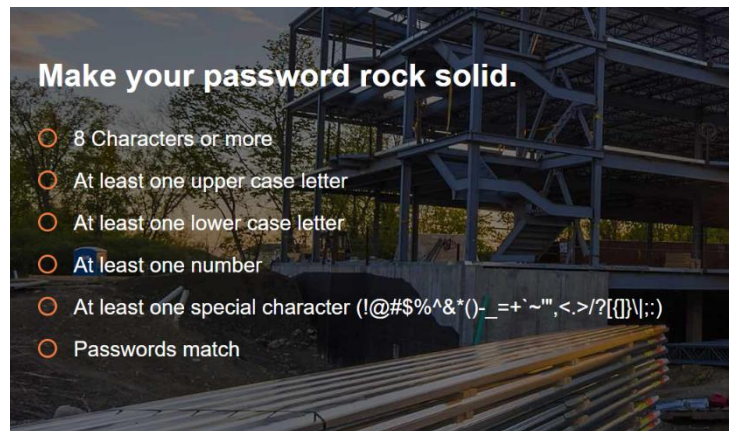
PROCORE
Create a Password

Password

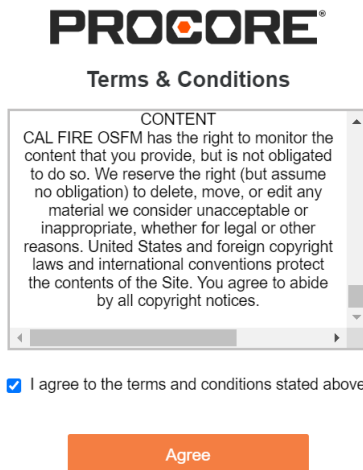
Confirm

☐ Yes! Subscribe me to Procore's construction newsletter and product updates.

Set Password



- You must agree to the Terms and Conditions.



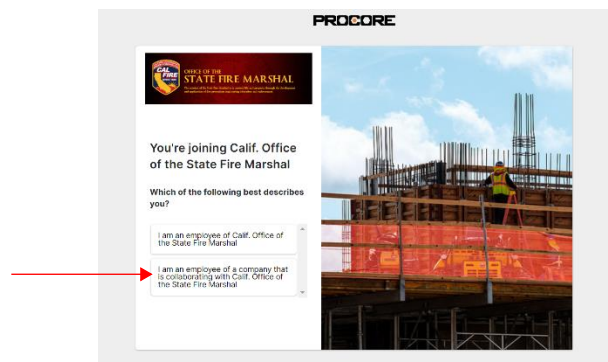
PROCORE
Terms & Conditions

CONTENT
CAL FIRE OSFM has the right to monitor the content that you provide, but is not obligated to do so. We reserve the right (but assume no obligation) to delete, move, or edit any material we consider unacceptable or inappropriate, whether for legal or other reasons. United States and foreign copyright laws and international conventions protect the contents of the Site. You agree to abide by all copyright notices.

☒ I agree to the terms and conditions stated above.

Agree

- You will be prompted to “Get Started” and answer a few questions regarding your use of the system.
- Please select the appropriate box stating you are an employee of a company that is collaborating with the OSFM.



PROCORE

Cal Fire
OFFICE OF THE STATE FIRE MARSHAL

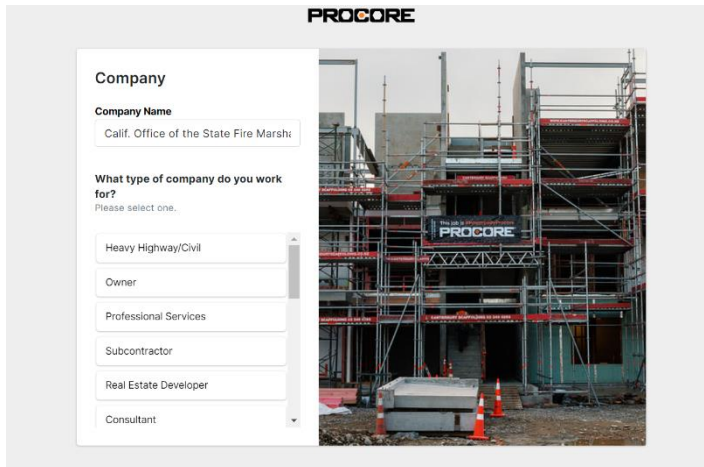
You're joining Calif. Office of the State Fire Marshal

Which of the following best describes you?

☐ I am an employee of Calif. Office of the State Fire Marshal

☒ I am an employee of a company that is collaborating with Calif. Office of the State Fire Marshal

- The remaining questions are for statistical purposes for Procore's sole use and do not affect how you will use the software or your permission level and are not tracked or managed by the OSFM.




PROCORE

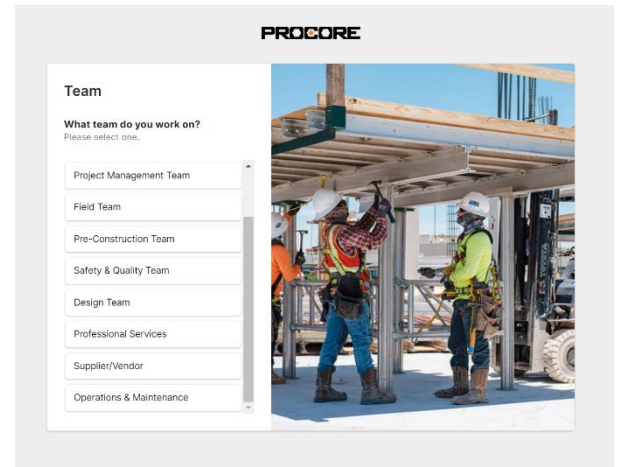
Company

Company Name
Calif. Office of the State Fire Marsh...

What type of company do you work for?
Please select one.

Heavy Highway/Civil
Owner
Professional Services
Subcontractor
Real Estate Developer
Consultant






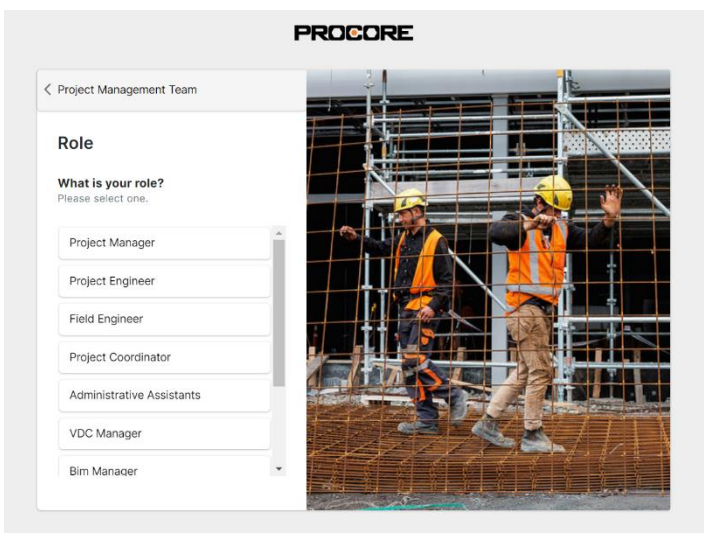
PROCORE

Team

What team do you work on?
Please select one.

Project Management Team
Field Team
Pre-Construction Team
Safety & Quality Team
Design Team
Professional Services
Supplier/Vendor
Operations & Maintenance






PROCORE

< Project Management Team

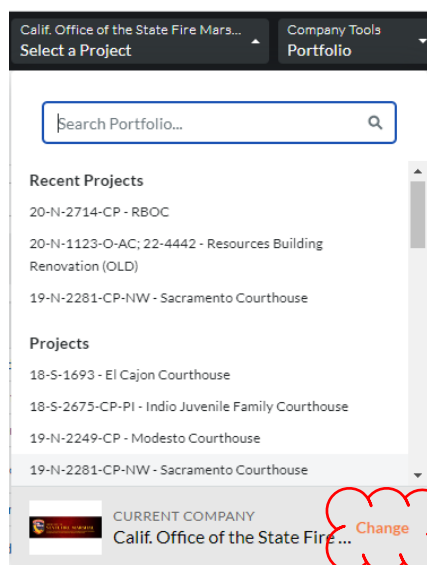
Role

What is your role?
Please select one.

Project Manager
Project Engineer
Field Engineer
Project Coordinator
Administrative Assistants
VDC Manager
Bim Manager



- Existing Procore account holders should login to their account with their current and valid email address. They may have to change “companies” to access the OSFM’s instance of Procore.



Calif. Office of the State Fire Mars... Company Tools
Select a Project Portfolio


Search Portfolio...

Recent Projects

- 20-N-2714-CP - RBOC
- 20-N-1123-O-AC; 22-4442 - Resources Building Renovation (OLD)
- 19-N-2281-CP-NW - Sacramento Courthouse

Projects

- 18-S-1693 - El Cajon Courthouse
- 18-S-2675-CP-PI - Indio Juvenile Family Courthouse
- 19-N-2249-CP - Modesto Courthouse
- 19-N-2281-CP-NW - Sacramento Courthouse

 CURRENT COMPANY
Calif. Office of the State Fire ... **Change**

Change Company



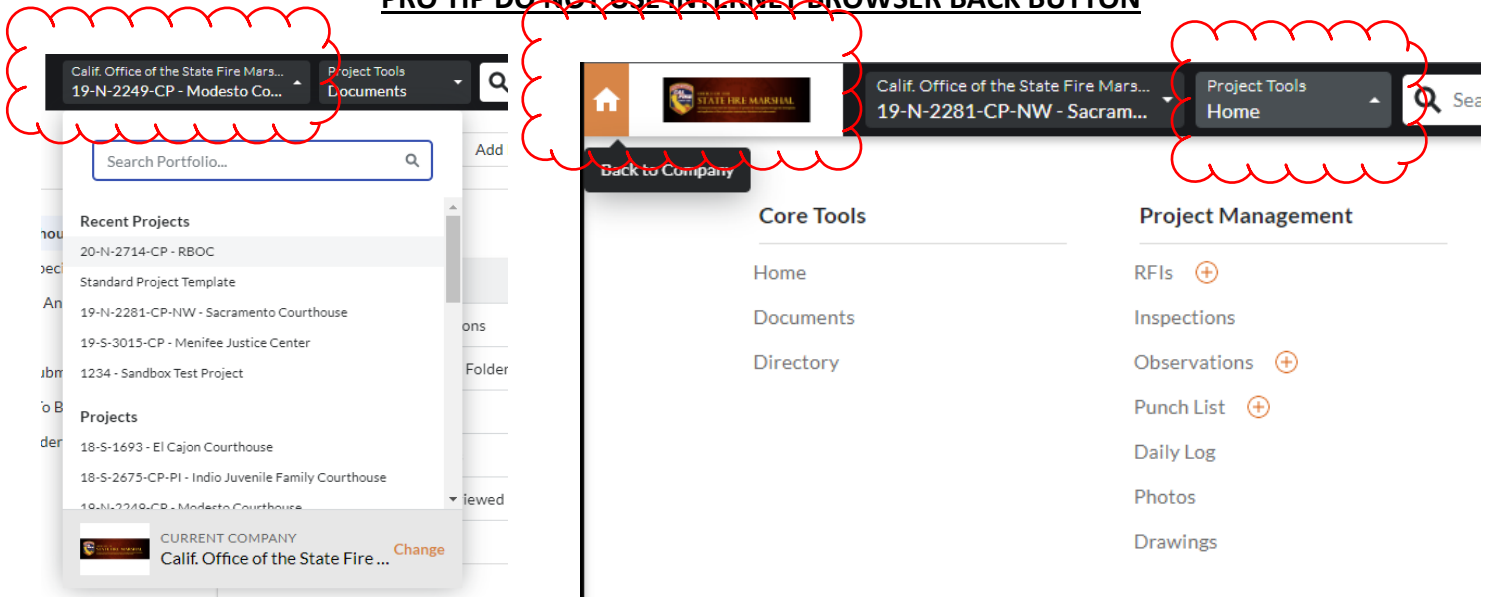
You are currently in Calif. Office of the State Fire Marshal

Calif. Office of the State Fire Marshal
Clark Construction Group, LLC
Construction Inspection & Management Branch
McCarthy Holdings, Inc.
Rudolph and Sletten, Inc.
Sletten Companies
TCCo NorCal
XL Construction

❖ TOP BUTTONS

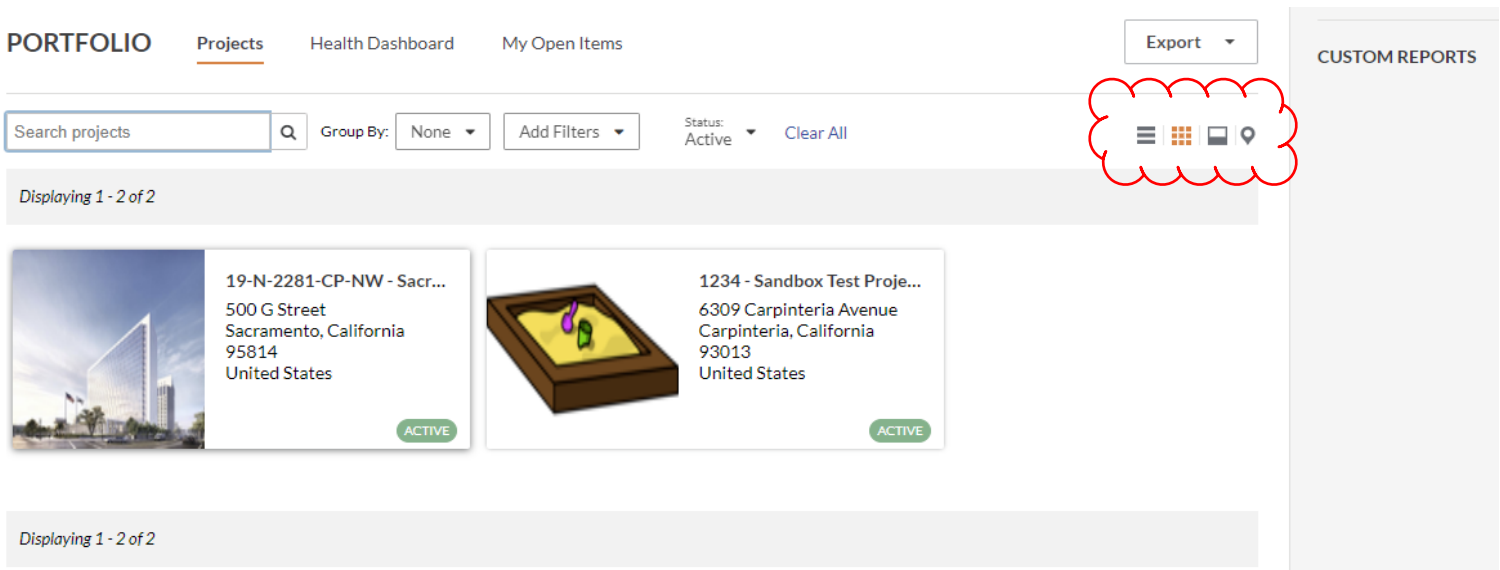
- Home
- Project drop down list.
- PROJECT TOOLS - Core Tools needed for the project.

PRO TIP DO NOT USE INTERNET BROWSER BACK BUTTON



❖ Portfolio Page

- Shows lists of projects you are associated with.
- Has multiple different types of views.
- Is searchable and has multiple filters that can be applied.



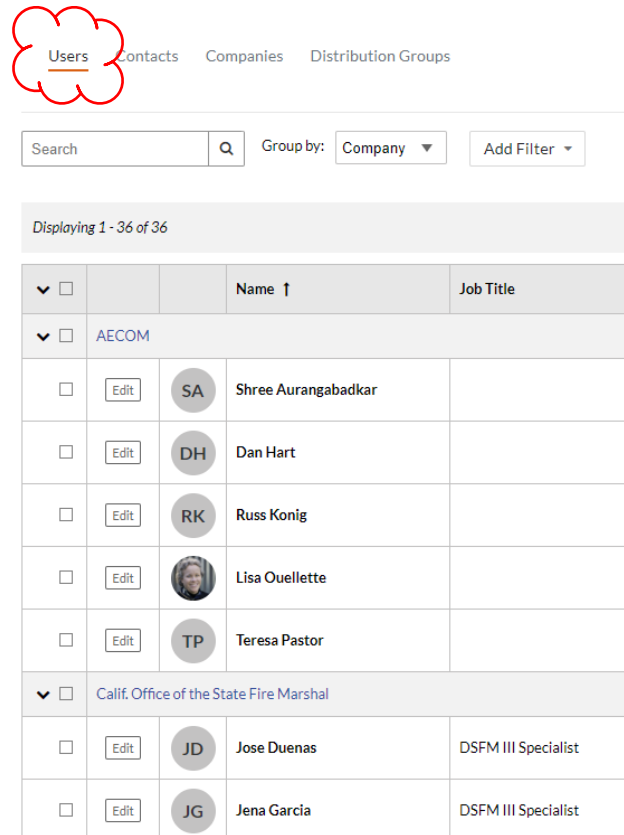
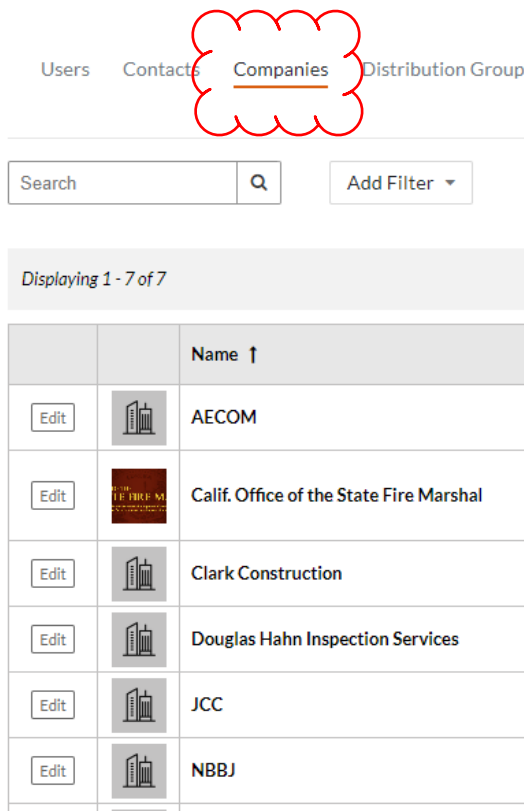
❖ Project Home Page

- Provides basic information about the project.
 - Open inspections
 - Open RFIs
 - Number of observations

PROJECT TOOLS TAB FUNCTIONS

❖ Directory

- Allows you to see Users, Companies, and Distribution Groups
 - You may download a vCard File if you click on an individual's initials.



❖ Documents

- Allows the creation and tracking of folders and documents.
- Project may already be setup with tracking of all folders for some users.
 - Tracking sends an email any time something is changed within the folder or the document.
 - If you are not receiving emails when documents are upload, changed or moved, then click the box that says track this folder.
 - Click chosen folder. If only clicked on one folder only tracking that one folder. If all folders need to be tracked, click on project name's folder.
 - Click Information Icon
 - Tracking- Click Box

Documents

Search in this project

Add Filter ▼

ⓘ + New

Sacramento Courthouse ×

▼ 📍 Sacramento Courthouse

- Recycle
- Reviewed Submittals
- Special Inspection Reports
- Submittals To Be Reviewed
- Transfer Folder

Sacramento Courthouse

<input type="checkbox"/>	Name	Created On / Latest Version
<input type="checkbox"/>	Recycle	08/04/2021 at 10:13 AM
<input type="checkbox"/>	Reviewed Submittals	07/28/2021 at 04:25 PM
<input type="checkbox"/>	Special Inspection Repo...	02/24/2022 at 03:23 PM
<input type="checkbox"/>	Submittals To Be Review...	05/19/2021 at 01:59 PM
<input type="checkbox"/>	Transfer Folder	04/13/2021 at 09:53 AM

General Information

Title
Sacramento Courthouse

Created On
01/19/2021 at 01:39 PM

▼ **Tracking**

☒ Track this folder ?

▼ 📍 Sacramento Courthouse

➤ Recycle

➤ Reviewed Submittals

➤ Special Inspection Reports

➤ Submittals To Be Reviewed

➤ Transfer Folder

Sacramento Courthouse ➤ **Reviewed Submittals**

<input type="checkbox"/>	Name	Created On / Latest Version
<input type="checkbox"/>	713.2-078413-009.2 - Penetration Firestopping- Product Data... ..	03/14/2023 at 02:37 PM by Travis Thompson
<input type="checkbox"/>	064000-001-1.2 Architectural Woodwork- Product Data- AW... ..	03/14/2023 at 02:34 PM by Travis Thompson
<input type="checkbox"/>	095426-001-3- Acoustical Wood Wall Panels- PD, SD and Certs.....	03/14/2023 at 02:23 PM by Travis Thompson
<input type="checkbox"/>	Wood Paneling Flame Spread and Adhesive Info (1) Disapprov... .p...	03/14/2023 at 02:14 PM by Travis Thompson
<input type="checkbox"/>	1350.4-142100-013.4_-_ElecTracElevDeleg_IRB_TT_NBBJ_LBp...	03/14/2023 at 01:49 PM by Travis Thompson
<input type="checkbox"/>	341.3-070553-004.3 - Fire and Smoke Assembly Identification ~.....	03/09/2023 at 01:42 PM by Benji Salazar
<input type="checkbox"/>	Temp Fire Suppression Plan_NSC_Revised Date Disapproved.pdf	03/03/2023 at 06:01 AM by Travis Thompson

- Any submittals which are required to be reviewed by the field deputy shall be uploaded into the “Submittals To Be Reviewed” folder.
 - The field deputy will review the submittal and then upload the reviewed submittal it into the “Reviewed Submittals” folder.
 - It should have “Disapproved” or “Approved” added to the end of the tile to indicate if the submittal has been approved with a corresponding stamp on the front of the document.
 - The original document will then be moved to the “Recycle” folder by the Deputy where it will be retained by the OSFM.
- The Transfer folder is there for files that may be too large to email but are not a submittal which needs to be given to the OSFM for whatever reason.
- Drawings for review SHALL NOT be submitted to the OSFM via Procore.
- The project can create additional folders as appropriate, coordinate with your local DSFM.
- **Nobody can delete any document once it has been uploaded.**

❖ Tasks

- **THIS IS AN INFORMAL TOOL!**
- You may use this tool like a sticky note for reminders.
- Tasks can be permanently deleted!
- This tool is designed to help with communication and tracking of simple tasks, but important items shall always be followed up with an email.
- This tool shall not be used for any inspection task of any kind or to replace any other tool or process required to be done elsewhere.
- **THIS IS AN INFORMAL TOOL; IMPROPER USE SHALL RESULT IN ITS REMOVAL FROM YOUR PROJECT!**

❖ Inspections

- OSFM and the project team must decide who is going to create (start) the inspection request (IR).
 - This can be the IOR, GC, or PM company.
 - This should only be one person (responsible group) at a time.
 - This responsibility can change throughout the project if required.
- EACH IR MUST be its own unique number.
 - Point 1s or decimal points are possible with certain limitations and requirements.
 - First part of description must contain revision number.

<div> <div>Edit</div> <div>View</div> </div>	<div> <div>19344</div> <div>OSFM Inspection Request.</div> </div>	<div> <div>19344.1</div> <div>HP L1 Non Rated Hard Lid Ceiling Close In Preliminary Inspections below: HP Above Duct: IR #18321 PCI Wire Pull Test: IR #14044 PCI Ceiling Framing: IR #10149, 14446 COSCO Overhead Hydro & Visual Inspection: IR #10684, 10686 FMB HVAC Pressure and Rough In: IR #10670, 11776</div> </div>	<div> <div>Open</div> <div>3/20/2023</div> </div>	<div> <div>West Podium>...</div> <div>Monica Blancas</div> </div>
--	---	---	---	--

⚠ Please Confirm

Inspection number #26875 is already taken. The next available number is #26876. Click 'Continue' to create this inspection with a duplicate number. Click 'Use Next Available #' to use #26876. Click Cancel to go back and edit the Inspection's number.

Cancel ~~Use Next Available~~ Continue

DO NOT CLICK

- Do not try to reuse the same inspection number for a reinspection of a failed inspection.
- The project MUST use the IR number generated by the general contractor's software.
 - We do not want different IR numbers for the OSFM and the contractor.
- When creating an inspection be sure to properly fill out all the fields below.

Name

OSFM Inspection Request.

*

Type

Required Inspection

X

Status *

Open

Location *

Select a Location

This is a required field.

Distribution

Lynne Gibboney (Ca... X

Erik Madison (Calif... X

Brian Madsen (Calif... X

Description *

This is a required field.

Attachments

Attach Files

or Drag & Drop

- Multiple tiered locations are possible.

▼ General Information

Name

OSFM Inspection Request.

Location *

Select a Location

CMS

East Podium

Northeast Tower

Northwest Tower

Parking Garage

Site

Southeast Tower

Southwest Tower

West Podium

Select Values

▼ General Information

Name

OSFM Inspection Request.

Location *

Northwest Tower

Northwest Tower

1st Floor

2nd Floor

3rd Floor

4th Floor

5th Floor

6th Floor

7th Floor

8th Floor

Mechanical

Location *

Northwest Tower > 6th Floor

- Most projects are required to have a map attached to the inspection request otherwise no inspection shall be performed.
 - All IRs MUST have a map (see map samples with instructions) attached to the IR.
 - A printed 11x17 color map shall also be provided to DSFM at the time of inspection.
 - Map sizes can be smaller or omitted depending on size and scope of the project. Coordination and concurrence with your local OSFM supervisor and field deputy is required prior to the project starting.
- Once the General Information is complete, click the “Create” button on the bottom left of the screen.

Name	#
OSFM Inspection Request.	23571
Location	Distribution
Level 1	Kang Her, Steve
Description	
Inspect shaft close up and inner HOW spray	
Attachments	
IR 23571 - FM - L1 West H2 column close up.pdf	
Inspection Activity	
--	

Cancel

Create

- You must now answer Items 1.1 thru 1.6 certifying that the inspection is ready for the OSFM to inspect.
- Items 1.1 thru 1.6 are for the project to answer and provide any information required information.
- Item 1.7 is for the OSFM only.

▼ Inspection Items

▼ Required Items Prior to Requesting Inspection (7)

✓ 4 ✗ 0 ✎ 2 ⚙ Set as N/A

1.1 Previous Required Inspections Complete	N/A	No	Yes	Activity (1)
1.2 Trade Contractor Inspecting Complete	N/A	No	Yes	Activity (1)
1.3 General Contractor Inspection Complete	N/A	No	Yes	Activity (1)
1.4 IOR Inspection Complete	N/A	No	Yes	Activity (1)
1.5 Special Inspection Required	N/A	No	Yes	Activity (1)
1.6 Special Inspection Complete	N/A	No	Yes	Activity (3)
1.7 OSFM Inspection	Pass	N/A	Fail	Activity

OSFM only →

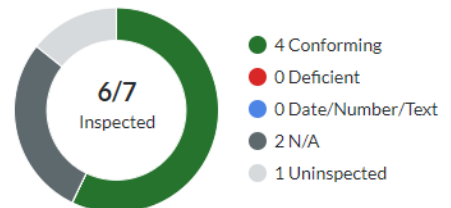
- Once you have answered 1.1 thru 1.6 you can click the word “Inspections” on the top left of the screen to return to the main inspection screen.
 - There is no create, save, or send button that is required.

Inspections > OSFM Inspection Request. #26849

OSFM Inspection Request. #26849

General Related Items (0) Emails (0)

Inspection Item Status



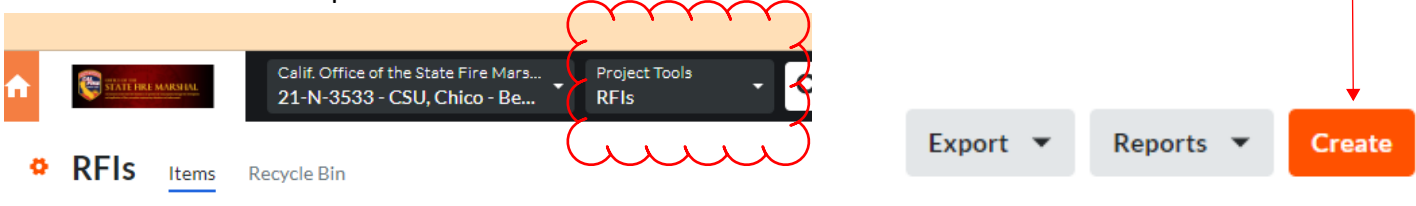
- Any failed or item marked as “No” within the list will result in a required Observation.
 - For Items 1.5 and 1.6, if a Special Inspection is not required, mark N/A and instead of No.
- This is a web-based program, if you have a slow internet connection you can click faster than the program responds and remembers which can prevent the required attachment from being attached.
- Do not enter inspections until they are ready to be inspected.
 - **Forecasting of work or inspections is not permitted.**
- All original printed maps shall be kept in a secure location onsite (locked office or locked cabinet) under the control of the OSFM.
- **Inspections shall not be reopened once closed.**

❖ Observations

- Observations do not have to be closed or resolved, the re-inspection will pass the specific area or item.
 - The deputy should attach at least one picture to every observation.
 - There are occasions where a picture is not possible or applicable.
- Projects that are not providing maps with inspections or where the deputy is not drawing in the inspections are required to have all observations resolved and closed.
 - Coordination and concurrence with your local OSFM supervisor and field deputy is required prior to the project starting.

❖ RFIs

- The project team and deputy must decide who is going to create (start) the RFI.
 - This can be the IOR, GC, Architect or PM company.
- EACH RFI MUST be its own unique number.
- Point 1s or decimal points **ARE POSSIBLE**.
- You MUST use the same RFI number generated by the contractor's software.
 - We do not want the contractor and OSFM to have different RFI numbers.
- **DO NOT reuse the same RFI number for a revised RFI, use a .1 or a new number.**
- All RFIs MUST have an official RFI on official letterhead attached to the RFI.
- The person creating the Draft RFI selects the RFI Manager (Senior Deputy) if not set to a default.
 - The RFI Manager is the only person who will be able to complete the RFI. No other Deputy can review the RFI, unless it is assigned to that individual by the RFI Manager.
 - There can only be ONE RFI Manager.
- Steps to creating an RFI:
 - Select RFIs from the Project Tools dropdown menu.
 - Click "Create" on the top right hand of the screen.
 - Fill out the required fields marked with red asterisk.



- The entire question of the RFI is not required to be entered, a brief summary is sufficient.

▼ REQUEST

Subject *

Question *

Rich text editor toolbar with options: Bold (B), Italic (I), Underline (U), Bulleted List, Numbered List, Indent, Outdent, Link, Unlink, Text Color, Background Color, Undo, Redo. The text area is empty.

Attachments

Attachment area with a blue dashed border. It contains a blue square icon with a white mountain and a button labeled 'Attach Files' with the text 'or Drag & Drop' below it.

- Attach RFI generated by the contractor's software after it has been reviewed by the design team.
- Select the RFI Manager if it is not preselected by the software.
- Enter the RFI number that was generated by the contractor's software.

▼ GENERAL INFORMATION

RFI Manager *

Distribution List

Drawing Number *

RFI #

← Contractor's RFI number goes here

- You may add people to the Distribution List if someone is missing who should be included.
 - You may also add people to the Inspection Distribution List.

Distribution List

Chad Wilkins (Calif. O...) X

Jamie Brown (Turne...) X

Jim Hull (Turner Co...) X

Keith Hard (Calif. O...) X Mark Dorman (IOR) X

Ryan Caldwell (Chic...) X Steven Harvey (IOR) X

MD IOR

RC Richard Corey
Turner Construction

RP Robert Petrakovitz
Turner Construction

RC Ryan Caldwell
Chico State

SA Steven Allred
Calif. Office of the State Fire Marshal

- Click Send for Review at the bottom right corner.

Cancel

POWERED BY PROCORE

- You can apply a filter to only show RFIs in a certain "Status".

RFIs Items Recycle Bin

Search

Add Filter

x Status (2) Clear All

Bulk Actions

1 - 2 of 2 Page:

	#	Subject	OSFM Status	Date Initiat...	Closed Date	RFI Manager
<input type="checkbox"/>		RFI 2202.2 - Stair 2A Tra				Benji Salazar
<input type="checkbox"/>		RFI 2677.1 - Nitrogen Generators - Substitution	Draft			Benji Salazar

❖ UTILIZING GOVmotus in CONJUNCTION with PROCORE

- GOVmotus will only be used for deficiencies and job card sign offs.
- GovMotus “Job Card” Inspections
 - Items such as Fire Sprinklers, Fire Alarms and Fire Smoke Dampers will be entered into GOVmotus by component (i.e., welds, bracing, heads, supports, etc.), by floor or area.
 - Inspections will be entered as “Partial Pass” to generate new inspections until all areas are complete.
 - A final inspection will be entered for each type of inspection (Fire Sprinklers, etc.) after all inspections for that type are complete and result as “Passed” to sign off that type of inspection as complete.

Sprinkler Pipe Bracing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11/21/22	11/21/2022	0.00	0.00	Travis Thor	Partial Pass ✓ Documents have been signed.	Stair 3 Riser G 3974 characters remaining
Sprinkler PipeFlow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	02/08/23	02/08/2023	0.00	0.00	Will Smith	Partial Pass ✓ Documents have been signed.	Stair 1 Standpip 3974 characters remaining
Sprinkler Test	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	06/08/22	06/08/2022	0.00	0.00	Erik Madisc	Partial Pass ✓ Documents have been signed.	2nd floor only 3975 characters remaining
Weld Inspection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	06/08/22	06/08/2022	0.00	0.00	Erik Madisc	Partial Pass ✓ Documents have been signed.	14 & 15 only 3975 characters remaining

Procore Project Setup Form

Project Information

Project Name:

All Related Project Permit number(s):

Complete Project Address:

Construction Cost:

Project Estimated Start Date:

Project Estimated End Date:

Project Square Footage:

Occupancy Type(s):

Construction Type:

Project Type:

Link to digital copies of approved drawings:

Project Contacts

External Contacts:

Project Manager:

General Superintendent:

Contractor QC:

Additional Contacts (Provide name, email, and phone number for each person on their own line):

Click or tap here to enter text.

OSFM Deputies who will be on the project:

Faith Jewel, faith.jewell@fire.ca.gov

Additional Information (Optional)

Project Resource Links

Click or tap here to enter text.

Project photo (optional)

Anything else you think might be helpful

SECTION 01 51 00 - Temporary Utilities

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Temporary utilities and services, including:
 - 1. Heating and cooling during construction
 - 2. Ventilation during construction
 - 3. Temporary water service
 - 4. Temporary sanitary facilities
 - 5. Temporary power and lighting
 - 6. Construction telephone service.
 - 7. Contractor metering and payment of Electrical and Water service usage
- B. Removal of temporary utilities.

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Contractor's use of site and premises.
- B. Section 01 33 00 – Submittal Procedures

1.4 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, applicable meter readings and similar procedures performed on temporary utilities.
- B. Permit application required for the following: Commercial Construction Trailers, and Shipping Container Offices.

1.5 TEMPORARY UTILITIES AND SERVICES

CHECK FOR PROJECT SPECIFIC REQUIREMENT

- A. Temporary Utilities and Services, General: All utilities and other services necessary for proper performance of the Work shall be provided by Contractor, unless specifically noted otherwise. Refer to Contract General Conditions, Article 4.11. Temporary utilities and services shall conform to all applicable requirements of authorities having jurisdiction and serving utility companies and agencies, including the following:
1. Requirements of authorities having jurisdiction, including:
 - a. Cal OSHA
 - b. California Building Code (CBC) requirements
 - c. Health and safety regulations
 - d. Utility agency and company regulations
 - e. Police, Fire Department and Rescue Squad rules
 - f. Environmental protection regulations
 2. Standards:
 - a. NFPA Document 241 - Building Construction and Demolition Activities.
 - b. ANSI A10 Series - Safety Requirements for Construction and Demolition.
 - c. NECA Electrical Design Library - Temporary Electrical Facilities.
 - d. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with California Electrical Code (CEC).
 - e. Piped or Plumbed systems – Install service in accordance with California Plumbing Code (CPC)
- B. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- C. Temporary Connections and Fees: Contractor shall arrange for services and pay all fees and service charges for temporary power, water, sewer, gas and other utility services necessary for the Work.
1. Contractor shall apply for and obtain permits for temporary utilities, including permits for temporary generators, from authorities having jurisdiction.
 2. All costs for temporary connections, including fees charged by serving utilities, shall be included in Contract Sum. Rates to be included in the contract sum shall be as follows:

- a. Electrical power consumption will be billed monthly to the contractor at \$0.13 per kwh (kilowatt hour)
 - b. Water consumption will be billed monthly to the Contractor at \$6.50 per hcf (hundred cubic feet)
- D. Permanent Connections and Fees: Contractor shall arrange for utility agencies and companies to make permanent connections. University will arrange for permanent utility account and pay permanent connection fees. After Contract Completion review and determination that Work is acceptable, University will pay utility service charges for services delivered through permanent connections, for normal quantities.
- E. Use of Temporary Utilities: Enforce strict discipline in use of temporary utilities to conserve on consumption. Limit use of temporary utilities to essential and intended uses to minimize waste and abuse.

1.6 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on the site.

1.7 HEATING AND COOLING

- A. Temporary Heating and Cooling: Provide and pay for temporary heating and cooling devices, fuel and related service charges to provide ambient temperatures as required to maintain conditions necessary for proper performance of construction activities.
- B. Use of Permanent Heating and Cooling Systems: Permanent heating and cooling equipment may be used after completion, testing and inspection of systems and approval of code authorities having jurisdiction.
 - 1. Prior to operation of permanent heating equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place.
 - 2. Contractor shall provide and pay for operation, maintenance and regular replacement of filters and worn or consumed parts.
 - 3. Immediately prior to Contract Completion review, change disposable filters and clean permanent filters of equipment used during construction.
 - 4. Contractor use of the equipment does not start the warrantee period. Refer to Specification section 01 78 33 for additional information.

- C. Temperature Criteria: Maintain interior ambient temperature of minimum 50 degrees F and maximum 80 degrees F, unless otherwise specified or approved by University's Representative.

1.8 VENTILATION DURING CONSTRUCTION

- A. Ventilation During Construction: Provide and pay for temporary ventilation devices, energy and related service charges.
- B. Use of Permanent Ventilation Systems: The Contractor may use permanent ventilation equipment after completion, testing and inspection of systems and approval by University's Representative and authorities having jurisdiction.
 - 1. Prior to operation of permanent ventilation equipment for ventilation purposes during construction, Contractor shall verify that equipment is lubricated and filters are in place.
 - 2. Contractor shall provide and pay for maintenance and regular replacement of filters and worn or consumed parts of permanent ventilation system using for ventilation during construction.
 - 3. Immediately prior to Contract Completion review, Contractor shall change disposable filters and clean permanent filters of equipment used during construction.
 - 4. Contractor use of the equipment does not start the warrantee period. Refer to Specification section 01 78 33 for additional information.
- C. Ventilation Criteria: Ventilate enclosed areas to assist cure of materials, to dissipate humidity and to prevent accumulation of dust, fumes, vapors and gases, as necessary for proper performance of the Work.

1.9 TEMPORARY WATER SERVICE

- A. Temporary Water Service: Contractor shall locate, with the assistance of the University, and connect to existing water source for temporary construction water service. Contractor shall comply with the following:
 - 1. Locate and connect to existing water source for temporary construction water service, as acceptable to University's Representative.
 - 2. Extend branch piping with outlets located, so that water is available by use of hoses.
 - 3. Temporary water service piping, valves, fittings and meters shall comply with requirements of the serving water utility and California Plumbing Code (CPC).

4. All costs to establish temporary construction water system shall be included in the Contract Sum, or if so specified, costs shall be paid from Allowance specified in Section 01 21 00 - Allowance Procedures.
- B. Use of Permanent Water System: Permanent water system may be used for construction water after completion, sterilization, testing and inspection of system and approval by University's Representative and authorities having jurisdiction.
 1. Contractor use of the permanent water system does not start the warranty period. Refer to Specification section 01 78 33 for additional information.

1.10 TEMPORARY SANITARY FACILITIES

- A. Temporary Sanitary Facilities: Provide and maintain adequate temporary sanitary facilities and enclosures for use by construction personnel.
 1. Number of temporary toilets shall be suitable for number of workers.
 2. Provide wash-up sink with soap, towels and waste disposal.
- B. Use of Permanent Sanitary Facilities: Do not use permanent sanitary facilities unless approved by University's Representative. Immediately prior to Contract Completion review, thoroughly clean and sanitize permanent sanitary facilities used during construction.

1.11 TEMPORARY POWER AND LIGHTING

- A. Temporary Power and Lighting, General: Comply with NECA Electrical Design Library - Temporary Electrical Facilities.
- B. Temporary Power: Provide electric service as required for construction operations, with branch wiring and distribution boxes located to provide electrical service for performance of the Work.
 1. Provide temporary electric feeder connected to University operated electric utility service at location determined by the Contractor and as approved by the University electric utility.
 2. Temporary power conduit, raceways, fittings, conductors, panels, connections, disconnects, overcurrent protection, outlets and meters shall comply with requirements of the serving electric utility, California Electrical Code (CEC) and requirements of authorities having jurisdiction.
 3. Contractor shall pay all costs to establish temporary electric service, or if so specified, costs of temporary power shall be paid from Allowance specified in Section 01 21 00 - Allowance Procedures.

4. As necessary in order to maintain construction progress, Contractor shall provide and pay all costs associated with generators used for temporary power.
- C. Temporary Lighting: Provide temporary lighting as necessary for proper performance of construction activities and for inspection of the Work.
 1. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
 2. Maintain lighting and provide routine repairs.
- D. Protection: Provide weatherproof enclosures for power and lighting components as necessary. Provide overcurrent and ground-fault circuit protection, branch wiring and distribution boxes located to allow convenient and safe service about site of the Work. Provide flexible power cords as required.
- E. Use of Permanent Power and Lighting Systems: Permanent power and lighting systems may be used after completion, testing and inspection of systems and approval by University's Representative and authorities having jurisdiction.
 1. Contractor shall maintain lighting and make routine repairs and replacements as necessary.
 2. Contractor shall pay for electricity consumed after permanent power system is operational and approved by authorities having jurisdiction.
- F. Service Disruptions: When necessary for energizing and de-energizing temporary electric power systems, minimize disruption of service to those served by public mains. Schedule transfers at times convenient to University and to occupants.
- G. Relamping: For permanent lighting used during construction, relamp all fixtures immediately prior to Contract Completion (punch list) review.

1.12 CONSTRUCTION TELEPHONE/DATA SERVICE

***** VERIFY ALL COSTS
WITH CAL POLY ITS

- A. Request and pay for telephone/data and fax facilities available for the duration of contract where the Contractor and its superintendent may be contacted.
- B. Connect to and use University's phone and internet system.
 1. Request and pay for phone/data installation through the Trustees Representative. Approximate costs are as follows:

- a. Tele/data lines to each trailer \$1,000 each
 - b. Phone or Data connection \$ 85 each
 - c. Telephone instrument \$ 350 each
2. Pay for phone sets, connection, data racks and servers and use costs.
3. Contractor will be billed directly for actual Telecommunications charges.
- C. Option: Use of cellular telephone, with Trustees Representative approval.
 1. Include voice message services. Contractor shall provide for cost of all services.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Materials: Contractor shall provide new materials. If acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials that are suitable for the use intended. Their use and methods of installation shall not create unsafe conditions or violate requirements of applicable codes and standards.
- B. Equipment: Contractor shall provide new equipment; or, if acceptable in writing by the Trustees, Contractor may provide undamaged, previously used equipment in serviceable condition. Provide equipment that is suitable for use intended.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITIES INSTALLATION

- A. Temporary Utilities Installation, General: Contractor shall engage the appropriate local utility company or personnel to install temporary service or connect to existing service.
 1. Use Charges: Cost or use charges for temporary facilities are the Contractor's responsibility.
 2. Allowance for Utilities Charges: When Contract includes an allowance for metering of utility services, whether through temporary or permanent facilities, unused amount shall be returned to the Trustees by deductive change order.
- B. Water Service: Contractor may take water from the University's systems in such quantities and at such times as they are available. If this is done, Contractor shall provide all temporary materials necessary to extending the utility to where they will be used. Contractor shall install a meter and reimburse the University for any water used.
- C. Temporary Electric Power Service: Contractor may take electricity from the University's system if available. If this is done, Contractor shall provide all equipment, including connections, and other materials necessary for extending the utility lines to where they will be used. Contractor

shall coordinate the installation with the University's Representative. Contractor shall install a meter and reimburse the University for any power used. Where sub-metering is not possible or practical, a flat fee may be established and paid to the University.

1. When not available from the University, the Contractor must arrange and pay for electric service through the local utility or furnish his own portable power.
 2. All permanent power used by the Contractor prior to Occupancy by the Trustees shall be metered and paid for by the Contractor.
- D. Temporary Telephones: Contractor shall have telephone facility available at its business office for the duration of contract where the Contractor and its superintendent may be contacted. A pay phone for use of subcontractors is recommended.
- E. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, Contractor shall install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Contractor shall comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations." Contractor shall:
1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
 2. Store combustible materials in containers in fire-safe locations.
 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- F. Maintenance of Temporary Utilities and Services: Contractor shall maintain temporary utilities and services in good operating condition until removal. Contractor shall protect from utilities and services from environmental and physical damage.

3.2 TERMINATION AND REMOVAL OF TEMPORARY UTILITIES AND SERVICES

- A. Termination and Removal of Temporary Utilities and Services: Unless the Trustees require that it be maintained longer, Contractor shall remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Completion. Contractor shall complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. At Completion, Contractor shall

clean and renovate permanent facilities that have been used during the construction period.

- B. Removal of Temporary Underground Utilities and Restoration: Remove temporary underground utility installations to a minimum depth of two-feet below utility services. Contractor shall:
 - 1. Backfill, compact and regrade site as necessary to restore areas or to prepare for indicated paving and landscaping.
 - 2. Restore paving damaged by temporary utilities. Refer to requirements specified in Section 01732 - Cutting and Patching Requirements.
- C. Cleaning and Repairs: Contractor shall clean exposed surfaces and repair damage caused by installation and use of temporary utilities and services. Where determined by University's Representative that repair of damage is unsatisfactory, Work, Contractor shall replace construction with matching finishes. Refer to requirements specified in Section 01 73 29 - Cutting and Patching Requirements.

END OF SECTION 01 51 00

01 52 00
Construction Facilities

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Field offices and sheds.
- B. Removal of construction facilities.

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Contractor's use of site and premises.
- B. Section 01 51 00 - Temporary Utilities: Water, power and telephone services to construction facilities.
- C. Section 01 52 05 - Construction Staging Areas: Locations for field offices and sheds.
- D. Section 01 74 00 - Cleaning Requirements: Cleaning during construction and final cleaning.

1.4 MAINTENANCE OF CONSTRUCTION FACILITIES CONTROLS

- A. Maintenance: Contractor shall maintain construction facilities in proper and safe condition throughout progress of the Work.
- B. Replacement: In the event of loss or damage, Contractor shall promptly restore temporary construction facilities by repair or replacement at no change in the Contract Sum or Contract Time.

1.5 CONTRACTOR'S FIELD OFFICES AND SHEDS

- A. Contractor's Field Office: Contractor shall provide a mobile field office of weather-tight construction, with lighting, power, ventilation, heating and cooling to house Contractor. Unless otherwise indicated on the Drawings, Contractor shall locate field office at in staging area described in Section 01 52 05 - Construction Staging Areas. Contractor shall comply with

University's requirements transmitted through University's Representative.

1. Contractor shall provide temporary utilities to serve Contractor's field office. Refer to Section 01 51 00 - Temporary Utilities. Contractor shall connect to the University Telephone and Data service.
 2. Contractor's Field Office shall present neat, business-like appearance at all times, internally and externally.
 3. Contractor shall ensure that neither Contractor's Field Office nor other jobsite facilities are used for living quarters.
- B. Storage Sheds for Tools, Materials, and Equipment: Contractor shall provide weather-tight sheds, all with the following:
1. Heat and ventilation appropriate for storage of products requiring controlled conditions,
 2. Adequate space for organized storage and access, and
 3. Lighting for inspection of stored materials.
- C. Layout of Field Offices and Sheds: Within seven (7) calendar days of the Notice to Proceed, Contractor shall submit to University's Representative a proposed layout for field offices, sheds and storage areas. University's Representative will review and respond within seven (7) calendar days with comments and directions. Contractor shall comply with directions of University's Representative.

THE FOLLOWING ARE SAMPLE SPECIFICATIONS; EDIT TO SUIT PROJECT REQUIREMENTS.

1.6 UNIVERSITY'S CONSTRUCTION MANAGEMENT FIELD OFFICE

- A. General: Contractor shall provide a field office for use by University's Inspector of Record and/or Construction Management team for the duration of the Contract, equipped and furnished as specified below. [*DEPENDING ON THE PROJECT SIZE, A SINGLE CONSTRUCTION TRAILER MAY BE UTILIZED AND SHARED BETWEEN THE CONTRACTOR AND IOR, CM...*]
1. Contractor shall pay for all temporary water and power services, in accordance with Section 01 51 00 - Temporary Utilities.
 2. Contractor shall provide and pay for twice weekly cleaning services, including trash removal and restocking of toilet facility consumables. Contractor shall provide and pay for emptying sewage holding tank and related services on an as-needed basis, but not less frequently

than each week.

3. Contractor's initial progress payment for Work under the Contract will not be approved until University's Field Office is fully equipped and functional.
4. Unless otherwise directed in writing by University's Representative, University's Field Office, including furnishings and equipment provided by Contractor, shall remain operational until execution or recording of Notice of Completion.
5. With 14 days of written direction by University's Representative or within 14 days of execution or recording of Notice of Completion, whichever is earliest, Contractor shall take possession and remove University's Field Office from the campus.
6. University's representatives shall have the right to use University's Construction Management Field Office, including furnishings and equipment, for the purpose of construction contract administration, testing and inspection for Work under this and any other contract, or other University business, at no change in Contract Sum and Contract Time.

B. Construction: Contractor shall provide the following:

1. Field office of pre-fabricated, weather-tight construction, approximately 12 feet wide by 60 feet long, with lockable entrances, operable windows and serviceable finishes. Set field office on foundations suitable for normal office loadings, with tie-downs to resist wind and seismic forces. Provide field office of non-combustible construction where located within 30 feet of building lines. Comply with NFPA 241. Field office shall be capable of maintaining 68 to 78 degrees Fahrenheit interior year round.
2. Field office with two exit doors, with cylinder locks and latch guards.
3. Within field office, provide the following rooms:
 - a. Two private offices, approximately 120 square feet each.
 - b. Conference room of minimum 400 square feet.
 4. Private toilet facilities, complete with water closet, lavatory with hot and cold running water, medicine cabinet with mirror and dispensers for toilet paper and paper towels.
5. Each private office and conference room with operable windows, at least one on each side equipped with blinds, insect screens.
6. All plumbing, HVAC, power, lighting systems and telecommunications wiring and outlets as necessary for complete and habitable use.
7. Properly configured, NEMA-polarized electrical outlets which prevent insertion of 110- to

120-volt plugs into higher-voltage outlets. Equip outlets with ground-fault circuit interrupters (GFCI), having reset button and pilot light in accordance with all applicable building codes.

8. Ceiling-mounted fluorescent lighting fixtures, capable of providing uniform lighting of minimum 50 lumens at level 30-inches above floor.
9. Provide heating and air conditioning unit mounted on end of trailer; of sufficient function, capacity and ductwork for equal distribution of air conditioning to all rooms. Roof-mounted units are not acceptable. Unit must be capable of maintaining 68 to 78 degrees F interior to year-round.

C. Furnishings: Contractor shall provide the following furnishings.

1. Door mats: One per entrance, heavy-duty cocoa mat suitable for heavy use and removal of dirt and mud.
2. Coat rack: Wall mounted, with shelf and hanging rod with twelve hangers.
3. Folding tables: Four each 36-inches by 72-inches and two each 30-inches by 72-inches, heavy duty, with wood grain plastic laminate top.
4. Folding chairs: Twelve each, heavy duty, with padded seats.
5. Desks, per office: One each, 36-inches by 72-inches, double pedestal, painted steel with resilient writing surface top.
6. Desk chairs, per desk: One each, ergonomic design, heavy duty, wheeled pedestals, with adjustable back angle, seat angle and arm height.
7. File cabinets: Four 4-drawer, legal-size vertical file cabinets, with lockable drawers.
8. Bookcases: Four each, 84-inches high by 36-inches wide by 13-inches deep, with five adjustable shelves.
9. Plan racks: Two each, factory-manufactured mobile stand by PlanHold or equal, with 24 removable drawing clamps each.
10. Plan tables: Field-fabricated by Contractor, with top constructed from 35-inch by 84-inch solid core, 1-3/8 inch thick with tempered hardboard faces, and wood or steel support structure, located where directed by University's Representative.
11. Markerboards: Four each, 36-inches wide by 48-inches high, with white markerboard

suitable for oil- or water-base markers.

12. Tackboards: Four each, 36-inches wide by 48-inches high, with wood fiberboard core and burlap grain vinyl facing, color as selected by University's Representative.
- D. Equipment: Contractor shall provide the following equipment. University shall be permitted to remove any equipment from field office and use elsewhere. All equipment shall be new and no substitutions or deviations from specified descriptions will be acceptable. Equipment will be returned by University prior to Contract close-out. At Contract close-out, University shall have option to purchase equipment at depreciated, fair-market value negotiated with Contractor.
1. Fire extinguisher: Portable, UL-listed and labeled, complying with NFPA 10 and NFPA 241 for classification, extinguishing agent and size as necessary for location and class of fire exposure, minimum UL Rating 4A-60BC (nominal 10 pound capacity).
 2. Drinking water: Containerized, hot and chilled water tap-dispenser with paper cup dispenser, with bottled water units and paper cup supply as necessary. Contractor shall provide weekly restocking of water and paper cups.
 3. Refrigerator: Minimum 3.2 cubic feet capacity, compact refrigerator with internal freezer compartment, white color.
 4. Microwave oven: Countertop design, white color.
 5. Coffee maker: One each, 12-cup capacity.
 6. Color printer/FAX/copier: One each, to be located in private offices, as manufactured by Hewlett-Packard, H-P OfficeJet Model G85 or current equivalent model, 3-year manufacturer's "Next Day Exchange" warranty, with black and tri-color ink cartridges. Contractor shall provide all consumables, including inkjet-suitable paper, for duration of Contract. Printer/fax/copier shall connect to personal computer and service printer for computer as well as fax machine and copier.
 7. Telecommunications:
 - a. Provide three (3) telecommunication lines minimum for each office, connected to campus network system.
 - b. Provide mounting backboard in a secure location for the Owner installation of a network distribution rack to campus system. Contractor shall make all final connections and label all jacks and cables according to the California State University Telecommunications Infrastructure Planning Standards (CSU TIPS). Standards may be found at the following web site, http://www.calstate.edu/cpdc/ae/gsf/TIP_Guidelines/, or may be obtained by written request.

- E. Miscellaneous: Contractor shall provide the following. University shall be permitted to remove any miscellaneous products from field office and for use elsewhere. All miscellaneous products shall be new and will be returned by University prior to Contract close-out. At Contract close-out, University shall have option to purchase miscellaneous products at depreciated, fair-market value negotiated with Contractor.
1. Flashlights: Two each, MagLite tubular aluminum flashlights, for three D-size batteries. Include replacement batteries.
 2. Hardhats: Five each, Class B hardhats, Fibre-Metal or equal.
 3. First Aid Supplies: Comply with industrial safety regulations.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

3.1 INSTALLATION OF CONSTRUCTION FACILITIES

- A. Layout of Field Offices and Sheds: Within seven (7) calendar days of the Notice to Proceed, Contractor shall submit to University's Representative a proposed layout for field offices, sheds and storage areas. University's Representative will review and respond within five working days with comments and directions. Contractor shall comply with directions of University's Representative.
1. Coordinate with requirements specified in Section 01 52 05 - Construction Staging Areas.
 2. Coordinate installation of construction fencing as specified in Section 01 56 00 - Temporary Barriers and Enclosures.
- B. Installation of University's Field Office: Provide field office ready for use within 20 working days of commencement date stated in Notice to Proceed or Notice of Award, whichever is earliest.

3.2 REMOVAL OF CONSTRUCTION FACILITIES

- A. Removal of Construction Facilities: Unless otherwise mutually agreed by University's Representative and Contractor, remove temporary materials, equipment, services, and construction prior to Contract Completion review.

1. Coordinate removal with requirements specified in Section 01 51 00 - Temporary Utilities,

Section 01 52 00 - Construction Facilities, Section 01 55 00 - Vehicular Access and Parking and Section 01 56 00 - Temporary Barriers and Enclosures.

2. Completely remove in-ground construction facilities. Backfill, compact and regrade site as necessary to restore areas or to prepare for indicated paving and landscaping.
- B. Cleaning and Repairs: Clean and repair damage caused by installation or use of temporary construction facilities on public and private rights-of-way.

END OF SECTION 01 52 00

SECTION 01 52 05 - Construction Staging Areas

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Contractor Staging Area requirements.

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Contractor's use of site and premises.
- B. Section 01 52 00 - Construction Facilities: Field offices and sheds.
- C. Section 01 54 01 - Security
- D. Section 01 55 00 - Vehicular Access and Parking: Construction parking.
- E. Section 01 56 00 - Temporary Barriers and Enclosures: Temporary construction barriers, enclosures and passageways.
- F. Section 01 57 00 - Temporary Controls: Storm water pollution prevention measures; video record of existing conditions to be used to determine restoration Work.
- G. Section 01 58 00 - Project Identification and Signage: Directional and informational signage.
- H. Section 01 74 00 - Cleaning Requirements: Periodic cleaning and cleaning for Substantial Completion review.

1.4 SUBMITTALS

- A. Shop Drawings: Prior to site mobilization, Contractor shall prepare and submit for review by University's Representative a site plan indicating detailed layout of Contractor Staging Area, including:
 - 1. Temporary utilities
 - 2. Temporary fencing and gates
 - 3. Temporary offices and sheds
 - 4. Construction aids
 - 5. Vehicular access ways, haul routes and on-site parking
 - 6. Temporary barriers and enclosures
 - 7. Storm water pollution prevention measures

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

3.1 CONTRACTOR STAGING AREA REQUIREMENTS

- A. Contractor Staging Areas: Refer to reference drawings included in the set of Contract Drawings for location of Contractor Staging Areas.
 - 1. Contractor shall use only site areas designated specifically by University as Contractor Staging Area for the Project.
 - 2. Contractor Staging Area for the Project shall be clearly indicated by use of signage, delineators or other means acceptable to clearly identify the area. Contractor shall remove equipment placed or located outside of areas designated for Contractor Staging Area to within Contractor Staging Area at no change in Contract Time and Contract Sum.
 - 3. Contractor shall keep access to Contractor Staging Areas and other construction access ways and thoroughfares clear at all times. Contractor shall provide traffic and parking control signage acceptable to University's Representative.

4. Contractor shall not impede access to/from any designated fire truck or emergency vehicle access lane at any time unless specifically granted by the University.
- B. Cleanliness: Contractor shall keep Contractor Staging Area clear of trash and debris and in neat order. Contractor shall be responsible for cleanliness and order of assigned Contractor Staging Areas, as acceptable to University's Representative. Contractor shall clean and organize the area at no additional cost.

3.2 REMOVAL OF CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- A. Removal of Construction Facilities and Temporary Controls: Unless otherwise mutually agreed by University's Representative and Contractor, Contractor shall remove temporary materials, equipment, services, and construction prior to Contract Completion review. Contractor shall coordinate removal with requirements specified in Section 01 51 00 - Temporary Utilities, Section 01 52 00 - Construction Facilities, Section 01 55 00 - Vehicular Access and Parking and Section 01 56 00 - Temporary Barriers and Enclosures.
- B. Cleaning and Repairs: Contractor shall clean and repair damage caused by installation or use of temporary facilities on public and private rights-of-way to the level of finish that was existing prior to the installation of temporary facilities. If there is no record of the prior condition, the finish shall be considered as new.
- C. Removal of Temporary Utilities and Restoration: Contractor shall remove temporary underground utility installations. Backfill, compact and regrade site as necessary to restore areas or to prepare for indicated paving and landscaping.

END OF SECTION 01 52 05

01 54 00
Construction Aids

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

EDIT LIST OF CONSTRUCTION AIDS BELOW TO SUIT PROJECT REQUIREMENTS.

- A. Construction aids, including but not limited to:
1. Temporary lifts and hoists
 2. Debris chutes
 3. Temporary stairs
 4. Scaffolding

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Contractor's use of site and premises
- B. Section 01 56 00 - Temporary Barriers and Enclosures: Temporary construction barriers, enclosures and passageways

EDIT THE FOLLOWING TO SUIT PROJECT REQUIREMENTS.

- C. [Section 14 21 00 - Electric Traction Elevators:] [Section 14 24 00 - Hydraulic Elevators:] Use of building elevators for construction activities.

1.4 CODES AND REGULATIONS

- A. Safety Regulations: Contractor shall comply with requirements of all applicable Federal, State
- Construction Aids

and local safety rules and regulations. Contractor shall be solely responsible for jobsite safety.

1.5 TEMPORARY LIFTS AND HOISTS

- A. Temporary Lifts and Hoists: Contractor shall provide facilities for hoisting materials and personnel. Mobile lifts and truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- B. Temporary Elevator Usage: [Refer to [Section 14 21 00 - Electric Traction Elevators] [Section 14 24 00 - Hydraulic Elevators] for use of building elevator[s] during construction.
 - 1. Contractor shall provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame.
 - 2. Contractor shall clean and restore elevator cars used during construction.
 - 3. If, despite such protection, elevators become damaged, Contractor shall engage (and Contract Sum shall include) elevator Installer to restore damaged work so no evidence remains of correction Work.
 - 4. Contractor shall return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.

1.6 DEBRIS CHUTES

- A. Debris Chutes: Contractor shall provide chutes as necessary for debris removal. Contractor shall:
 - 1. Construct debris chutes of substantial materials. Use cylindrical, laminated fiber forms (Sonotube® or equal) to minimize noise of debris removal.
 - 2. Provide controls at debris chutes to minimize spread of dust and debris.
 - 3. Limit use of debris chutes to times to minimize disruption of activities in adjacent spaces.

1.7 TEMPORARY STAIRS AND SCAFFOLDING

- A. Temporary Stairs: Until permanent stairs are available, Contractor shall provide temporary stairs where ladders are not adequate. Contractor shall cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of Contract Completion review.
- B. Permanent Stair Usage: Use of permanent stairs will be permitted, as long as Contractor cleans and maintains stairs in a condition acceptable to University's Representative.

1. Contractor shall provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress.
 2. If, despite such protection, stairs become damaged, Contractor shall restore damaged areas as acceptable to University's Representative.
 3. Contractor shall coordinate usage of existing stairs at occupied facilities with University's Representative.
- C. Scaffolding: Contractor shall provide scaffolding as necessary for access and proper performance of the Work. Design and installation of scaffolding shall be solely Contractor's responsibility.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

3.1 MAINTENANCE OF CONSTRUCTION AIDS

- A. Maintenance: Contractor shall use all means necessary to maintain construction aids in proper and safe condition throughout progress of the Work.
- B. Replacement: In the event of loss or damage, Contractor shall promptly restore construction aids by repair or replacement at no change in the Contract Sum or Contract Time.

3.2 REMOVAL OF CONSTRUCTION AIDS

- A. Removal of Construction Aids: Unless otherwise mutually agreed by University's Representative and Contractor, Contractor shall remove construction aids prior to Contract Completion review. Contractor shall coordinate removal with requirements specified in Section 01 51 00 - Temporary Utilities, Section 01 52 00 - Construction Facilities, Section 01 55 00 - Vehicular Access and Parking and Section 01 56 00 - Temporary Barriers and Enclosures.
- B. Cleaning and Repairs: Contractor shall clean and repair damage caused by installation or use of construction aids.

END OF SECTION 01 54 00

SECTION 01 55 00 - VEHICULAR ACCESS AND PARKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Requirements for vehicular access to Work areas
- B. Requirements for construction parking

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Contractor's use of site and premises.
- B. Section 01 52 00 - Construction Facilities: Coordination of access to field offices and sheds.
- C. Section 01 52 05 - Construction Staging Areas: Layout of construction staging area, including locations for vehicular access and construction parking.
- D. Section 01 56 00 - Temporary Barriers and Enclosures: Requirements for temporary construction barriers, enclosures and passageways, applicable to construction parking areas.
- E. Section 01 58 00 - Project Identification and Signage: Directional and informational signage.
- F. Section 01 57 00 - Temporary Controls: Storm water pollution prevention measures; video record of existing conditions to be used to determine restoration Work.
- G. Section 01 74 00 - Cleaning Requirements: Cleaning during construction and final cleaning.

1.4 PROTECTION OF EXISTING CONDITIONS

- A. Protection of Adjacent Facilities: Contractor shall restrict Work to limits indicated on the Drawings and as specified in Section 01 11 00 - Summary of the Work. Contractor shall protect existing, adjacent facilities from damage, including soiling and debris accumulation.

1.5 SITE ACCESS

- A. Site Access: Use of designated existing on-site streets and driveways for construction traffic is permitted. Contractor shall review access routes with University Representative and comply with University Representative's directions.
 - 1. Contractor shall ensure that tracked vehicles shall not use paved areas.

2. Contractor shall provide unimpeded access for emergency vehicles. Contractor shall maintain 20-foot (6 m) width driveways with turning space between and around combustible materials.
 3. Contractor shall provide and maintain access to fire hydrants free of obstructions.
 4. Contractor shall clean and restore paving and other site features after construction use.
- B. Traffic Control:
1. Contractor shall comply with all on-campus traffic regulations, including speed limits. Contractor shall pay all parking and traffic fines.
 2. Blockage of site roadways and access to site parking lots and parking structures shall be only with approval of University's Representative. Contractor shall comply with University's restrictions on blocking roadways and parking areas.
 3. Contractor shall employ a minimum of two (2) trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on vehicular and pedestrian traffic lanes.
 4. Contractor shall provide signage, cones and other suitable devices to direct traffic. Contractor shall use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
 5. Large vehicles shall have University public safety escort. Contractor shall provide minimum 48 hours written notice through University Representative.
 6. Contractor shall submit a detailed traffic management plan to the University for review and approval fourteen (14) days minimum before any required full road closure and seven (7) days' notice prior to any single lane closures. Traffic plan shall clearly indicate vehicle, bicycle and pedestrian paths.

1.6 TRAFFIC SIGNS AND SIGNALS

- A. Traffic Signs and Signals: Contractor shall provide temporary signs and signals as required by authorities having jurisdiction and in compliance with University's requirements transmitted through University Representative. Contractor shall relocate signs and signals as necessary during construction.

1.7 CONSTRUCTION PARKING

- A. Construction Parking:
1. Contractor shall not park on public roadways unless approved by campus police and fire authorities.

2. Contractor shall maintain clear access ways and parking for emergency vehicles, as required by campus police and fire authorities.
3. Contractor shall provide on-site parking for construction purposes.
4. Contractor shall obtain and pay for parking permits for on-campus parking, including use permits for campus parking lots and for parking on the construction site itself. This requirements does not apply to construction equipment (fork lifts, excavators, backhoes cranes, etcetera)
 - a. General Parking: Any vehicle parked on campus not actively used to carry tools, equipment, and supplies must display a valid general permit.
 1. Fee: Current rate for General Daily, Weekly or Quarterly. For more information on general parking rules, regulations and rates visit <https://afd.calpoly.edu/parking/parkingoncampus/permits/general.php> or contact the University Representative.
 2. Replacement fee: Equivalent to current General rate.
 3. Sold/Issued through University Police, Bldg. #036.
 - b. Construction Area – Designated parking within the construction site or undesignated parking near project buildings or work area (sidewalks, greenbelts, dirt area).
 1. Fee: \$10.00 per permit flat rate (cost subject to change).
 2. Duration: 6 months.
 3. Replacement rate: \$10.00 (cost subject to change).
 4. Rate for projects less than (4) days charged Daily General permit rate.
 5. Limited number of permits available for parking during project hours; number to be determined by University Representative and provided to University Police.
 6. Limited to work trucks with tools, equipment, and supplies.
 7. Issued through University Representative.
 - c. Depending on lot availability, Contractor may rent lay down area for field office and/or staging. Contractor(s) requiring lay down area(s) will make this request through the University Representative. If approved Contractor will enter into a rental agreement with University Police/Parking Services. Rates are based on proximity to the campus core and academic term, but will not exceed the current Residential permit rate per space/space equivalent.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

3.1 MAINTENANCE OF PARKING AND ACCESS ROADS

- A. Maintenance: Contractor shall maintain traffic and parking areas in a sound condition. Contractor shall repair breaks, potholes, low areas, standing water and other deficiencies, to maintain paving and drainage in original or specified condition.
- B. Cleaning of Roadways and Parking Areas: Contractor shall keep public and private rights-of-way and parking areas clear of construction-caused soiling, dust and debris, especially debris hazardous to vehicle tires. Contractor shall perform cleaning as frequently as necessary. Contractor shall coordinate with requirements specified in Section 01 57 00 - Temporary Controls and Section 01 74 00 - Cleaning Requirements.

END OF SECTION 01 55 00

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SECTION TEMPORARY BARRIERS AND ENCLOSURES - 01 56 00

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Temporary construction barriers, enclosures and passageways.
 - 1. Dust and debris barriers.
 - 2. Security barriers
 - 3. Temporary chain link fencing.
 - 4. Covered passageways.
 - 5. Protection of completed Work.
- B. Removal of construction facilities and temporary controls.

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Contractor's use of site and premises
- B. Section 01 51 00 – Temporary Utilities: Temporary sanitary facilities, power and lighting
- C. Section 01 52 00 – Construction Facilities: Installation of Construction Facilities
- D. Section 01 52 05 - Construction Staging Areas: Submittals, staging and removal
- E. Section 01 54 00 – Construction Aids: Temporary lifts, hoists, stairs, scaffolding
- F. Section 01 54 01 - Security
- G. Section 01 55 00 - Vehicular Access and Parking: Construction parking restrictions
- H. Section 01 56 39 - Tree and Plant Protection: Requirements for barriers and covers at existing trees, shrubs and ground covers
- I. Section 01 57 00 - Temporary Controls: General requirements for protection of existing conditions and run-off control
- J. Section 01 58 00 - Project Identification and Signage: Directional and informational signage.

1.4 CODES AND REGULATIONS

- A. California Building Code (CBC): Comply with California Building Code (CBC) Chapter 33, Section 3303, Protection of Pedestrians During Construction or Demolition.

- B. Fire Regulations: Comply with requirements of fire authorities having jurisdiction, including California Fire Code (CFC) Article 87 during performance of the Work.
- C. Safety Regulations: Comply with requirements of all applicable Federal, State and local safety rules and regulations. Contractor shall be solely responsible for jobsite safety.
- D. Barricades and Barriers: As required by governing authorities having jurisdiction, provide substantial barriers, guardrails and enclosures around Work areas and adjacent to embankments and excavations for protection of workers and the public.
 - 1. In and around existing facilities, walkways or thoroughfares where the public must exit, use or otherwise occupy, provide and submit to the University an impairment plan. This plan shall define the pathways to be protected and maintained and shall consider egress occupant load. Contractor shall coordinate with the University for specific conditions.

1.5 PROTECTION OF EXISTING CONDITIONS

- A. Protection of Adjacent Facilities: Contractor shall restrict Work to limits indicated on the Drawings and as specified in Section 01 11 00 - Summary of the Work: Protect existing, adjacent facilities from damage, including soiling and debris accumulation.
- B. Protection of Existing Furniture, Fixtures and Equipment: As applicable, provide temporary enclosures, barriers and covers to protect existing furniture, fixtures and equipment remaining in Project area during construction.

1.6 MAINTENANCE OF CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- A. Maintenance: Use all means necessary to maintain temporary barriers and enclosures in proper and safe condition throughout progress of the Work, including all non-working times such as nights, holidays and weekends.
- B. Replacement: In the event of loss or damage, promptly restore temporary barriers and enclosures by repair or replacement at no change in the Contract Sum or Contract Time.

1.7 TEMPORARY BARRIERS, ENCLOSURES AND PASSAGEWAYS

- A. Temporary Barriers, General: Provide temporary fencing, barriers and guardrails as necessary to provide for public safety, to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
 - 1. Refer to temporary fencing and phasing plan in the Drawings. Comply with requirements indicated.
 - 2. Note requirements for continued occupancy and use of existing buildings and site areas during construction.
 - 3. Comply with applicable requirements of California Building Code (CBC) and authorities having jurisdiction, including industrial safety regulations. Review requirements with University's Representative.

4. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting.
 5. Paint temporary barriers and enclosures with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard.
 6. Where appropriate and necessary, provide pedestrian lighting (1cd minimum) warning lighting, including flashing red or amber lights.
- B. Temporary Chain-Link Fencing: Provide temporary portable chain-link fencing with windscreen. See Section 01 52 05 – Construction Staging Area for requirements for layout of fencing.
1. Portable Chain-Link Fencing: Minimum 2-inches (50-mm) 11-gauge, galvanized steel, chain-link fabric fencing; minimum 6-feet (2.4 m) high with galvanized steel pipe posts; minimum 2-3/8-inches- (60-mm-) OD line posts and 2-7/8-inches- (73-mm-) OD corner and pull posts, with 1-5/8-inches- (42-mm-) OD top and bottom rails.
 - a. Provide concrete or galvanized steel bases for supporting posts.
 - b. Provide protective barriers at bases to prevent tripping by pedestrians or wind. Where required, install ground mounted posts or other means to prevent the fence from tipping.
 2. Windscreen on Chain-Link Fencing: For screening of construction activities from view, equivalent to the following:
 - a. Specified manufacturer: None identified. Equivalent products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 61 00 - Basic Product Requirements.
 - b. Acceptable manufacturers: None identified. Equivalent products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 61 00 - Basic Product Requirements.
 - c. Windscreen fabric: Closed mesh weave of 30 warp by 16 fills per square inch.
 - 1) Fiber: 5.6 ounce per square yard polypropylene fiber.
 - 2) Shade factor: 78 percent.
 - 3) Tensile strength: 360 pounds for warp and 190 pounds for fill, when tested according to ASTM D1682, grab method.
 - 4) Tear strength: 110 pounds for warp and 70 pounds for fill, when tested according to ASTM D2263, trapezoidal method.
 - 5) Color: Green

- d. Fabric Fabrication:
 - 1) Reinforce hems and seams with 2-3/4 inch black polypropylene folded binding tape, with tensile strength of 300 pounds.
 - 2) Provide center reinforcing tape in addition to reinforced perimeter hems and panel seams.
 - 3) Sew hems and seams with UV light resistant polyester thread.
 - 4) Provide 9/32-inch brass grommets spaced at 12-inches on center in perimeter hems and center reinforcing tape.
 - e. Secure windscreen to fence at all grommets.
 - f. Locate windscreen on prevailing windward side of fence. Where prevailing wind direction cannot be determined, install fabric on the outside of fence.
 - g. **Do not cut the fabric to relieve wind pressure.** Install ground mounted posts or other means to prevent tipping.
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Covered Passageways: Erect a structurally adequate, protective, covered walkways for passage of persons along adjacent passageways.
- 1. Coordinate installation details with University's requirements for continuing operations in adjoining facilities.
 - 2. Review design and details with University's Representative.
 - 3. Comply with applicable regulations of authorities having jurisdiction.
 - 4. Construct covered walkways using scaffold or shoring framing.
 - 5. Provide wood-plank overhead decking, protective plywood enclosure walls, handrails, barricades, warning signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
 - 6. Extend back wall beyond the structure to complete enclosure fence.
 - 7. Paint and maintain in a manner as directed by University's Representative.
- E. Temporary Wood Fencing: Erect a structurally adequate, protective wood fencing in compliance with California Building Code (CBC) Chapter 33, Section 3303.7 - Pedestrian Protection. Wood fencing shall be provided as required by Table 33-A.
- 1. Materials: As required by CBC Section 3303.7.
 - 2. Finishes: As acceptable to University's Representative. Fence where exposed to public view shall receive minimum of one coat wood primer and one coat semi-gloss paint, color(s) as directed by University's Representative.

- F. Temporary Closures: Provide temporary closures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather-tight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate closures with ventilating and material drying or curing requirements to avoid dangerous conditions and effects such as mold.
 2. Vertical openings: Close openings of 25 sq. ft. (2.3 sq. m) or less with plywood or similar materials.
 3. Horizontal openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
 4. Install tarpaulins securely using wood framing and other suitable materials.
 5. Where temporary wood or plywood enclosure exceeds 100 sq. ft. (9.2 sq. m) in area, use fire-retardant-treated material for framing and main sheathing.
- G. Temporary Partitions: Erect and maintain temporary partitions and temporary closures to limit dust and dirt migration, including migration into existing facilities, to separate areas from fumes and noise and to maintain fire-rated separations.

INCLUDE FOLLOWING THREE SUBPARAGRAPHS FOR ALTERATION PROJECTS, AND IF CONDITIONS AT NEW CONSTRUCTION INCLUDE INTERFACE WITH AN EXISTING FACILITY.

1. Dust barriers: Construct dustproof, floor-to-ceiling partitions of not less than nominal 4-inch (100-mm) studs, 2 layers of 3-mil (0.07-mm) polyethylene sheets, inside and outside temporary enclosure.
 - a. Overlap and tape full length of joints.
 - b. Include 5/8-inch thick gypsum board at temporary partitions serving as noise barrier.
 - c. Insulate partitions to minimize noise transmission to adjacent occupied areas.
 - d. Seal joints and perimeter of temporary partitions.
2. Dust barrier passages: Where passage through dust barrier is necessary, provide gasketed doors or heavy plastic sheets that effectively prevent air passage.
 - a. Construct a vestibule and airlock at each entrance to temporary enclosure with not less than 48 inches (1219 mm) between doors.
 - b. Maintain water-dampened foot mats in vestibule where passage leads to existing occupied spaces.
 - c. Equip doors with security locks.

3. Fire-rated temporary partitions: Maintain fire-rated separations, including corridor walls and occupancy separations, by construction of stud partitions with gypsum board faces.
 - a. Construction details shall comply with recognized time-rated fire-resistive construction according to the latest edition of the California Building Code (CBC). Typically, 1-hour rated partitions shall be 2x4 wood studs at 16-inches on center or 3-1/2 inch metal studs at 16-inches on center, with 5/8-inch thick Type X gypsum board at both faces, with joints filled, taped and topped.
 - b. Seal partition perimeters with acceptable fire stopping and smoke seal materials.
 - c. Construct fire-rated temporary partitions whenever existing time-rate fire-resistive construction is removed for 12 hours or more.
- H. HVAC Protection: Provide dust barriers at HVAC return grilles and air inlets to prevent spread of dust and clogging of filters. Notify University Representative of all HVAC register barriers. If existing HVAC system is required to maintain proper temperature, refer to specification section 01 55 00, Temporary Utilities.
- I. Temporary Floor Protection: Protect existing floors from soiling and damage.
 1. Cover floor with 2 layers of 3-mil (0.07-mm) polyethylene sheets, extending sheets 18 inches (460 mm) up walls.
 2. Cover polyethylene sheets with 3/4-inch (19-mm) fire-retardant plywood.
 3. Provide floor mats to clean dust from shoes.
 4. Other methods may be acceptable by written request and approval of the University Representative.
- J. Landscape Barriers: Provide barriers around trees and plants designated to remain. Coordinate with requirements specified in Section 01 56 39 - Tree and Plant Protection.
 1. Locate barriers as directed outside of drip lines of trees and plants.
 2. Protect entire area under trees against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.
 3. Contractor shall pay all costs to restore trees and plants within barriers that are damaged by construction activities. Restoration shall include replacement with plant materials of equal quality and size. Costs shall include all fines, if any, levied by authorities having jurisdiction.
- K. Barricades, Warning Signs and Lights, General: Comply with standards and code requirements for erection of structurally adequate barricades. Paint or utilize barricades with appropriate colors, graphics and warning signs to inform personnel and the public when protecting them against a hazard. Where appropriate and needed provide lighting, including flashing red or amber lights.

- L. Guard Rails: Provide guard rails along tops of embankments and excavations. Along public walkways and areas accessible by the public, adjoining excavations, provide guardrails in addition to fencing.
 - 1. Guardrails shall be substantially and durably constructed of lumber, firmly anchored by posts embedded in concrete, and complying with Code requirements for temporary barriers.
 - 2. Guardrails shall comply with dimensional requirements and accommodate loads as prescribed by California Building Code (CBC) for permanent guardrails.
- M. Security Closures and Lockup: Provide substantial temporary closures of openings in exterior surfaces and interior areas as appropriate to prevent unauthorized entrance, vandalism, theft and similar violations of security. Provide doors with self-closing hardware and locks.
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- N. Weather Closures: Provide temporary weather-tight closures at exterior openings to prevent intrusion of water, to create acceptable working conditions, to protect completed Work and to maintain temporary heating, cooling and ventilation. Provide access doors with self-closing hardware and locks.
- O. Temporary Access, Passage and Exit Ways: Construct temporary stairs, ramps, and covered walkways, with related doors, gates, closures, guardrails, handrails, lighting and protective devices, to maintain access and exit ways to existing facilities to remain operational.
 - 1. Design and location of temporary construction shall be by Contractor, subject to review by University's Representative and authorities having jurisdiction.
 - 2. Provide temporary lighting, illuminated interior exit signage, non-illuminated directional and instructional signage, and temporary security alarms for temporary exits and exit passageways.
 - 3. Temporary measures shall suit and connect to existing building systems, and shall be approved by University's Representative and authorities having jurisdiction.

1.8 PROTECTION OF INSTALLED WORK

- A. Protection of Installed Work, General: Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
- B. Protective Coverings: Provide protective coverings at walls, projections, jambs, sills, and soffits of openings as necessary to prevent damage from construction activities, such as coatings applications, and as necessary to prevent other than normal atmospheric soiling.
- C. Traffic Protection:

1. Protect finished floors, stairs and other surfaces from traffic, soiling, wear and marring.
2. Provide temporary covers of plywood, reinforced kraft paper or temporary rugs and mats, as necessary. Temporary covers shall not slip or tear under normal use.
3. Prohibit traffic and storage on waterproofed and roofed surfaces and on landscaped areas.
4. Protect newly fine graded, seeded and planted areas with barriers and flags to designate such areas as closed to pedestrian and vehicular traffic.

1.9 REMOVAL OF TEMPORARY BARRIERS AND ENCLOSURES

- A. Removal of Temporary Barriers and Enclosures: Unless otherwise mutually agreed by University's Representative and Contractor, remove temporary materials, equipment, services, and construction prior to Contract Completion review. Coordinate removal with requirements specified in Section 01 51 00 - Temporary Utilities, Section 01 52 00 - Construction Facilities and Section 01 55 00 - Vehicular Access and Parking.
- B. Cleaning and Repairs: Clean and repair damage, soiling and marring caused by installation or use of temporary barriers and enclosures.

PART 2 PRODUCTS (not applicable to this section)

PART 3 PART 1 – EXECUTION (not applicable to this section)

END OF SECTION

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SECTION 01 56 39 – TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
 - 1. Refer to the following site for California Polytechnic State University San Luis Obispo:
<https://afd.calpoly.edu/facilities/planning-capital-projects/construction-standard/>
- B. Division of State Architect (DSA) design conformance with CBSC Chapter 11 for accessibility requirements. Subject to formal review by DSA or local review on project by project basis.
- C. Specification 32 01 90 as provided by California Polytechnic State University San Luis Obispo

1.2 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
- B. Related Requirements:
 - 1. Division 01 General Requirements
 - 2. Section 31 10 00 "Site Clearing"
 - 3. Section 31 22 19 "Landscape Grading"
 - 4. Section 32 84 00 "Planting Irrigation"
 - 5. Section 32 91 13 "Soil Preparation"
 - 6. Section 32 93 00 "Planting"
 - 7. Section 32 98 13 "Landscape Establishment"

1.3 DEFINITIONS

- A. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by a diameter tape at a height **54 inches** above the ground line.
 - 1. For trees with calipers of **8 inches** or greater as measured at a height of **12 inches** above the ground.

- B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and [indicated on Drawings] [defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated] [defined by a circle concentric with each tree with a radius 12 times the tree's caliper size and with a minimum radius of **96 inches** unless otherwise indicated] <Insert requirement>.
 - 1. The TPZ shall be no less than a radius of 6'-0".
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Pre Project Walk/Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
 - a. Tree-service firm's personnel, and equipment needed to make progress and avoid delays.
 - b. Arborist's responsibilities.
 - c. Quality-control program.
 - d. Coordination of Work and equipment movement with the locations of protection zones.
 - e. Trenching by hand or with air spade within protection zones.
 - f. Field quality control.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans showing locations of protection-zone fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
 - 2. Detail fabrication for signage.
 - 3. Indicate extent of trenching by hand or with air spade within protection zones.
- C. Samples: For each type of the following:
 - 1. Organic Mulch: **1-quart** volume of organic mulch; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch.
 - 2. Protection-Zone Signage: Full-size Samples of each size and text, ready for installation.

- D. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
 - 1. Species and size of tree.
 - 2. Location on site plan. Include unique identifier for each.
 - 3. Reason for pruning.
 - 4. Description of pruning to be performed.
 - 5. Description of maintenance following pruning.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For arborist and tree service firm.
- B. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- C. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- D. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 - 1. Use sufficiently detailed photographs or video recordings.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
- E. Plant Monitoring: For the duration of the project construction and through final completion of the project, as defined in Division 32, Section "Landscape Establishment". Provide an arborist evaluation report of trees and plant materials that is identified to remain and protected in place. Evaluations shall include watching for signs of tree stress, such as dieback, leaf loss, or general decline in tree health or appearance.
 - 1. Reports shall be provided as follows:
 - a. The beginning of the project,
 - b. As needed if trees show signs of decline or stress,
 - c. As directed by a University Representative.
 - d. At the project's substantial completion.
 - e. of trees and plant materials that is identifies to remain and protected in place.
 - f. Evaluations shall include watching for signs of tree stress, such as dieback, leaf loss, or general decline in tree health or appearance.
- F. Materials Damage Submittal:
 - 1. In the event plant materials is damaged or tree protection procedure have been violated, , the contractor shall coordinate and provide a written assessment by the

project's Certified Arborist, using the tree evaluation form or other similar methods preapproved by the Universities Landscape Services Department or Landscape Advisory Committee. Results from the evaluation determine whether the tree should be removed, pruned, or receive treatment such as fertilization and insect/disease control.

1.7 QUALITY ASSURANCE

- A. The Contractor shall guarantee the protection of plant material within the project's limit of work, or planting adjacent to the project, that may be impacted by the project's construction for the full duration of the construction period. Destruction of, or significant damage to, any or all of the plant materials to be protected, as determined by the University's Representative, will result in compensation by the Contractor. Please see Part 3 of this specification for the compensation requirements.
- B. Arborist Qualifications: Licensed arborist in jurisdiction where Project is located.
- C. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed temporary tree and plant protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
- D. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and signage, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.
- E. Contractor will not be held responsible for damages due to vandalism or freak acts of nature during the guarantee period. Immediately report such conditions to the University's Representative.
- F. If a violation of tree and plant protection procedure has occurred, as outlined in this specification, the Contractor shall immediately issue written notice to the person or company or department in violation, identifying the nature and location of the violation and specifying that remedial action is necessary to bring the violation into compliance. The contractor shall submit to the University the Material Damage Submittal as defined in this Specification.

1.8 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
 2. Moving or parking vehicles or equipment.
 3. Foot traffic.
 4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
 8. Materials Washouts
- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

1.9 GUARANTEE

- A. During the Guarantee to Repair Period specified in the General Conditions the Contractor shall be liable for damages to all trees covered by the provisions of this Section.
- B. Compensation to the University shall be as outlined, see Tree Damage Compensation in Part 3 of this specification.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Backfill Soil: Planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
1. Planting Soil: Planting soil <Insert drawing designation> as specified in [Section 32 91 13 "Soil Preparation"]
- B. Pruning Materials: Pruning materials shall be in accordance with current horticultural practices.
1. Pruning sterilant shall be Physan 20 Fertilome Type A, or diluted bleach
- C. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:
1. Type: [Shredded hardwood] [Ground or shredded bark] [Wood and bark chips] <Insert mulch type>.

2. Size Range: [3 inches maximum, 1/2 inch minimum] <Insert size range>.
 3. Color: Natural.
- A. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.
1. Height: 48 inches.
 - a. Color: High-visibility orange, nonfading.
- B. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes pre-punched and reinforced; legibly printed with nonfading lettering and as follows:
1. Size and Text: [As shown on Drawings]
 2. Lettering: 3-inch- high minimum, white characters on red background.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.
- B. Damage to existing tree crowns or roots over 1" (one inch) in diameter shall be immediately reported to the University's Representative.
- C. A Certified Arborist shall direct all repairs to trees. Repairs shall be made promptly after damage occurs to prevent progressive deterioration of damaged trees. Repairs shall be at the Contractor's expense.

- D. The contractor shall notify the University's Landscape Services before any work that occurs within Tree protection Zones when tools other than hand or air spades are used. The representative from the University's Landscape Services shall be on site during any work within designated Tree Protection Zones.

3.3 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated. Flag or Tie a 1-inch blue vinyl tape around each tree trunk at 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Tree-Protection Zones: Mulch areas inside tree-protection zones and other areas indicated. Do not exceed indicated thickness of mulch.
 - 1. Apply 4-inch uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches of tree trunks.
 - 2. Install temporary root protection matting over mulch to the extent indicated.

3.4 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect. Install one sign spaced approximately every 50 feet on protection-zone fencing, but no fewer than four signs with each facing a different direction.
- C. Maintain protection zones free of weeds and trash.
- D. Maintain protection-zone fencing and signage in good condition as acceptable to University and remove when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

- a. Approval by the University's Representative for work within the fenced area shall not release the Contractor from any of the provisions specified herein for the protection of existing trees to be preserved.
- b. During the course of construction of approved work within the fence area, no roots shall be cut without prior written approval by the University's Representative.

3.5 EXCAVATION

- A. Location of Underground Utilities: Refer to 01 14 00, 1.8, A.
- B. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 31 20 00 "Earth Moving" unless otherwise indicated.
- C. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
 1. The contractor shall ensure that a representative from the University's Landscape Services is on site during any work within designated Tree Protection Zones when tools other than hand or air spades are used.
- D. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately **3 inches** back from new construction and as required for root pruning. Do not cut roots larger than 2 inches in diameter.
- E. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.6 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:
 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.

2. Do not cut roots larger than 2 inches in diameter. If necessary to cut 2 inch or larger roots, the contractor shall notify the University's Landscape Services. The representative from the University's Landscape Services shall be on site during any pruning of tree roots of 2 inches or greater.
 3. Cut Ends: Do not paint cut root ends]
 4. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 5. Cover exposed roots with burlap and water regularly.
 6. Backfill as soon as possible according to requirements in Section 31 20 00 "Earth Moving."
- B. Root Pruning at Edge of Protection Zone: Prune tree roots **12 inches** inside of the protection zone by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.7 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by arborist.
1. Prune to remove only broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
 - a. Types of Pruning: Cleaning, raising, reducing, and thinning where indicated.
 - b. Types or Specialty Pruning: Structural, restoration, vista, espalier, pollarding, palm, and utility where indicated.
- B. Unless otherwise directed by arborist and acceptable to University Representative, do not cut tree leaders.
- C. Cut branches with sharp pruning instruments; do not break or chop.
- D. Do not paint or apply sealants to wounds.
- E. Provide subsequent maintenance pruning during Contract period as recommended by arborist.
- F. Chip removed branches and dispose of off-site, or stock pile per University Request.

3.8 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade.
- D. Minor Fill within Protection Zone: Where existing grade is **2 inches** or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations. Back fill soil must match requirement as provided in Division 32, section "Soil Preparation."

3.9 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.
- B. Damage to existing tree crowns or roots over 2" (two inches) in diameter shall be immediately reported to the University's Representative.
- C. A Certified Arborist shall direct all repairs to trees. Repairs shall be made promptly after damage occurs to prevent progressive deterioration of damaged trees. Repairs shall be at the Contractor's expense.

3.10 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by University Representative.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.

3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.
- B. Trees: Remove and replace trees indicated to remain that are:
 1. More than 40 percent dead or in an unhealthy condition before the end of the Establishment period, or
 2. Damaged during construction operations that University Representative determines are incapable of restoring to normal growth pattern.
 3. Small Trees: Provide new trees of the same size and species as those being replaced for each tree that measures **6 inches** or smaller in caliper size.
 4. Large Trees: Provide two new trees of 10-12 inch caliper size for each tree being replaced that measures more than **6 inches** in caliper size.
 - a. Species: As selected by the Landscape Architect, and University Representative.
 5. Plant and maintain new trees as specified in Section 32 93 00 "Plants."
- C. Excess Mulch: Rake mulched area within protection zones, being careful not to injure roots. Rake to loosen and remove mulch that exceeds a **4-inch** uniform thickness to remain.
- D. Soil Aeration: Where directed by Architect, aerate surface soil compacted during construction. Aerate **10 feet** beyond drip line and no closer than **36 inches** to tree trunk. Drill **2-inch-** diameter holes a minimum of 6 to **12 inches** deep at **24 inches** O.C. Backfill holes with an equal mix of augured soil and sand.

3.11 TREE AND PLANT DAMAGE/REPLACEMENT REQUIREMENTS

- A. Request from Cal Poly Representative a copy of the most recent Landmark Trees: Map of Campus Landmark Trees.
 1. There are three types of trees on Campus
 - a. Landmark Trees
 - b. Heritage Trees: 12" DBH (with exceptions by the Campus Landscape Committee and Landscape Executive Committee finalization)
 - c. Other Remaining Trees that are neither Landmark Trees or Heritage Trees
 2. Tree Removal and Replacement Guidelines by Type:
 - a. Landmark Trees shall be preserved.

- b. Heritage Trees should be preserved; however, if removal is necessary these shall be reviewed by the Campus Landscape Committee and Landscape Executive Committee. Replacement guidelines are:
 - 1) Heritage trees shall be replaced at a 2:1 ratio with a 36" box minimum or at a 1:1 ratio with a 60" box minimum.
 - 2) Tree replacement species shall be reviewed by Landscape Committee with Landscape Executive Committee finalization.
- c. Other Remaining Trees which are not a Landmark or Heritage Tree can be removed, if necessary. Review of these removals shall be reviewed by the Campus Landscape Committee. Replacement guidelines are
 - 1) Non-heritage or Landmark trees shall be replaced at a 1:1 ratio (24" box minimum).
 - 2) Tree replacement species shall be reviewed by Landscape Committee with Landscape Executive Committee finalization.

If trees cannot be planted onsite, the guidelines above should be followed with Landscape Services placement. Trees shall be reviewed by Campus Arborist or designee during delivery. The Campus Arborist or designee has the ability to reject tree shipments on site.

- B. Tree and plant materials identified to remain and protected in place shall follow the above specifications for protection. Trees and plant materials that are damaged due to construction related activity, shall be reviewed and evaluated by the project arborist or by the University's Landscape Services representative.
- C. Damaged trees needing removal shall be removed at no cost to the University. The contractor shall be responsible for the replacement, repair, or compensation for the removal and replacement of damaged plant materials.
- D. Damaged trees and plant materials with a DBH up to 4 inches:
 - 1. Tree Replacement Requirements: Replace the damaged materials with same species, of similar size and shape.
 - a. Provide product data submittal for plant materials and associated work as defined Division 32, see specification sections Soil Preparation, Irrigation, and Planting.
 - b. Contractor shall be responsible for all associated work to remove damage materials and install new materials at no cost to the University.
 - c. Contractor shall coordinate with the University, project Arborist, and Landscape Architect for installation requirement.

- E. Damaged trees and plant materials with a DBH greater than 4 inches: Provide the University compensation for all associated cost to remove and replace the plant material including:
1. Removal of the damaged plant material, including grinded out trunk stumps and root mass.
 2. Purchase of a new plant material (see list below).
 3. Transportation and delivery of new plant material to the Project site.
 4. All installation requirements include any specialty equipment to install the new plant materials.
 5. Provide the University with a line-item cost for each item listed above.

Tree Diameter	Compensation Value
12" - Twelve inches	\$7,200
13" - Thirteen inches	\$8,200
14" - Fourteen inches	\$9,200
15" - Fifteen inches	\$10,000
16" - Sixteen inches	\$11,500
17" - Seventeen inches	\$12,000
18" - Eighteen inches and over, add for each caliper inch	\$1,200 x caliper inches

6. Compensation requirement for plant material with calipers less than 12":
 - a. Per the discretion, and as determined by the University, any destruction of, or significant damage to, any plant materials to be protected, will result in the Contractor supplying and installing two (2)-36" box trees, installed on the site, for each existing tree damaged. Installation shall include all work as required and as indicated in the project drawings and specifications.
- F. Installation of new plant material shall include:
1. Complete removal of plant materials. Stump shall be ground down to a min. of 18 inches, or until the trunk, and root ball mass are substantially removed to allow for new planting.
 2. Planting pit excavation (per the projection drawings).
 3. Percolation test and sub drainage.
 4. Soil testing with soil amendment recommendation.
 5. Soil preparation as required by the soil testing recommendation.
 6. Supplemental fertilizers tablets as indicated per the planting specifications.
 7. Staking or guying as recommended by the project arborist or landscape architect.
 8. Design and installation of new irrigation as required for the plant materials.
 9. 90 Day Maintenance period for replacement materials from the date of installation. Maintenance shall include:

- a. Watering, fertilizing, pruning, pest control, protection, or any other mics. needs required for the installed plants specified.
 - b. One (1) Year Warranty Period. The contractor shall warranty the installed plant materials per Division 1 General Conditions.
- G. Penalties for Damages
 - 1. A penalty will be assessed for a limb and root injury of \$200 per inch of limb/root diameter for and limb/root greater than 2 inches in diameter, measured where the limb should be pruned in order to make a proper thinning cut or root to the point a clean cut can be made.
 - 2. A penalty will be assessed of \$20 per square inch of tree trunk area injured. This penalty shall be assessed when it is determined that an entity is responsible for the damage to the tree trunk, but the tree is still healthy enough to remain at the site. An example of this kind of damage would be the collision of a tractor with the trunk of a mature tree where the bark is peeled back, and the injured area will require repair and healing.
- H. Payments: The Landscape Services operating account shall receive and manage the tree replacement program. Payment shall be made to the tree planting and replacement account if there is a problem with site space or readiness.
 - 1. Payment shall be coordinated by the University Representative.

3.12 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off University property unless otherwise directed.

END OF SECTION 01 56 39 - TEMPORARY TREE AND PLANT PROTECTION

SECTION 01 57 00 - TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Protection of existing conditions, including video record of existing conditions.
- B. Life safety and fire protection.
- C. Security.
- D. Runoff control.
- E. Protection of installed Work.

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Contractor's use of site and premises.
- B. Section 01 52 00 - Construction Facilities: Field offices and sheds.
- C. Section 01 54 00 - Construction Aids: Temporary lifts and hoists; temporary stairs and scaffolding.
- D. Section 01 55 00 - Vehicular Access and Parking: Vehicle access and parking control at Work areas.
- E. Section 01 56 00 - Temporary Barriers and Enclosures: Requirements for dust and debris barriers.

1.4 CODES AND REGULATIONS

- A. Fire Regulations: Comply with requirements of fire authorities having jurisdiction, including California Fire Code (CFC) Article 87 during performance of the Work, NFPA 241, and California Building Code Chapter (CBC) 33, and CFC Chapter 33.
- B. Safety Regulations: Contractor shall be solely responsible for jobsite safety. Minimum

requirements shall include the following.

1. Comply with requirements of all applicable Federal, State and local safety rules and regulations, including but not limited to all OSHA regulations.
 2. *[INCLUDE THIS LINE IF PROJECT WILL BE ENROLLED IN O.C.I.P. – IF OVER \$10 MILLION, OCIP IS REQUIRED]* Comply with requirements in the University's Owner Controlled Insurance Program "Safety Manual," provided under separate cover by University's Representative.
- C. Barricades and Barriers: As required by authorities having jurisdiction, provide substantial barriers, guardrails and enclosures around Work areas and adjacent to embankments and excavations for protection of workers and the public. See Section 01 56 00 - Temporary Barriers and Controls for additional requirements.

1.5 PROTECTION OF EXISTING CONDITIONS

- A. Protection of Adjacent Facilities: Contractor shall restrict Work to limits indicated on the Drawings and as specified in Section 01 11 00 - Summary of the Work. Protect existing, adjacent facilities from damage, including soiling and debris accumulation.
- B. Video Record of Existing Conditions: Contractor shall produce video record of all existing conditions within and adjacent to Project area.
1. Record by video or digital photography in a format that is easily transferred to the University. Video shall have sound to record comments to identify locations and describe conditions.
 2. University's Representative will accompany Contractor during recording of existing conditions but will not direct recording process.
 3. Video shall record state of existing features, including but not limited to:
 - a. Paving.
 - b. Landscaping.
 - c. Building surfaces.
 - d. Utilities.
 - e. Lighting standards, fencing, signage and other site appurtenances.
 - f. *[DESCRIPTION]*.
 4. Contractor shall retain one copy and deliver one copy of video record to University's Representative within seven calendar days after the video record was produced.
 5. Video record shall be used to verify restoration of existing conditions after completion of construction activities.

6. Existing feature not recorded shall be restored as directed by University's Representative, including reconstruction and refinishing as determined necessary by University's Representative.

1.6 FIRE PROTECTION

- A. Fire Protection Responsibility: Protection of Project from fire shall be solely Contractor's responsibility.
- B. Fire Protection Provisions, General: Maintain, at a minimum, the Work in conditions to minimize fire hazards and provide adequate fire protection devices, such as suitable fire extinguishers, blankets, warning signs and storage containers.
 1. Store combustible materials in containers in fire-safe locations.
 2. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 3. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- C. Special Fire Protection Provisions: During hazardous construction activities, maintain adequate fire protection devices immediately available for use at the location of such activities.
- D. Fire Protection Equipment: Until fire protection is provided by permanent fire protection systems and equipment, install and maintain temporary fire protection equipment as necessary to protect against ignition and spread of fires. Comply with NFPA 10 "Standard for Portable Extinguishers" and NFPA 241 "Standard for Safeguarding Construction, Alteration and Demolition Operations."
- E. Temporary Fire Sprinkler Provisions: Where existing fire sprinkler system is affected by demolition and re-construction activities, provide either temporary fire protection measures acceptable to authorities having jurisdiction or modify existing system as necessary to maintain fire protection. Include extensions and additions to standpipe system, for Fire Department connections. Comply with California Fire Code (CFC) Article 87 during all phases of the Work.
- F. Fire Extinguishers for Protection During Construction: Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.
 1. Provide hand carried, portable UL-rated, Class "A" fire extinguishers for temporary offices and similar spaces.

2. In other locations, provide hand-carried, portable, UL-rated, Class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
- G. Installation of Fire Extinguishers for Protection During Construction: Locate fire extinguishers in field offices, storage sheds, tool houses, other temporary buildings and throughout the Work site. Comply with directions of Fire Marshal having jurisdiction.
1. In the area under construction, provide at least one fire extinguisher for each 5,000 square feet of building floor area.
 2. Locate fire extinguishers no greater than 75 feet travel distance apart.

1.7 SECURITY

- A. Security Responsibility: Security of the Project area shall be solely the Contractor's responsibility until completion of the Work. Reference Contract General Conditions Article 4.08-c, Protection of Facilities.
- B. Security Provisions, General: Provide security program and facilities to protect Work from unauthorized entry, vandalism, and theft. It is the contractor's responsibility to protect Work while Work is being conducted and during times of non-work. This includes all days, nights, weekends, and holidays from the issuance of the Notice to proceed to the final building occupancy by the University.
- C. Guard Service: At Contractor's discretion, employ guards to protect the site after working hours.

1.8 RUNOFF CONTROL

- A. Erosion and Sedimentation Control: Erosion and sedimentation control provisions shall meet or exceed minimum requirements of authorities having jurisdiction. When provisions are indicated on Drawings, they are minimum requirements. If no sedimentation control system is shown, then Contractor shall design and provide system to prevent siltation of adjacent property as required by authorities having jurisdiction.
1. Implement erosion and sedimentation control provisions prior to commencing site clearing, grading, backfilling and compacting or other construction activities which will expose soil to erosion and potential for sediment-laden runoff.
 2. Ensure that sediment-laden water does not enter drainage systems.
 3. Maintain erosion and sedimentation control provisions until Contract Completion review is

completed for landscaping, or sooner if approved by authorities having jurisdiction.

4. Implementation, maintenance, replacement and additions to erosion and sedimentation control provisions shall solely be the responsibility of the Contractor. As construction progresses and seasonal conditions dictate, more erosion and sedimentation controls may be required. If so, Contractor shall provide additional provisions over and above minimum requirements as necessary.
- B. Drainage: Grade site and other Work areas to drain.
1. Provide temporary drainage ditches and diversion measures as necessary to protect construction.
 2. Provide erosion control measures as necessary and as required by authorities having jurisdiction. Comply with local water quality control requirements, as applicable.
- C. De-Watering: Maintain excavations free of water. Provide and operate pumping equipment as necessary.
1. Removal of contaminated water from excavations, dewatering of contaminated groundwater and discharging of contaminated soils via surface erosion is prohibited.
 2. Dewatering of non-contaminated groundwater shall be performed only after Contractor obtains a National Pollutant Discharge Elimination System Permit from the State or Regional Water Quality Control Board having authority. Costs of such permit shall be included in the Contract Sum.
- D. Runoff Control: Storm water runoff and other waters may be encountered at various times during construction. Contractor, by signing the Agreement, acknowledges that risks arising from storm water runoff and other waters have been investigated and considered, and Contract Sum and Contract Time include all costs associated with runoff control.
1. It shall be responsibility of Contractor to protect Work from detrimental effects of all waters encountered.
 2. It shall be responsibility of Contractor to protect Work from detrimental effects of runoff.
 3. Should damage to the Work due to surface or other water occur prior to acceptance of the Work by University's Representative, Contractor shall repair or replace Work at no change in Contract Time or Contract Sum.
- E. National Pollutant Discharge Elimination System: Contractor shall comply with requirements of environmental protection and storm drainage authorities having jurisdiction.

1. Project Area and other areas affected by Work under the Contract shall be maintained in such condition that anticipated storm runoff does not carry wastes and other pollutants off the site.
 2. Discharges of material other than storm water will be allowed only when necessary for performance of the Work and where such discharge does not cause the following:
 - a. Cause or contribute to a violation of applicable water quality standard.
 - b. Cause or threaten to cause pollution, contamination or nuisance, as determined by authorities having jurisdiction. Potential pollutants include but are not limited to:
 - 1) Solid or liquid chemical spills.
 - 2) Wastes from paints, stains, sealants, adhesives, limes, pesticides, herbicides, wood preservatives and solvents.
 - 3) Asbestos fibers, paint flakes or fragments of plaster and drywall.
 - 4) Fuels, lubricants, hydraulic fluids, coolants, battery electrolytes.
 - 5) Vehicle or equipment, degreasing, steam cleaning and wash water.
 - 6) Concrete, mortar and plaster mix and cleaning water.
 - 7) Detergents and floatable wastes.
 - 8) Superchlorinated potable water line flushings.
 - c. Contain hazardous substances in a quantity reportable under Federal Regulations 40 CFR Parts 117 and 302.
 3. During performance of the Work, disposal of such materials shall occur at a temporary on-site location, physically separated from potential storm water runoff, with ultimate disposal in compliance with all applicable local, regional, State and Federal requirements.
 4. Contractor shall obtain and comply with Storm Water Pollution Prevention Plan (SWPPP). Contractor shall be responsible for payment of the permit and all fines for non-compliance with the SWPPP, at no change in Contract Sum.
- F. Pavement clearing and cleaning: Keep site access ways, parking areas and building access and exit facilities clear of mud.
1. Remove mud, soil and debris and dispose in a manner which will not be injurious to persons, property, plant materials and site.
 2. Comply with runoff control requirements stated above and as required by authorities having jurisdiction.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION

SECTION 01 58 00 - PROJECT IDENTIFICATION SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. On-site Project identification and temporary informational signs provided by University and maintained by Contractor during Contract.

1.3 RELATED SECTIONS

- A. Section 01 52 00 – Construction Facilities: Coordination of signage with field offices and sheds.
- B. Section 01 54 01 – Security: Personnel identification badges.
- C. Section 01 55 00 – Vehicular Access and Parking: Coordination of signage with construction parking
- D. Section 01 56 00 – Temporary Barriers and Enclosures: Temporary wood barriers and enclosures with directional signage.

1.4 SUBMITTALS

- A. Shop Drawings: In compliance with directions from University's Representative, Contractor shall prepare and submit site plan locating temporary project identification and informational signs furnished by University.

PART 2 - PRODUCTS

2.1 SIGN MATERIALS

- A. Sign Structure and Framing: Contractor shall provide new materials, wood or metal, structurally adequate to support sign panel and suitable for specified finish.
- B. Sign Surfaces: Sign shall be designed and provided by the University. Sign shall be installed by the contractor.

1. For Contractor information: Sign surfaces shall be minimum 3/4-inch thick, exterior grade, softwood plywood with medium or high-density phenolic sheet overlay, standard large sizes to eliminate joints.
 2. Contractor shall provide backing or additional support as required to span across framing members and provide even, smooth surface without waves or buckles.
- C. Rough Hardware: Rough hardware shall be hot-dip galvanized steel.
- D. Paint, Sign Structure: Paint used for Sign Structure shall be exterior quality, primer and flat finish paint, adequate to resist weathering and fading for scheduled construction period.

2.2 PROJECT IDENTIFICATION SIGN

- A. Project Identification Sign: As directed, Contractor shall install one University furnished painted Project Identification Sign of the size and construction indicated on graphic to be provided by Architect.
1. Graphic design, text, style of lettering, and colors of sign shall be as directed by University Marketing Department.
 2. Sign shall identify project name, project number, University's name, with University Project Manager's Name and contact information, Architect's name and Contractor's name.
 3. Sign shall include corporate logos of parties identified on sign.
- C. Project Address Signs: Contractor shall provide Project name and street address signs, minimum of four feet wide, to identify Project to facilitate deliveries.
1. Graphic design and colors of sign shall match Project Identification Sign.
 2. Text on sign shall be as directed.
- D. Sign Painting: Sign Panels shall be shop painted and field installed by Contractor.

2.3 PROJECT INFORMATIONAL SIGNS

- A. Restrictions: Contractor shall not display signs other than Project Identification Sign specified above and Project Informational Signs specified below without written approval of University's Representative.
- B. Project Informational Signs: Informational signs, necessary for conduct of construction activities or required by governmental authorities having jurisdiction, may be displayed when in conformance to sign construction and graphic requirements specified in this Section.
1. University's Representative may review such signs. If so, review will be for sign construction, and graphic designs only.
 2. Adequacy of signage for safety and conformance to requirements of authorities having

jurisdiction and trade practices shall be solely Contractor's responsibility.

- C. Sign Painting: Contractor shall ensure that informational signage shall be produced by professional sign painters and be of size and lettering style consistent with use. Colors shall be as required by authorities having jurisdiction and, if not otherwise required, of colors consistent with Project graphics.
 - 1. Sign Face Finish: Sign face finish shall be gloss enamel.
 - 2. Structure Finish: Sign structure finish shall be paint exposed surfaces of supports and framing members one coat of primer and one coat of exterior paint, flat finish.

PART 3 – EXECUTION

3.1 PROJECT IDENTIFICATION SIGN INSTALLATION

- A. Project Identification Sign Construction: Contractor shall construct sign support structure and install panels in durable manner, to resist high winds.
- B. Project Identification Sign Installation: Contractor shall erect Project Identification Sign on site at a lighted location of high public visibility, adjacent to the main entrance to the site, as approved by University's Representative.
 - 1. Contractor shall install sign at height for optimum visibility, on ground-mounted poles or attached to portable structure on skids.
 - 2. Portable structure shall resist overturning force of wind.
- C. Street Address Signs: Contractor shall locate and install signs at each access point from public streets.
- D. Field Painting: Contractor shall paint all surfaces and edges of sign face and support structure for finished appearance.

3.2 PROJECT INFORMATIONAL SIGN INSTALLATION

- A. Project Informational Signs Construction: Contractor shall construct sign support structure and install panels in durable manner, to resist high winds.
- B. Project Informational Sign Installation:

1. Contractor shall locate signs as necessary for construction activities and as required by authorities having jurisdiction.
 2. Contractor shall install informational signs for optimum visibility, on ground-mounted posts or temporarily attached to surfaces of structures.
 3. Attachment methods shall leave no permanent disfiguration or discoloration on completed work.
- C. Field Painting: Contractor shall paint all surfaces and edges of sign face and support structure for finished appearance.

3.3 SIGNS MAINTENANCE

- A. Signs Maintenance: Contractor shall maintain signs and supports in a neat, clean condition. Contractor shall repair all damage and weathering to structure, framing and signage.
- B. Sign Relocation: Contractor shall relocate signs as required by progress of the work.

3.4 REMOVAL

- A. Project Identification Sign Removal: Contractor shall remove Project Identification Sign when directed. Contractor shall coordinate removal with requirements specified in Section 01 51 00 – Temporary Utilities, Section 01 52 00 – Construction Facilities, Section 01 55 00 – Vehicular Access and Parking and Section 01 56 00 – Temporary Barriers and Enclosures.
- B. Project Informational Signs Removal: Contractor shall remove all informational signs, framing, supports and foundations prior to Contract Completion review. Contractor shall coordinate removal with requirements specified in Section 01 51 00 – Temporary Utilities, Section 01 52 00 – Construction Facilities, Section 01 55 00 – Vehicular Access and Parking and Section 01 56 00 – Temporary Barriers and Enclosures.

END OF SECTION

SECTION 01 61 00 - BASIC PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. General requirements for products used for the Work, including:
1. General characteristics of products
 2. Product options
 3. System completeness
 4. Transportation and handling requirements
 5. Storage and protection of products
 6. Installation of products.

1.3 RELATED SECTIONS

- A. SECTION 01 33 00 - SUBMITTALS PROCEDURES: REQUIREMENTS APPLICABLE TO SUBMITTALS FOR "OR EQUAL" AND SUBSTITUTE PRODUCTS.
- B. Section 01 41 00 - Regulatory Requirements: Codes and standards applicable to product specifications; minimum requirements.
- C. Section 01 42 00 - Reference Standards and Abbreviations: References to various standards, standard specifications, codes, practices and other requirements.
- D. Section 01 64 00 - Owner-Furnished Products: Requirements for installing products furnished by University.
- E. Section 01 65 00 - Product Delivery Requirements: General requirements for delivery of products to Project site.
- F. Section 01 66 00 - Product Storage and Handling Requirements: General requirements for storage and handling of products.

1.4 GENERAL PRODUCT REQUIREMENTS

- A. Products, General: "Products" include items purchased for incorporation in the Work, whether

purchased for the Project or taken from previously purchased stock, and include materials, equipment, assemblies, fabrications and systems.

1. Named Products: Items identified by manufacturer's product name, including make or model designations indicated in the manufacturer's published product data.
 2. Materials: Products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed or installed to form a part of the Work.
 3. Equipment: A product with operating parts that are motorized or manually operated and require connections such as wiring or piping.
- B. Specific Product Requirements: Refer to requirements of Section 01 45 00 - Quality Control and individual product Specifications Sections in Divisions 2 through 49 for specific requirements for products.
- C. Minimum Requirements: Specified requirements for products are minimum requirements. Refer to general requirements for quality of the Work specified in Section 01 45 00 - Quality Control and elsewhere herein.
- D. Product Selection: Provide products that fully comply with the Contract Documents, are undamaged and unused at installation. Comply with additional requirements specified herein in Article titled "PRODUCT OPTIONS".
- E. Standard Products: Where specific products are not specified, provide standard products of types and kinds that are suitable for the intended purposes and that are usually and customarily used on similar projects under similar conditions. Products shall be as selected by Contractor and subject to review and acceptance by the Architect.
- F. Product Completeness: Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect. Comply with additional requirements specified herein in Article titled "SYSTEM COMPLETENESS".
- G. Code Compliance: All products, other than commodity products prescribed by Code, shall have a current ICBO Evaluation Service (ICBO ES) Research Report or National Evaluation, Inc. Report (NER). Refer to additional requirements specified in Section 01 41 00 - Regulatory Requirements.
- H. Interchangeability: To the fullest extent possible, provide products of the same kind from a single source. Products required to be supplied in quantity shall be the same product and interchangeable throughout the Work. When options are specified for the selection of any of two or more products, the product selected shall be compatible with products previously selected.

- I. Product Nameplates and Instructions:
 - 1. Except for required Code-compliance labels and operating and safety instructions, locate nameplates on inconspicuous, accessible surfaces. Do not attach manufacturer's identifying nameplates or trademarks on surfaces exposed to view in occupied spaces or to the exterior.
 - 2. Provide a permanent nameplate on each item of service-connected or power-operated equipment. Nameplates shall contain identifying information and essential operating data such as the following example:
 - Designation of product as identified on the Plans and Specifications
 - Name of manufacturer
 - Name of product
 - Model and serial number
 - Capacity
 - Operating and Power Characteristics
 - Labels of Tested Compliance with Codes and Standards
 - 3. For each item of service-connected or power-operated equipment, provide operating and safety instructions, permanently affixed and of durable construction, with legible machine lettering. Comply with all applicable requirements of authorities having jurisdiction and listing agencies.
 - 4. Permanent nameplate shall be constructed from metal with lettering punched or indented into the material. "Permanent" marker or other inks shall not be used.
- J. Plumbing Product Requirements: Comply with requirements specified in Division 22 - Plumbing
- K. Mechanical Product Requirements: Comply with requirements specified in Division 23 - Mechanical.
- L. Electrical Product Requirements: Comply with requirements specified in Division 26 - Electrical.

1.5 PRODUCT OPTIONS

- A. Product Options: Refer to Contract General Conditions, Article 5.04. Provisions of Public Contract Code Section 03400 shall apply, as supplemented by the following general requirements.
- B. Products Specified by Description: Where Specifications describe a product, listing characteristics required, with or without use of a brand name, provide a product that has the specified attributes and otherwise complies with specified requirements.
- C. Products Specified by Performance Requirements: Where Specifications require compliance

with performance requirements, provide product(s) that comply and are recommended by the manufacturer for the intended application. Verification of manufacturer's recommendations may be by product literature or by certification of performance from manufacturer.

- D. Products Specified by Reference to Standards: Where Specifications require compliance with a standard, provided product shall fully comply with the standard specified. Refer to general requirements specified in Section 01 42 00 - Reference Standards and Abbreviations regarding compliance with referenced standards, standard specifications, codes, practices and requirements for products.
- E. Products Specified by Identification of Manufacturer and Product Name or Number:
 - 1. Sole, source, no other product shall be accepted: Provide the specified product(s) of the specified manufacturer. No substitutions shall be allowed.
 - 2. "Acceptable Manufacturers": Product(s) of the named manufacturers, if equivalent to the specified product(s) of the specified manufacturer, will be acceptable in accordance with the requirements specified herein in the Article titled "'OR EQUAL' PRODUCTS."
 - 3. Unnamed manufacturers: Products of unnamed manufacturers will be acceptable only as follows:
 - a. Unless specifically stated that equals will not be accepted or considered, the phrase "or equal" shall be assumed to be included in the description of specified product(s). Equivalent products of unnamed manufacturers will be accepted in accordance with the "or equal" provision specified herein, below.
 - b. If provided, products of unnamed manufacturers shall be subject to the requirements specified herein in the Article titled "'OR EQUAL' PRODUCTS."
 - 4. Quality basis: Specified product(s) of the specified manufacturer shall serve as the basis by which products by named acceptable manufacturers and products of unnamed manufacturers will be evaluated. Where characteristics of the specified product are described, where performance characteristics are identified or where reference is made to industry standards, such characteristics are specified to facilitate evaluation of products by identifying the most significant attributes of the specified product(s).
- F. Products Specified by Combination of Methods: Where products are specified by a combination of attributes, including manufacturer's name, product brand name, product catalog or identification number, industry reference standard, or description of product characteristics, provide products conforming to all specified attributes.
- G. "Or Equal" Provision: Where the phrase "or equal" or the phrase "or approved equal" is included, product(s) of unnamed manufacturer(s) may be provided as specified above in subparagraph titled "Unnamed manufacturers."
 - 1. The requirements specified herein in the Article titled "'OR EQUAL' PRODUCTS" shall apply

to products provided under the "or equal" provision.

2. Use of product(s) under the "or equal" provision shall not result in any delay in completion of the Work, including completion of portions of the Work for use by University or for work under separate contract by University.
 3. Use of product(s) under the "or equal" provision shall not result in any costs to University, including design fees and permit and plan check fees.
 4. Use of product(s) under the "or equal" provision shall not require substantial change in the intent of the design, in the opinion of the Architect. The intent of the design shall include functional performance and aesthetic qualities.
 5. The determination of equivalence will be made by the Architect, and such determination shall be final.
- H. Visual Matching: Where Specifications require matching a sample, the decision by the Architect on whether a proposed product matches shall be final. Where no product visually matches, but the product complies with other requirements, comply with provisions for substitutions for selection of a matching product in another category.
- I. Selection of Products: Where requirements include the phrase "as selected from manufacturer's standard colors, patterns and textures", or a similar phrase, selections of products will be made by indicated party or, if not indicated, by the Architect. The Architect will select color, pattern and texture from the product line of submitted manufacturer, if all other specified provisions are met.

1.6 "OR EQUAL" PRODUCTS

- A. "Or Equal" Products: Products are specified typically by indicating a specified manufacturer and specific products of that manufacturer, with acceptable manufacturers identified with reference to this "or equal" provision. If Contractor proposes to provide products other than the specified products of the specified manufacturer, provisions of any relevant Supplementary General Conditions, Contract General Conditions Article 5.04, and Public Contract Code section 3400 shall apply. Contractor shall submit if and when directed by Architect, complete product data, including drawings and descriptions of products, fabrication details and installation procedures. Include samples where applicable or requested.
1. Submit a minimum of four copies. Form and other administrative requirements shall be as directed by the Architect.
 2. Include appropriate product data for the specified product(s) of the specified manufacturer, suitable for use in comparison of characteristics of products.

- a. Include a written, point-by-point comparison of characteristics of the proposed equal product with those of the specified product.
 - b. If the proposed equal is accepted, Contractor shall include a detailed description in written or graphic form as appropriate, indicating all necessary changes or modifications to other elements of the Work and to construction to be performed by the University and others under separate contract with University.
 3. "Or Equal" product submissions shall include a statement indicating the equal's effect on the Construction Schedule. Contractor shall indicate the effect of the proposed products on overall Contract Time and, as applicable, on completion of portions of the Work for use by University or for work under separate contract by University.
 4. "Or Equal" product submissions shall include signed certification that the Contractor has reviewed the proposed products and has determined that the products are equivalent or superior in every respect to product requirements indicated or specified in the Contract Documents, and that the proposed products are suited for and can perform the purpose or application of the specified product indicated or specified in the Contract Documents.
 5. "Or Equal" product submissions shall include a signed waiver by the Contractor for change in the Contract Time or Contract Sum because of the following:
 - a. "Or equal" product failed to perform adequately.
 - b. "Or equal" product required changes in on other elements of the Work.
 - c. "Or equal" product caused problems in interfacing with other elements of the Work.
 6. If, in the opinion of the Architect, the "or equal" product request is incomplete or has insufficient data to enable a full and thorough review of the proposed products, the proposed products may be summarily refused and determined to be unacceptable.
- B. Product Substitutions: For products not governed by the "or equal" provision, comply with substitution provisions of the Contract General Conditions (Article 5.04-d, Substitutions) and requirements specified in Section 01630 - Product Substitution Procedures.

1.7 SYSTEM COMPLETENESS

- A. System Completeness
1. The Contract Drawings and Specifications are not intended to be comprehensive directions on how to produce the Work. Rather, the Drawings and Specifications are instruments of service prepared to describe the design intent for the completed Work.
 2. It is intended that all equipment, systems and assemblies be complete and fully functional even though not fully described. Provide all products and operations necessary to achieve the design intent described in the Contract Documents.
 3. Refer to related general requirements specified in Section 01 41 00 - Regulatory Requirements regarding compliance with minimum requirements of applicable codes,

ordinances and standards.

- B. Omissions and Misdescriptions: Contractor shall report to Architect immediately when elements essential to proper execution of the Work are discovered to be missing or misdescribed in the Drawings and Specifications or if the design intent is unclear.
 - 1. Should an essential element be discovered as missing or misdescribed prior to receipt of Bids, an Addendum will be issued so that all costs may be accounted for in the Contract Sum.
 - 2. Should an obvious omission or misdescription of a necessary element be discovered and reported after execution of the Agreement, Contractor shall provide the element as though fully and correctly described, and a no-cost Change Order shall be executed.
 - 3. Refer to related general requirements specified in Section 01 31 00 - Coordination regarding construction interfacing and coordination.

1.8 TRANSPORTATION, DELIVERY AND HANDLING

- A. Transportation, Delivery and Handling, General: Contractor shall comply with manufacturer's instructions and recommendations for transportation, delivery and handling, in addition to the following.
- B. Transportation: Contractor shall transport products by methods to avoid product damage.
- C. Delivery:
 - 1. Contractor shall schedule delivery to minimize long-term storage and prevent overcrowding construction spaces. Contractor shall coordinate with installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
 - 2. Contractor shall deliver products in undamaged condition in manufacturer's original sealed container or packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
 - 3. The Contractor shall not have products of any type that are intended to be received by the Contractor delivered to the University's Mail and Package receiving Warehouse.
- D. Handling:
 - 1. Contractor shall provide equipment and personnel to handle products by methods to prevent soiling, marring or other damage.
 - 2. Contractor shall promptly inspect products on delivery to ensure that products comply with Contract Documents, quantities are correct, and to ensure that products are undamaged and properly protected.

1.9 STORAGE AND PROTECTION

- A. Storage and Protection, General: Contractor shall store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible.

1. Contractor shall periodically inspect to ensure products are undamaged, and are maintained under required conditions.
 2. Contractor shall remove and replace products damaged by improper storage or protection with new products at no change in Contract Sum or Contract Time.
 3. Contractor shall store sensitive products in weather tight enclosures or by other means recommended by the manufacturer.
- B. Inspection Provisions: Contractor shall arrange storage to provide access for inspection and measurement of quantity or counting of units.
- C. Structural Considerations: Contractor shall store heavy materials away from the structure in a manner that will not endanger supporting construction.
- D. Weather-Resistant Storage:
1. Contractor shall store moisture-sensitive products above ground, under cover in a weather tight enclosure or covered with an impervious sheet covering. Contractor shall provide adequate ventilation to avoid condensation.
 2. Contractor shall maintain storage within temperature and humidity ranges required by manufacturer's instructions.
 3. For exterior storage of fabricated products, Contractor shall place products on raised blocks, pallets or other supports, above ground and in a manner to not create ponding or misdirection of runoff. Contractor shall place on sloped supports above ground.
 4. Contractor shall store loose granular materials on solid surfaces in a well-drained area. Contractor shall prevent mixing with foreign matter.
- E. Protection of Completed Work:
1. Contractor shall provide barriers, substantial coverings and notices to protect installed Work from traffic and subsequent construction operations.
 2. Contractor shall remove protective measures when no longer required and prior to Contract Completion review of the Work.
 3. Contractor shall comply with additional requirements specified in Section 01560 - Temporary Barriers and Enclosures.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

A. Installation of Products:

1. Contractor shall comply with manufacturer's instructions and recommendations for installation of products, except where more stringent requirements are specified and necessary due to Project conditions or are required by authorities having jurisdiction.
2. Contractor shall anchor each product securely in place, accurately located and aligned with other Work.
3. Contractor shall clean exposed surfaces and provide protection to ensure freedom from damage and deterioration at time of Contract Completion review. Contractor shall refer to additional requirements specified in Section 01 74 00 - Cleaning Requirements and Section 01 56 00 - Temporary Barriers and Enclosures.

END OF SECTION

SECTION 01 63 00 - PRODUCT SUBSTITUTION PROCEEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

A. General requirements applicable to substitutions of materials, products, equipment and systems.

1.3 SUBSTITUTION OF MATERIALS AND EQUIPMENT

A. Substitutions, General: Catalog numbers and specific brands or trade names are used in materials, products, equipment and systems required by the Specifications to establish the standards of quality, utility and appearance required. Alternative products which are of equal quality and of required characteristics for the purpose intended may be proposed for use provided the Contractor complies with provisions of Contract General Conditions, Article 5.04., subject to the following provisions.

1. See Section 01 61 00 - Basic Product Requirements for requirements regarding product options.
2. Substitutions during the course of Work will only be authorized by properly executed Change Order or Field Instruction. Substitutions during the bidding and/or negotiation phases shall be added to the identified specification by Addendum.
3. **Note: the Trustees have no obligation to entertain substitutions.**

B. Substitution Provisions:

1. Documentation: Substitutions will not be considered if they are indicated or implied on shop drawing, product data or sample submittals. All requests for substitution shall be by separate written request from Contractor. See paragraph below for documentation required in the submission of request for substitution.
2. Cost and Time Considerations: Substitutions will not be considered unless a net reduction in Contract Sum or Contract Time results to University's benefit, including redesign costs, life cycle costs, plan check and permit fees, changes in related Work and overall performance of building systems.

3. Design Revision: Substitutions will not be considered if acceptance will require substantial revision of the Contract Documents or will substantially change the intent of the design, in the opinion of the Architect. The intent of the design shall include functional performance and aesthetic qualities.
 4. Data: It shall be the responsibility of the Contractor to provide adequate data demonstrating the merits of the proposed substitution, including cost data and information regarding changes in related Work.
 5. Determination by Architect: Architect and University's Representative will determine the acceptability of proposed substitutions, and University's Representative will notify Contractor in writing of acceptance or rejection. The determination by the Architect regarding functional performance and aesthetic quality shall be final.
 6. Non-Acceptance: If a proposed substitution is not accepted, Contractor shall immediately provide the specified product.
 7. Substitution Limitation: Only one request for substitution will be considered for each product.
- C. Request for Substitution Procedures: Comply with provisions of Contract General Conditions, Article 5.04 and the following.
1. Contractor shall prepare a request for substitution and submit the request to Architect through University's Representative for review and recommendation for acceptance. Acceptance and approval of substitutions shall be by University's Representative.
 - a. Submit a minimum of five hard copies or submit electronically to the University's Representative.
 - b. Present the request for substitution using form provided below.
 - c. Comply with other administrative requirements shall be as directed by University's Representative.
 2. Substitution requests shall include complete product data, including drawings and descriptions of products, fabrication details and installation procedures. Include samples where applicable or requested.
 3. Substitution requests shall include appropriate product data for the specified product(s) of the specified manufacturer, suitable for use in comparison of characteristics of products.
 - a. Include a written, point-by-point comparison of characteristics of the proposed substitute product with those of the specified product.
 - b. Include a detailed description, in written or graphic form as appropriate, indicating all changes or modifications needed to other elements of the Work and to construction

to be performed by the University and by others under separate contracts with University that will be necessary if the proposed substitution is accepted.

4. Substitution requests shall include a statement indicating the substitution's effect on the Construction Schedule. Indicate the effect of the proposed substitution on overall Contract Time and, as applicable, on completion of portions of the Work for use by University or for work under separate contracts by University.
5. Except as otherwise specified, substitution requests shall include detailed cost data, including a proposal for the net change, if any, in the Contract Sum.
6. Substitution requests shall include signed certification that the Contractor has reviewed the proposed substitution and has determined that the substitution, in combination with the cost or time savings, represents an equivalent or superior condition in every respect to product requirements and value indicated or specified in the Contract Documents, and that the substitution is suited for and can perform the purpose or application of the specified product indicated or specified in the Contract Documents.
7. Substitution requests shall include a signed waiver by the Contractor for change in the Contract Time or Contract Sum because of the following:
 - a. Substitution failed to perform adequately.
 - b. Substitution required changes in on other elements of the Work.
 - c. Substitution caused problems in interfacing with other elements of the Work.
 - d. Substitution was determined to be unacceptable by authorities having jurisdiction.
8. If, in the opinion of the Architect, the substitution request is incomplete or has insufficient data to enable a full and thorough review of the intended substitution, the substitution may be summarily refused and determined to be unacceptable.

D. Contract Document Revisions:

1. Should a Contractor-proposed substitution or alternative sequence or method of construction require revision of the Contract Drawings or Specifications, including revisions for the purposes of determining feasibility, scope or cost, or revisions for the purpose of obtaining review and approval by authorities having jurisdiction, Architect or other consultant of University who is the responsible design professional will make revisions as approved in writing in advance by University's Representative.
2. Contractor shall pay for services of Architect, other responsible design professionals and University for researching and reporting on proposed substitutions or alternative sequence and method of construction when such activities are considered additional services to the design services contracts of Architect or other responsible design professional with University.

3. Contractor shall pay for costs of services by Architect, other responsible design professionals and University. These costs may include travel, reproduction, long distance telephone and shipping costs reimbursable at cost plus usual and customary mark-up for handling and billing.
4. Contractor shall pay such fees whether or not the proposed substitution or alternative sequence or method of construction is ultimately accepted by University and a Change Order is executed.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

SUBSTITUTION REQUEST FORM

SUBSTITUTION REQUEST NUMBER: _____

TO: _____

PROJECT: _____

SPECIFIED ITEM: _____

Section	Page	Paragraph	Description
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The undersigned requests consideration of the following:

Proposed Substitution (Manufacturer, Model # or Name, Color, Etc.): _____

History: ___New Product, ___Available 2-5 Years, ___Available 6-10 Years, ___Available 10+ Years

Provide UL, ITS, WHI, (or other) listing / rating of proposed substitution: _____

Attached data shall include, but not be limited to, product, specification, drawings, performance and test data adequate for evaluation of the request for the proposed substitution product and the specified product, with applicable portions of the proposed substitution and the specified product data clearly identified in a point-by-point direct comparison chart. Incomplete form and attachments will result in rejection of substitution request.

Requestor shall address the following items on this Substitution Request Form. Use a separate attached sheet attached as needed:

1. Reason for not providing specified item:

2. Will proposed substitution affect dimensions indicated on Drawings? ____ (Yes) ____ (No)

If yes, how? _____

3. Will proposed substitution affect Electrical, Mechanical, Structural, Architectural, etc.? ____ (Yes) ____ (No) If yes, explain:

4. Is proposed substitution larger or smaller than specified product? ____ (Yes) ____ (No)

If yes, state size of substitute product: _____

5. Does proposed substitution weight less/more than specified product? ____ (Yes) ____ (No)

If yes, state weight of substitute product:

6. Will proposed substitution affect other trades and/or parts of the work? ____ (Yes) ____ (No)

If yes, explain all effects:

7. Comparison between proposed substitution and specified product (Similarities / Differences)?

8. If Substitution Request is accepted, Owner will receive a credit of \$ _____. The Contract Sum will be adjusted accordingly.

9. Will proposed substitution affect the Contract Time? ____ (Yes) ____ (No)

If yes, ____ (Add) ____ (Deduct) _____ calendar days.

INITIAL

UNDERSIGNED CERTIFIES:

- ____ Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- ____ Proposed substitution has same or better warranty as specified product.
- ____ Proposed substitution has same or better maintenance service and availability of replacement parts as specified product.
- ____ Proposed substitution will not affect or delay the Construction Schedule.
- ____ Claims for additional costs related to accepted substitution, which may subsequently become apparent, are hereby waived.
- ____ Proposed substitution will not affect dimensions and functional clearances.
- ____ Coordination, installation, and changes in the Work as necessary for installation of accepted substitution will be complete in all respects, at no additional cost to Owner.
- ____ Contractor will pay for all costs associated with changes to the project's design, including, but not limited to, architectural or engineering design fees, detailing, Agency approvals and construction costs caused by the requested substitution.
- ____ The function, appearance and quality of the proposed substitution is equivalent or superior to the specified item.

The undersigned certifies that the above is accurate and correct.

Signature: _____

Company: _____

Address: _____

Date: _____

Telephone: _____

Attachments: _____Product Data ___Samples ___Tests ___Reports ___Other (Describe)

Architect's Review and Action:

_____ Substitution Accepted – Make submittals in accordance with Specification Division 01 33 00.

_____ Substitution Accepted as Noted - Make submittals in accordance with
Specification Division 01 33 00.

_____ Substitution Rejected – Provide specified product.

_____ Substitution Request Received Too Late – Provide specified product.

By: _____ Date: _____

Remarks: _____

END OF SECTION

SECTION 01 64 00 - OWNER FURNISHED PRODUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Requirements for installing Owner-furnished products, including providing miscellaneous items and accessories for a complete, functioning installation.

1.3 RELATED SECTIONS

- A. Section 01 58 00 - Project Identification and Signage: Owner-furnished, Contractor-installed (OFCI) temporary signage.

1.4 PRODUCT HANDLING

- A. Protection: Contractor shall use means necessary to protect the materials of this Section before, during, and after installation and to protect completed Work, including products installed by others.
- B. Replacements: In the event of damage, Contractor shall immediately repair all damaged and defective Work to satisfaction of University's Representative, at no change in Contract Time and Contract Sum.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED/CONTRACTOR-INSTALLED (OFCI) PRODUCTS

- A. Products Identified with Contractor Responsibility for Installation:
1. Contractor shall verify mounting and utility requirements for accepted products.
 2. Contractor shall provide mounting and utility rough-ins for OFCI products.
 - a. Rough-in locations, sizes, capacities and similar type shall be as indicated and required by product manufacturers.
 - b. If the University substitutes items similar to those scheduled there shall be no change in rough-in cost, unless substitution occurs after rough-in has been completed or

rough-in involves other mounting requirements, utilities of different capacity than those required by item originally specified.

3. For items Designated to Be Owner- or Vendor-Furnished: University or its vendor will furnish manufacturer's literature or information, shop drawings, or appropriate information for preparing required shop drawings.
- B. Installation Instructions: Approved manufacturer's printed descriptions, specifications and recommendations shall govern the Work, unless specifically indicated otherwise.
- C. Electrical Components: Contractor shall comply with requirements specified in Division 26 - Electrical, including California Electrical Code (CEC).
- D. Plumbing and HVAC Components: Contractor shall comply with requirements specified in Division 22 – Plumbing and Division 23 - HVAC, including California Plumbing Code (CPC) and California Mechanical Code (CMC).

2.2 OWNER-FURNISHED/CONTRACTOR-INSTALLED PRODUCT REQUIREMENTS

- A. Products Furnished by University and Installed by Contractor:
 1. Contractor shall coordinate delivery of OFCI products. University will furnish products to coincide with construction schedule.
 2. University will:
 - a. Furnish standard integral components of products.
 - b. Deliver products to site. Contractor shall assist University in offloading products.
 3. The Contractor shall:
 - a. Receive products at site and give written receipt for product at time of delivery, noting visible defects and omissions; if such declaration is not given, the Contractor shall assume responsibility for such defects and omissions.
 - b. Store products until ready for installation and protect from loss and damage.
 - c. Uncrate, assemble and set products in place.
 - d. Install products in accordance with manufacturer's recommendations, instructions and shop drawings under supervision of manufacturer's representative where specified, supplying labor and material required and making mechanical, plumbing and electrical connections necessary to operate equipment.
 - e. Where so specified, installation shall be only by installer approved by manufacturer. If known, approved installer is identified on the Drawings or in the Specifications.
 - f. Provide and install backing for all products weighing 20 pounds or more.
 - g. Treat all Owner or Vendor supplied products with the same care as all Contractor furnished items.

B. Products Furnished and Installed by University:

1. Contractor prepare; vendor install:
 - a. General: Contractor shall coordinate deliveries of vendor-supplied products. Vendor will furnish products to coincide with the construction schedule.
 - b. Vendor will:
 - 1) Furnish standard integral components of products.
 - 2) Deliver products to site.
 - 3) Make connections to roughed-in utilities.
 - c. Contractor shall:
 - 1) Receive products at site and give written notice of receipt of each product at time of delivery, noting visible defects.
 - 2) Provide rough-in of utility products in accordance with manufacturer's recommendations, instructions and shop drawings under supervision of the manufacturer's representative where specified.
 - 3) Provide and install backing for all products weighing 20 pounds or more.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Prior to commencing Work, Contractor shall verify that Work specified in other Sections has been properly completed and installed as specified to allow for installation of all materials and methods required of this Section.
2. Contractor shall verify that new and existing products and conditions are satisfactory for installation or relocation of OFCI products. If unsatisfactory conditions exist, do not commence the installation until such conditions have been corrected.

B. Discrepancies:

1. In the event of discrepancy, Contractor shall immediately notify the University's Representative.
2. Contractor shall not proceed with installation in areas of discrepancy until all such discrepancies have been resolved.

3.2 INSTALLATION

- A. Contractor shall relocate and reinstall existing products in accordance with Contract Documents

and reviewed shop drawings, original manufacturer's instructions and recommendations if applicable and as directed.

- B. Contractor shall install Owner-furnished products in accordance with reviewed shop drawings and manufacturer's printed instructions, as applicable.

3.3 ADJUSTING AND CLEANING

- A. Contractor shall adjust products as necessary and as directed by University's Representative.
- B. Contractor shall clean all new and relocated OFCI products.
- C. Contractor shall protect OFCI products from damage until Contract Completion.

END OF SECTION

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SECTION 01 65 00 - PRODUCT DELIVERY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

A. Protect products scheduled for use in the work by means including, but not necessarily limited to, those described in this Section.

1.3 RELATED SECTIONS

- A. Section 01 61 00 - Basic Product Requirements: Qualitative requirements for products.
- B. Section 01 66 00 - Product Storage and Handling Requirements: Requirements for protection of products after delivery.

1.4 QUALITY ASSURANCE

- A. Contractor's Quality Assurance: Contractor shall include within the Contractor's quality assurance program procedures as necessary to ensure protection of products upon delivery. Contractor shall be solely responsible for all products upon delivery to Work site and in off-site storage.
 - 1. Contractor shall schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Contractor shall coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Contractor shall inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- B. Manufacturer's Requirements: Contractor shall determine and comply with manufacturer's instructions and recommendations for product handling.
- C. Packaging: Contractor shall deliver products to Work site in manufacturer's original containers,

with labels intact and legible.

1. Products delivered to Work site shall be in undamaged condition, in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
2. Contractor shall maintain packaged materials with seals unbroken and labels intact until time of use.
3. Products will be subject to rejection if they do not bear required identification or are unsuitably packaged.

D. Delivery:

1. Contractor shall address and deliver products to Project site. Do not deliver products to University campus shipping and delivery department. Address deliveries to Contractor and Project name. Do not address products "care of" University.
2. University will not be responsible for mis-addressed and mis-delivered products, including claims for damage and delay.

- E. Damaged Products: In event of damage, Contractor shall promptly make replacements and repairs to packaging and contents, as acceptable to University's Representative, at no change in Contract Sum and Contract Time.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION

SECTION 01 66 00 - PRODUCT STORAGE AND HANDLING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Storage and protection requirements to ensure that products intended for use in the Work will not be damaged and will not deteriorate from time of delivery to time of incorporation into the Work.

1.3 RELATED SECTIONS

- A. Section 01 52 00 - Construction Facilities: Requirements for storage sheds.
- B. Section 01 52 05 - Construction Staging Areas: Locations for vehicular access and staging of products during Work.
- C. Section 01 56 00 - Temporary Barriers and Enclosures: Requirements for temporary construction barriers, enclosures and passageways, applicable to protection of construction.
- D. Section 01 61 00 - Basic Product Requirements: Qualitative requirements for products.
- E. Section 01 65 00 - Product Delivery Requirements: Requirements for packaging and delivery of products.

1.4 QUALITY ASSURANCE

- A. Contractor's Quality Assurance: Contractor shall include within the Contractor's quality assurance program procedures as necessary to ensure protection of products after delivery to Work site. Contractor shall be solely responsible for all products stored on site and in off-site storage.
 - 1. Contractor shall protect stored products from damage.
 - 2. Contractor shall store products to allow for inspection and measurement of quantity or counting of units.

3. Contractor shall store materials in a manner that will not endanger Project structure.
 4. Contractor shall store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
- B. Manufacturer's Handling Requirements: Contractor shall determine and comply with product manufacturer's written instructions for handling products.
- C. Manufacturer's Storage Requirements: Contractor shall determine and comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- D. Storage: Contractor shall provide secure locations and enclosures at Project site for storage of materials and equipment. Contractor shall coordinate location with Contractor storage and staging areas. Refer to Section 01 52 00 - Construction Facilities and Section 01 52 05 - Construction Staging Areas.
1. Contractor shall maintain packaged materials with seals unbroken and labels intact until time of use.
 2. Products will be subject to rejection if they do bear required identification or are unsuitably packaged.
- E. Damaged Products: In event of damage, Contractor shall promptly make replacements and repairs to packaging and contents, as acceptable to University's Representative, at no change in Contract Sum and Contract Time.
- F. Contractor shall not have products or materials that are intended for the Contractor delivered to the University's Receiving and Distribution Warehouse. Contractor shall make arrangements to have products and/or materials delivered directly to the work site. Products and/or materials delivered to the University's Receiving and Distribution Warehouse will not be accepted.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION

SECTION 01 72 00 - PREPARATION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Requirements for preparation prior to installing, applying and placing products to determine acceptable conditions for the Work.
- B. Layout of the Work and other engineering services necessary to accomplish the Work.

1.3 RELATED SECTIONS

- A. Section 01 31 00 - Coordination: Requirements for proper sequencing and interfacing of the Work.
- B. Section 01 31 19 - Project Meetings: General requirements for pre-installation conferences.
- C. Section 01 73 29 - Cutting and Patching: Work performed to provide access for performing the Work.
- D. Section 01 77 00 - Contract Closeout Procedures: Project record documents, including layout data.
- E. Section 01 78 29 - Survey and Layout Data: Requirements for survey and layout data submittals.

FOLLOWING ARE EXAMPLES ONLY. LIST RELATED SECTIONS APPLICABLE TO PROJECT.

- A. Section 02 41 13 - Selective Site Demolition: Removal of existing construction in preparation of performance of specified Work.
- B. Section 02 42 00 – Removal and Salvage of Construction Materials: Removal of products in preparation for the Work.
- C. Individual Division 2 through 48 Product Specification Sections: Specific requirements for preparation prior to performance of the Work.

1.4 LAYOUT OF WORK

- A. Surveyor: Contractor shall select and pay for services of a land surveyor, registered in the State of California, for proper performance of the Work.
 - 1. Services of surveyor shall be suitable for layout and verification of location of buildings and site elements.
 - 2. For the Project record, Contractor shall submit the name, address and telephone number of land surveyor before starting survey Work.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Manufacturer's Requirements: Contractor shall determine product manufacturer's requirements and recommendations prior to commencing Work.
- B. Preparations: Contractor shall perform preparation actions according to manufacturer's instructions and recommendations and according to specified procedures.
 - 1. Contractor shall perform surface preparation as necessary to create suitable substrates for application, installation and placement of products.
 - 2. Contractor shall notify University's Representative in writing of unsuitable conditions preventing proper performance of the Work.
- C. Existing Utility Information: Contractor shall furnish information to serving utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Contractor shall coordinate with University's Representative and with authorities having jurisdiction.
- D. Existing Utility Interruptions: Contractor shall not interrupt utilities serving facilities occupied by University or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Contractor shall notify University's Representative not less than two working days in advance of proposed utility interruptions.
 - 2. Contractor shall not proceed with utility interruptions without written permission from University's Representative.

- E. Field Measurements: Contractor shall take field measurements as required to fit the Work properly. Contractor shall recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, Contractor shall verify dimensions of other construction by field measurements before fabrication. Contractor shall coordinate fabrication schedule with construction progress to avoid delaying the Work.
- F. Space Requirements: Contractor shall verify space requirements and dimensions of items shown diagrammatically on Drawings.
- G. Review of Contract Documents and Field Conditions: Immediately upon discovery of the need for clarification of the Contract Documents, Contractor shall submit a Request for Interpretation (RFI) to Architect. Contractor shall include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Contractor shall submit requests in accordance with requirements specified in Section 01340 - Requests for Interpretation (RFI), using form as directed by University's Representative.
- H. Verification of Construction Layout: Before proceeding to lay out the Work, Contractor shall verify layout information shown on Drawings, in relation to the property survey and existing benchmarks, and locate survey reference points. If discrepancies are discovered, Contractor shall promptly notify University's Representative, Architect and Project Inspector.

3.2 FIELD ENGINEERING

- A. Examination: Contractor shall verify locations of survey control and reference points prior to starting Work. If discrepancies are discovered, Contractor shall promptly notify University's Representative, Architect and Project Inspector.
- B. Survey Control and Reference Points: Contractor shall locate and protect survey control and reference points. Control datum for survey shall be as indicated on Civil Drawings. Notwithstanding the data on Civil Drawings, Contractor shall use NAD 83 State Plane Coordinate System for survey control and reference points.
 - 1. Business and Professions Code section 8771 provides for the preservation of Survey Monuments in construction projects. This legislation mandates that, prior to construction, monuments shall be referenced in the field and "Corner Records" shall be prepared for filing in the Office of the County Surveyor. Contractor shall ensure that these shall be performed prior to Contract Completion of the Work.
 - 2. Contractor shall comply with requirements of authorities having jurisdiction for survey monument preservation on capital improvement projects where monument points are present.

3. Contractor shall be responsible for preparing and submitting proper documentation to the Office of the County Surveyor in compliance with Business and Professions Code section 8771.
4. Contract Completion and release of retainage shall be contingent upon obtaining documentation from Contractor's project surveyor or engineer that monuments have been set or restored and that Corner Records have been filed with and to the satisfaction of the County Surveyor.
5. All costs and actions necessary for compliance with Business and Professions Code section 8771 shall be included in the Contract Sum and Contract Time.

3.3 SURVEYING AND FIELD ENGINEERING SERVICES

- A. Surveying and Field Engineering Services: Contractor shall provide surveying and field engineering services as necessary for performance of the Work. Refer to Section 01 78 29 - Survey and Layout Data.
 1. Contractor shall be responsible for the accuracy and adequacy of surveying and field engineering services.
 2. Contractor shall utilize recognized engineering practices.
 3. Contractor shall check the location, level and plumb, of every major element as the Work progresses.
 4. Contractor shall preserve construction survey stakes and marks for the duration of their usefulness.
 5. If construction survey stakes are lost or disturbed, and require replacement, Contractor shall perform replacement at no change in Contract Sum and Contract Time.
 6. Contractor shall excavate all holes necessary for line and grade stakes.
- B. Surveying for Layout and Control of the Work: Contractor shall establish elevations, lines and levels for all Work under the Contract. Contractor shall locate and lay out by instrumentation and similar appropriate means:
 1. Site improvements, including pavements, curbs, headers, sewers, storm drains, structures, and paving. Note on Project Record Drawings utility locations, slopes and invert elevations.
 2. Stakes for cutting, filling, grading and topsoil placement, to establish finished grade or flow

line indicated on Contract Drawings.

- a. Contractor shall preserve construction survey stakes and marks for the duration of their usefulness.
 - b. If construction survey stakes are lost or disturbed, and require replacement, Contractor shall perform replacement at no change in Contract Sum and Contract Time.
 - c. Contractor shall excavate all holes necessary for line and grade stakes.
3. Grid or axis for structures, building foundation, column locations and ground floor elevations.
 4. Contractor shall establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 5. Contractor shall establish dimensions within tolerances indicated. Contractor shall not scale Drawings to obtain required dimensions.
 6. Contractor shall inform installers of lines and levels to which they must comply.
 7. When deviations from required lines and levels exceed allowable tolerances, Contractor shall notify University's Representative, Architect and Project Inspector.
 8. Contractor shall close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Monuments: Contractor shall establish a minimum of two permanent monuments on site, referenced to established control points. Contractor shall record locations, with horizontal and vertical data, on Project Record Drawings.
1. In accordance with Business and Professions Code section 8772, any monument set by a licensed land surveyor or registered civil engineer to mark or reference a point on a property or land line shall be permanently and visibly marked or tagged with the certificate number of the surveyor or civil engineer setting it, each number preceded by the letters "L.S." or "R.C.E." respectively, as the case may be, or, if the monument is set by a public agency, it shall be marked with the name of the agency and the political subdivision it serves.
 2. Nothing in this Section shall prevent the inclusion of other information on the tag which will assist in the tracing or location of survey records which relate to the tagged monument.
 3. Contractor shall ensure that centerline ties filed with the County Surveyor will be checked for compliance with this law.

D. Site Grading Verification: Upon completion of grading, Contractor shall survey graded areas

and establish that elevations are correct and within acceptable tolerances for paving and finish grading.

- E. Verification of Work: Contractor shall periodically verify layout and completed conditions of the Work by same means.

END OF SECTION

SECTION 01 73 29 - CUTTING AND PATCHING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Requirements and procedural requirements for cutting and patching, including:
 - 1. Cutting and patching not required to be performed as part of the Work specified in other Sections.
 - 2. Cutting and patching existing construction altered or disturbed to accommodate new construction.
 - 3. Cutting and patching existing construction damaged or defaced during new construction as required to restore to existing or better condition at the time of award of Contract.
 - 4. Cutting and patching required to:
 - a. Install or correct non-coordinated Work.
 - b. Remove and replace defective and non-conforming Work.
 - c. Remove samples of installed Work for testing.
- B. Refer to other Sections and drawings for specific requirements of the extent and limitations applicable to cutting and patching, demolishing, or altering existing construction of individual parts of the Work.
 - 1. Requirements of this Section also apply to plumbing mechanical and electrical installations. (Refer to Division-22, Division 23 and Division-26 Sections for other requirements and limitations applicable to cutting and patching plumbing, mechanical and electrical installations).

1.3 RELATED SECTIONS

- A. Section 01 11 00 - Summary of the Work: Work by University's construction forces or by others under separate contract with University.
- B. Section 01 56 00 - Temporary Barriers and Enclosures: Dust-control barriers at cutting and patching locations.

C. Section 01 74 00 - Cleaning Requirements: Cleaning after cutting and patching Work.

FOLLOWING IS EXAMPLE ONLY. LIST RELATED SECTIONS APPLICABLE TO PROJECT.

D. Section 02 41 13 - Selective Demolition: Cutting and removal of existing construction.

E. Individual Division 2 through 48 Product Specification Sections:

1. Cutting and patching incidental to Work specified in the Section.
2. Coordination with Work specified in other Sections for openings required to accommodate Work specified in those other Sections.

1.4 SUBMITTALS

EDIT REFERENCE BELOW TO SUIT PROJECT. VERIFY APPLICABLE SECTION NUMBER AND TITLE FOR DEMOLITION WORK.

- A. Written Requests for Cutting and Alteration: Coordinate with requirements specified in [Section 02 41 13 - Selective Demolition] [Section [No.] - [____]].
1. Contractor shall submit written request in advance of cutting or alteration which affects:
 - a. Structural integrity of any element of new or existing construction.
 - b. Integrity of weather-exposed or moisture-resistant elements.
 - c. Efficiency, maintenance, or safety of operational elements.
 - d. Visual qualities of elements exposed to view in the completed construction.
 - e. Work by University's construction forces or by others under separate contract with University.
 - f. Existing construction not otherwise indicated to be revised by Work under the Contract.
 2. Contractor shall include in requests for cutting and alteration:
 - a. Identification of Project.
 - b. Location and description of affected Work. Include shop drawings as necessary to identify locations and communicate descriptions.
 - c. Explanation of necessity for cutting and patching.

- d. Description of proposed Work and products to be used.
 - e. Alternatives to cutting and patching.
 - f. Effect on existing construction.
 - g. Effect on work by University's construction forces or by separate contractors performing work for University.
- 3. Contractor shall include written evidence that those performing work under separate contract for University have been notified and acknowledge that cutting and patching work will be occurring. Contractor shall include written permission for intended cutting and patching, included scheduled times.
 - 4. Contractor shall indicate date and time cutting and patching Work will be performed, including duration.
 - 5. Contractor shall describe the extent of cutting and patching required and how it is to be performed.
 - 6. Contractor shall describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
 - 7. Contractor shall list products to be used and firms or entities that will perform work.
 - 8. Contractor shall list utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Contractor shall indicate how long service will be disrupted.
 - 9. Where cutting and patching involves addition of reinforcement to structural elements, Contractor shall submit details to show how reinforcement is integrated with the original structure.
 - 10. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

11. Contractor shall minimize effects on University operations and on concurrent operations construction by other contractors.

1.5 QUALITY ASSURANCE

- A. Requirements for Structural Work: Contractor shall not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
 1. Contractor shall obtain approval from the Architect of the cutting and patching proposal before cutting and patching the following structural elements:
 - a. Bearing and retaining walls
 - b. Structural concrete
 - c. Structural steel
 - d. Lintels
 - e. Timber and primary wood framing
 - f. Structural decking
 - g. Stair systems
 - h. Miscellaneous structural metals
 - i. Equipment supports
 - j. Piping, ductwork, vessels and equipment
- B. Operational and Safety Limitations: Contractor shall not cut and patch operating elements or safety-related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
 1. Contractor shall obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety-related systems:
 - a. Primary operational systems and equipment
 - b. Air or smoke barriers
 - c. Water, moisture, or vapor barriers
 - d. Membranes and flashings
 - e. Fire protection systems

- f. Noise and vibration control elements and systems
 - g. Control systems
 - h. Communication systems
 - i. Electrical wiring systems
- A. Visual Requirements: Contractor shall not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Contractor shall remove and replace work cut and patched in a visually unsatisfactory manner.
- B. If possible Contractor shall retain the original installer or fabricator throughout construction phases to cut and patch the following categories of exposed work, or if it is not possible to engage the original installer or fabricator, Contractor shall engage another recognized experienced and specialized firm:
 - 1. Concrete finishes
 - 2. Masonry
 - 3. Stucco and ornamental plaster
 - 4. Acoustical ceilings
 - 5. Painting
 - 6. Wall covering
 - 7. HVAC enclosures, cabinets or covers

PART 2 - PRODUCTS

2.1 PATCHING MATERIALS

- A. Patching Materials, General: As required for original installation and to match surrounding construction.
 - 1. Contractor shall provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing.
 - 2. Generally the Contract Documents will not define products or standards of workmanship present in existing construction; Contractor shall determine products by inspection and necessary testing, and determine quality of workmanship by using existing as a sample for comparison.

3. The presence of a product, finish, or type of construction requires that patching, extending or matching shall be performed as necessary to make work complete and consistent with identical standards of quality.
- B. Patching at Paving: At Portland cement concrete (PCC) paving, Contractor shall use concrete mix with maximum 3/8-inch aggregate and minimum 3000 psi 28-day compressive strength. Contractor shall provide dowels to existing paving with min. 6" penetration into existing surface and reinforce new paving with minimum No. 3 reinforcing steel bars at 16-inches on center each way placed in the vertical center of the slab. Welded wire fabric reinforcement will not be acceptable.
 1. All PCC paving shall be cut and patched from score line to score line and shall match as closely as possible in color and texture of the adjacent finish.
- C. Patching of Lawns and Grasses: Contractor shall restore areas trenched, disturbed or damaged. Contractor shall provide sod or seeded planting mix, to match existing lawn or grass area. Contractor shall properly barricade the area until such time as the planting mix establishes. Refer to sections 01 59 39 – Tree and Plant Protection
- D. Patching of Building Finish Materials: Contractor shall match existing products and finishes. Contractor shall confirm colors, patterns and textures with Architect. Contractor shall custom cut new materials to fit and to match joint patterns with existing materials.
 1. Ceramic tile and acoustical panels: Contractor shall custom cut new materials to size to match existing construction.
- E. Product Substitutions: For each proposed change in materials, Contractor shall submit request for substitution under provisions of Section 01 61 00 - Basic Product Requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination, General: Before cutting existing surfaces, Contractor shall examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Contractor shall take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered. Contractor shall inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

1. Before proceeding, Contractor shall meet at the site with parties involved in cutting and patching, including asbestos abatement, mechanical and electrical trades. Contractor

shall review areas of potential interference and conflict. Contractor shall coordinate procedures and resolve potential conflicts before proceeding.

2. Beginning of cutting or patching shall be interpreted to mean that existing conditions were found by Contractor to be acceptable.

3. After uncovering existing Work, Contractor shall inspect conditions affecting proper accomplishment of Work.

3.2 PREPARATION

A. Temporary Supports: Contractor shall provide supports to ensure structural integrity of the Work. Contractor shall provide devices and methods to protect other portions of Project from damage.

B. Protection: Contractor shall protect existing construction during cutting and patching to prevent damage. Contractor shall provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Contractor shall avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Contractor shall take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

E. Weather Protection: Contractor shall provide protection from elements for areas which may be exposed by uncovering Work. Contractor shall maintain excavations free of water.

3.3 CUTTING AND PATCHING

A. Cutting and Patching, General: Contractor shall execute cutting, fitting, and patching, excavation and fill, as necessary to complete the Work. Contractor shall employ skilled workers to perform cutting and patching. Contractor shall proceed with cutting and patching at the earliest feasible time and complete without delay. Contractor shall:

1. Coordinate installation or application of products for integrated Work. Avoid having to cut and patch new substrates and finishes.

2. Uncover completed Work as necessary to install or apply products out of sequence.

3. Cut, remove and replace defective and non-conforming Work.

4. Cut and patch as necessary to provide openings in the Work for penetration of plumbing, fire protection, HVAC and electrical Work.

5. Where partitions are removed, patch floors, walls, and ceilings with finish materials to match existing.

a. Where removal of partitions results in adjacent spaces becoming

one, re-work floors and ceilings to provide smooth and clean planes without breaks, steps, or bulkheads.

b. Where extreme change of plane of one inch or more occurs, request instructions from Architect as to method of making transition.

6. Trim and refinish existing doors as necessary to clear new floor finishes.

7. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting. Update as-built set with photographs or notations for the actual conditions.

B. Cutting: Contractor shall:

1. Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations. Provide appropriate surfaces to receive final finishing. It is recommended to photograph the existing condition prior to cutting. This photo record shall serve as the pre-cut condition for comparison to the final patched outcome.

2. Execute cutting and patching of weather-exposed, moisture-resistant elements and surfaces exposed to view by methods to preserve weather, moisture and visual integrity.

3. Cut rigid materials using carbide tip saw blades, diamond grit abrasive saw blades, diamond core drills and hole saws, and similar cutters for smooth edges. Do not overcut corners.

a. Core drill holes through concrete and masonry.

b. Pneumatic tools will not be allowed without prior approval.

4. Provide fire and smoke seals at new penetrations to maintain fire rating at all penetrations.

5. Confirm and comply with all Asbestos and lead containing/based paint remedial procedures listed in Section 01 35 01 – Hazardous Material Procedures prior to any disturbance of any existing material.

C. Patching: Contractor shall patch with durable seams that are as invisible as possible. Contractor shall comply with specified tolerances. Contractor shall restore substrates and finishes with products to match existing construction and as specified in product Sections of the Specifications for new construction. Contractor shall:

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform

color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.

a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken containing the patch, after the patched area has received primer and second coat.

4. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

5. Finish surfaces flush and textured to match surrounding finishes.

6. Fit work neat and tight allowing for expansion and contraction.

7. Butt new finished to existing exposed structure, pipes, ducts, conduit, and other penetrations through surfaces.

D. Finishing: Contractor shall refinish surfaces to match adjacent and similar finishes as used for the Project.

1. For continuous surfaces, Contractor shall refinish to nearest intersection or natural break.

2. For an assembly, Contractor shall refinish entire unit.

E. Penetrations at Fire-Rated Construction: At penetrations of fire rated walls, partitions, ceiling, or floor construction, Contractor shall completely seal voids with firestopping and smoke seal material in compliance with an applicable UL-listed assembly, to full thickness of the penetrated element. Refer to [Section 07 84 00 - Firestopping] [Section [No.] - [TITLE]].

F. Restoration and Finishing: Contractor shall finish surfaces to match adjacent and similar finishes as used for the Project.

1. Contractor shall restore Work with new products as specified in individual product Specifications Sections in Divisions 07 and 09.

2. Contractor shall patch and replace any portion of an existing finished surface which is found to be damaged, lifted, discolored, or shows other imperfections, with matching material. Contractor shall:

a. Provide adequate support of substrate prior to patching the finish.

b. Refinish patched portions of painted or coated surfaces in a manner to produce uniform color and texture over the entire surface.

c. When existing surface finish cannot be matched, refinish entire surface to nearest intersections.

G. Transition from Existing to New Construction:

1. When new work abuts or finishes flush with existing work, Contractor shall make a smooth and clean transition. Contractor shall patched work shall match existing adjacent work in texture and appearance so that the patch or transition is invisible at a distance of five feet.

2. When finished surfaces are cut in such a way that a smooth and clean transition with the new work is not possible, Contractor shall notify Architect. Contractor shall terminate existing surface in a neat manner along a straight line at a natural line of division, and

provide trim appropriate to finished surface, or as otherwise directed by Architect.

H. Plaster Installation: Contractor shall comply with manufacturer's instructions and install thickness and coats as indicated.

3.4 CLEANING

A. Cleaning: Contractor shall thoroughly clean areas and spaces where cutting and patching is performed or used as access. Contractor shall remove completely paint, mortar, oils, putty and items of similar nature. Contractor shall thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Contractor shall restore damaged pipe covering to its original condition.

END OF SECTION

SECTION 01 74 00 - CLEANING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Cleaning during construction.
- B. Cleaning for Contract Completion review and final acceptance of the Work.

1.3 RELATED SECTIONS

- A. Additional Requirements: Cleaning for specific products or elements of Work are described in individual product Specification Sections in Divisions 2 through 49. Contractor shall comply also with University's Contractor Safety Handbook.

1.4 SUBMITTALS

- A. Product List: Contractor shall submit complete list of all cleaning agents and materials for University's Representative's review and approval.
- B. Cleaning Procedures: Contractor shall submit description of cleaning processes, agents and materials to be used for final cleaning of the Work. Processes and degree of cleanliness shall be as directed by University's Representative. All cleaning processes, agents and materials shall be subject to University's Representative's review and approval.

1.5 QUALITY ASSURANCE

- A. Cleaning and Disposal Requirements, General: Contractor shall conduct cleaning and disposal operations in compliance with all applicable codes, ordinances and regulations, including environmental protection laws, rules and practices.
- B. Cleaning Workers: Contractor shall employ experienced workers or professional cleaners for final cleaning. Contractor shall clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Contractor shall comply

with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents and Materials: Contractor shall use only those cleaning agents and materials which will not create hazards to health or property and which will not damage or degrade surfaces. Contractor shall:
 - 1. Use only those cleaning agents, materials and methods recommended by manufacturer of the material to be cleaned.
 - 2. Use cleaning materials only on surfaces recommended by cleaning agent manufacturer.

PART 3 - EXECUTION

3.1 CLEANING DURING CONSTRUCTION

- A. Garbage Control: Contractor shall control accumulation of debris, waste materials and rubbish. Contractor shall leave the site each day clean and neat. Contractor shall dispose of debris, waste and rubbish off-site in a legal manner.
- B. Cleaning, General: Contractor shall clean sidewalks, driveways and streets frequently to maintain public thoroughfares free of dust, debris and other contaminants. This shall be at no cost to the University.
- C. Cleaning of Existing Facilities: Contractor shall clean surfaces in existing buildings where alteration and renovation Work is being performed or where other construction activities have caused soiling and accumulation of dust and debris. Contractor shall:
 - 1. Clean dust and soiling from floor surfaces.
 - 2. Clean dust from horizontal and vertical surfaces, including lighting fixtures.
 - 3. Replace HVAC filters.
- D. Parking Area Cleaning: Contractor shall keep parking areas clear of construction debris, especially debris hazardous to vehicle tires.
- E. Thoroughfare Clearing and Cleaning: Contractor shall keep site accessways, parking areas and building access and exit facilities clear of mud, soiling and debris. Contractor shall:
 - 1. Remove mud, soil and debris and dispose in a manner which will not be injurious to persons, property, plant materials and site.
 - 2. Comply with runoff control requirements stated above and as required by governing authorities having jurisdiction.

- F. Cleaning Frequency: At a minimum, Contractor shall clean Work areas and site daily. Contractor shall leave the site each day clean and neat.
- G. Failure to Clean: At any point during the course of Work, should cleaning by Contractor not be sufficient or acceptable to University's Representative, especially regarding paths of travel, University may engage cleaning service to perform cleaning and deduct costs for such cleaning from sums owed to Contractor.

3.2 CONTRACT COMPLETION REVIEW CLEANING, GENERAL

- A. Contract Completion Review Cleaning, General: Contractor shall execute a thorough cleaning prior to Contract Completion review by University's Representative and Architect. Contractor shall complete final cleaning before submitting final Application for Payment. Contractor shall:
 - 1. Conduct cleaning in compliance with regulations of authorities having jurisdiction and industrial safety standards for cleaning.
 - 2. Employ professional building cleaners to thoroughly clean building.
 - 3. Complete cleaning operations specified below before requesting inspection for Certification of Completion. Contractor shall:
 - a. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 - b. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 - c. Clean the site, including landscape development areas, of rubbish, litter and foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits.
- B. Waste Disposal, Contractor shall:
 - 1. Remove waste materials from the site and conduct disposal in a lawful manner.
 - 2. Do not burn waste materials.
 - 3. Do not bury debris or excess materials on the University property.
 - 4. Do not discharge volatile, harmful or hazardous materials into drainage systems.
 - 5. Where extra materials of value remaining after completion of associated work have become the University's property, arrange for disposition of these materials as directed.

3.3 INTERIOR CLEANING

- A. Interior Cleaning, Contractor shall:
 - 1. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program.
 - 2. Remove labels that are not permanent labels.

3. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from all visible interior and exterior surfaces.
 4. Remove dust from all horizontal surfaces not exposed to view, including light fixtures, ledges and plumbing fixtures.
 5. Clean all horizontal surfaces to dust-free condition, including tops of door and window frames, tops of doors and interiors of cabinets and casework.
 6. Remove waste and surplus materials, rubbish and temporary construction facilities, utilities and controls.
- B. Accessories and Fixtures Cleaning: Contractor shall clean building accessories, including toilet partitions, fire extinguisher cabinets, lockers and toilet accessories, all plumbing fixtures and all lighting fixture lenses and trim.
- C. Glass and Mirror Cleaning: Contractor shall clean and polish all glass and mirrors as specified in all Division 08 specifications. Contractor shall remove glazing compound and other substances that are noticeable vision-obscuring materials. Contractor shall replace chipped or broken glass and other damaged transparent materials.
- D. Metalwork: Contractor shall clean and buff all metalwork, to be free of soiling and fingerprints. Mirror finished metalwork shall be buffed to high luster.
- E. Floor Cleaning: Contractor shall clean floors to dust-free condition, free of stains, films and similar foreign substances.

EDIT PRODUCTS AND FINISHES BELOW TO SUIT PROJECT CONDITIONS.

1. Exposed concrete floors: Contractor shall thoroughly sweep and wet mop floors in enclosed spaces. Contractor shall mop concrete floors and, at concrete floors in occupied spaces, apply floor finish as specified for resilient flooring. At unoccupied spaces, Contractor shall leave concrete floors broom clean.
2. Ceramic tile flooring: Contractor shall thoroughly sweep and mop tile flooring. Contractor shall comply with specific requirements in tile and installation materials manufacturers for cleaning materials.
3. Resilient flooring: Contractor shall thoroughly sweep all resilient flooring. Contractor shall damp wash and wax (as appropriate) all resilient flooring. Contractor shall comply with specific requirements in applicable resilient flooring Sections, and notes of the Drawings.
4. Carpet cleaning: Contractor shall comply with accepted industry practices for cleaning commercial carpet, subject to review and acceptance by University's Representative. Contractor shall vacuum, spot clean and generally clean carpet using commercial carpet

cleaning solution, scrubbers and solution extraction-type vacuuming equipment.

- F. Ventilation System Cleaning: Contractor shall replace filters and clean heating and ventilating equipment used for temporary heating, cooling and ventilation.

3.4 EXTERIOR CLEANING

- A. Building Exterior Cleaning: Contractor shall clean exterior of adjacent facilities where construction activities have caused soiling and accumulation of dust and debris. Contractor shall:
 - 1. Remove labels that are not permanent labels.
 - 2. Wash down exterior surfaces to remove dust.
 - 3. Clean exterior surfaces of mud and other soiling.
 - 4. Clean exterior side of windows, storefronts and curtainwalls, including window framing.
- B. Glass and Mirror Cleaning: Contractor shall clean and polish all glass and mirrors as specified in all Division 08 specifications. Contractor shall remove glazing compound and other substances that are noticeable vision-obscuring materials. Contractor shall replace chipped or broken glass and other damaged transparent materials.
- C. Site Cleaning: Contractor shall broom clean exterior paved surfaces. Contractor shall rake clean other surfaces of the grounds. Contractor shall:
 - 1. Wash down and scrub where necessary all paving soiled as a result of construction activities. Thoroughly remove mortar droppings, paint splatters, stains and adhered soil.
 - 2. Remove from the site all construction waste, unused materials, excess soil and other debris resulting from the Work. Legally dispose of waste.

3.5 PEST CONTROL

- A. Pest Control: Contractor shall engage an experienced, licensed exterminator to inspect and rid the project area of insects, rodents and other pests. Pests shall not be allowed to roost, nest or otherwise inhabit the Work at any point during construction. All animal/insect debris shall be promptly cleaned and disposed of in accordance with all applicable regulations to prevent surfaces becoming stained, or compromised in any manner.
 - 1. Exterminator shall prepare and submit report of inspection and extermination.
 - 2. Extermination materials shall comply with applicable pest control regulations and not leave toxic residue harmful to humans.

3.6 CLEANING INSPECTION

- A. Cleaning Inspection: Prior to Final Payment or acceptance by University for partial occupancy or beneficial use of the premises, Contractor and University's Representative shall jointly conduct an inspection of interior and exterior surfaces to verify that entire Work is acceptably

clean. Punchlist shall be utilized for recording any deficiencies.

- B. Inadequate Cleaning: Should final cleaning be inadequate, as determined by University's Representative, and Contractor fails to correct conditions, University may engage cleaning service under separate contract and deduct cost from Contract Sum.

END OF SECTION

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements and procedures for ensuring optimal diversion of construction and demolition (C&D) waste materials generated by the Work from landfill disposal within the limits of the Construction Schedule and Contract Sum.
 - 1. California State law (Public Resources Code sections 40000 *et seq.*) requires the California State University to develop source reduction, re-use, recycling, and composting programs to divert 75% of all solid waste from landfill disposal by 2020. Construction waste materials generated by the Work are targeted to achieve and maintain these diversion rates.
 - 2. The Work of this Contract requires that a minimum of 75% by weight of the construction and demolition materials generated in the Work is diverted from landfill disposal through a combination of re-use and recycling activities.
 - 3. For LEED® projects, requirements for submittal of LEED documentation in compliance with the Materials and Resources category, Construction and Demolition Waste Management credit.
 - 4. Requirements for submittal of Contractor's Construction Waste and Recycling Plan prior to the commencement of the Work.
 - 5. Contractor's quantitative reports for construction waste materials as a condition of approval of the third progress payment.

1.3 DEFINITIONS

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations. A Class III landfill must have a solid waste facilities permit from CalRecycle and is regulated by the Enforcement Agency (EA).
- B. Construction and Demolition Debris: Building materials and solid waste resulting from construction, remodeling, repair, cleanup, or demolition operations that are not hazardous as defined in California Code of Regulations, Title 22, and Section 66261.3 *et seq.* This term includes, but is not limited to, asphalt concrete, Portland cement concrete, brick, lumber, gypsum wallboard, cardboard and other associated packaging, roofing material, ceramic tile, carpeting, plastic pipe,

and steel. The debris may be commingled with rock, soil, tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction or land development projects.

- C. C&D Recycling Center. A facility that receives only C&D material that has been separated for reuse prior to receipt, in which the residual (disposed) amount of waste in the material is less than 10% of the amount separated for reuse by weight.
- D. Disposal. Final deposition of construction and demolition or inert debris into land, including stockpiling onto land of construction and demolition debris that has not been sorted for further processing or resale, if such stockpiling is for a period of time greater than 30 days; and construction and demolition debris that has been sorted for further processing or resale, if such stockpiling is for a period of time greater than one year, or stockpiling onto land of inert debris that is for a period of time greater than one year.
- E. Enforcement Agency. Enforcement agency as defined [i.e. in Public Resources Code 40130].
- F. Inert Disposal Facility or Inert Waste Landfill: A disposal facility that accepts only inert waste such as soil and rock, fully cured asphalt paving, uncontaminated concrete (including fiberglass or steel reinforcing rods embedded in the concrete), brick, glass, and ceramics, for land disposal.
- G. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- H. Mixed Debris Recycling Facility: A processing facility that accepts loads of commingled construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing the non-recyclable residual materials.
- I. Recycling: The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
- J. Reuse. The use, in the same or similar form as it was produced, of a material which might otherwise be discarded.
- K. Separated for Reuse. Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream for the purpose of additional sorting or processing those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace, and includes materials that have been "source separated."
- L. Solid Waste: All putrescible and non-putrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes. "Solid waste" does not include hazardous waste, radioactive waste, or medical waste as defined or regulated by State law.

- M. Source-Separated: Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream at the point of generation for the purpose of additional sorting or processing of those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.
- N. Waste Hauler: A company that possesses a valid permit from the local waste management authority to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal in the locality.

1.4 SUBMITTALS

A. Contractor's Construction Waste and Recycling Plan

1. Review Contract Documents and estimate the types and quantities of materials under the Work that are anticipated to be feasible for on-site processing, source separation for re-use or recycling. Indicate the procedures that will be implemented in this program to effect jobsite source separation, such as, identifying a convenient location where dumpsters would be located, putting signage to identify materials to be placed in dumpsters, etc.
2. Prior to commencing the Work, submit Contractor's Construction Waste and Recycling Plan. Submit in format provided (**Section 01 74 19A**). The Plan must include, but is not limited to the following:
 - a. Contractor's name and project identification information;
 - b. Procedures to be used;
 - c. Materials to be re-used and recycled;
 - d. Estimated quantities of materials;
 - e. Names and locations of re-use and recycling facilities/sites;
 - f. Tonnage calculations that demonstrate that Contractor will re-use and recycle a minimum 65% by weight of the construction waste materials generated in the Work.
3. Contractor's Construction Waste and Recycling Plan must be approved by the Construction Administrator prior to the start of Work.
4. Contractor's Construction Waste and Recycling Plan will not otherwise relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures.

B. Contractor's Reuse, Recycling, and Disposal Report

1. Submit Contractor's Reuse, Recycling, and Disposal Report on the form provided (**Section 01 74 19B**) with each application for progress payment. Failure to submit the form and its supporting documentation will render the application for progress payment incomplete and delay progress payments. If applicable, include manifests, weight tickets, receipts, and invoices specifically identifying the Project for re-used and recycled materials:
 - a. Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick).
 - b. Salvaging building materials or salvage items at an off-site salvage or reuse center (i.e. lighting, fixtures).
 - c. Recycling source separated materials on site (i.e. crushing asphalt/ concrete for base course, or grinding for mulch).

- d. Recycling source separated material at an offsite recycling center (i.e. scrap metal or green materials).
 - e. Use of material as Alternative Daily Cover (ADC) at landfills.
 - f. Delivery of soils or mixed inert material to an inert landfill for disposal (inert fill).
 - g. Disposal at a landfill or transfer station (where no recycling takes place).
 - h. Other (describe).
 2. Contractor's Reuse, Recycling, and Disposal Report must quantify all materials generated in the Work, disposed in [Class III] landfills, or diverted from disposal through recycling. Indicate zero (0) if there is no quantity to report for a type of material.
 3. As indicated on the form:
 - a. Report disposal or recycling either in tons or in cubic yards: if scales are available at disposal or recycling facility, report in tons; otherwise, report in cubic yards. Report in units for salvage items when no tonnage or cubic yard measurement is feasible.
 - b. Indicate locations to which materials are delivered for reuse, salvage, recycling, accepted as daily cover, inert backfill, or disposal in landfills or transfer stations.
 - c. Provide legible copies of weigh tickets, receipts, or invoices that specifically identify the project generating the material. Said documents must be from recyclers and/or disposal site operators that can legally accept the materials for the purpose of re-use, recycling, or disposal.
 4. Indicate project title, project number, progress payment number, name of the company completing the Contractor's Report and compiling backup documentation, the printed name, signature, and daytime phone number of the person completing the form, the beginning and ending dates of the period covered on the Contractor's Report, and the date that the Contractor's Report is completed.
- C. For LEED Projects, complete the LEED Construction and Demolition Waste Management Calculator in format provided under the most current version of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. Include a signed cover letter with calculation summary on company letterhead.
 1. Certify that the project has completed a waste management plan and diverted construction, demolition, and land clearing waste to uses other than landfill.
 2. Provide quantities of diverted materials and means of diversion in accordance with the results table in the LEED Construction and Demolition Waste Management Calculator.
 3. Indicate how and where waste was diverted.
 4. Indicate quantities of waste diverted in tons [or cubic yards].
 5. Letter will also include: Total quantity of diverted waste, total quantity of waste, and the percentage of waste diverted.
 6. Include name, organization, and role in project. Provide signature and date completed.
 7. Include legible copies of weigh tickets, receipts, or invoices that specifically identify the project generating the material. Said documents must be from recyclers and/or disposal site operators that can legally accept the materials for the purpose of re-use, recycling, or disposal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SALVAGE, RE-USE, RECYCLING AND PROCEDURES

- A. Identify re-use, salvage, and recycling facilities.
- B. Develop and implement procedures to re-use, salvage, and recycle new construction and excavation materials, based on the Contract Documents, the Contractor's Construction Waste and Recycling Plan, estimated quantities of available materials, and availability of recycling facilities. Procedures may include on-site recycling, source separated recycling, and/or mixed debris recycling efforts.
 - 1. Identify materials that are feasible for salvage, determine requirements for site storage, and transportation of materials to a salvage facility.
 - 2. Source separate new construction, excavation and demolition materials including, but not limited to the following types:
 - a. Asphalt.
 - b. Concrete, concrete block, slump stone (decorative concrete block), and rocks.
 - c. Drywall.
 - d. Green materials (i.e. tree trimmings and land clearing debris).
 - e. Metal (ferrous and non-ferrous).
 - f. Miscellaneous construction debris.
 - g. Paper or cardboard.
 - h. Red clay brick.
 - i. Reuse or salvage materials
 - j. Soils.
 - k. Wire and cable.
 - l. Wood.
 - m. Other (describe)
 - 3. Miscellaneous Construction Debris: Develop and implement a program to transport loads of mixed (commingled) new construction materials that cannot be feasibly source separated to a mixed materials recycling facility.

3.2 DISPOSAL OPERATIONS AND WASTE HAULING

- A. Legally transport and dispose of materials that cannot be delivered to a source separated or mixed recycling facility to a transfer station or disposal facility that can legally accept the materials for the purpose of disposal.
- B. Use a permitted waste hauler or Contractor's trucking services and personnel. To confirm valid permitted status of waste haulers, contact the local solid waste authority.
- C. Become familiar with the conditions for acceptance of new construction, excavation and demolition materials at recycling facilities, and prior to delivering materials.

- D. Deliver to facilities that can legally accept new construction, excavation and demolition materials for purpose of re-use, recycling, composting, or disposal.
- E. Do not burn, bury or otherwise dispose of solid waste on the project job-site.

3.3 RE-USE AND DONATION OPTIONS

Implement a re-use program to the greatest extent feasible. Options may include:

California Materials Exchange (CAL-MAX) is a free program sponsored by CalRecycle and is designed to help connect businesses, organizations, manufacturers, schools, and individuals with the most effective online resources for exchanging materials. Go to <http://www.calrecycle.ca.gov/CalMAX/>. Public Surplus is a government agency surplus auction system used by many universities. Go to <https://www.publicsurplus.com> for more information.

3.4 REVENUE

Revenues or other savings obtained from recycled, re-used, or salvaged materials shall accrue to Contractor unless otherwise noted in the Contract Documents.

END OF SECTION 01 74 19

SECTION 01 74 19 – Construction Waste Management – Instruction to Project Manager

For each facility renovation project, the Project Manager will coordinate with the contractor or personnel to discuss the scope of the renovation.

- The scope of the renovation must be determined and the materials to be used and discarded during the renovation must be identified. Packaging will be a consideration in the materials that will be discarded.
- The approximate volume of each type of waste will be broken out. Separate categories may include cardboard, wood products and cabinetry, drywall, tile, etc.
- From this material flow, the five largest waste categories will be determined.
 - The Project Manager will coordinate proper waste disposal and landfill diversion for these waste categories. This will involve contacting the appropriate vendors, scheduling haul dates, and ensuring properly sized storage areas for the construction waste.
 - If necessary, a separate secured storage area will be secured for hazardous waste, such as paint.
 - Once the waste disposal has been coordinated, the renovation manager will write waste disposal instructions for each waste category and will distribute to the appropriate vendors.
- For regular maintenance activities, the facility manager will ensure that the proper materials are recycled or composted.

For all work, including renovation and maintenance, document solid waste disposal and diversion. Include the quantity by weight of waste generated; waste diverted through sale, reuse, or recycling; and waste disposed by landfill or incineration. Identify landfills, recycling centers, waste processors, and other organizations that process or receive the solid waste.

SECTION 01 74 19A
CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN

(Submit After Award of Contract and Prior to Start of Work)

Project Title:		
Contract or Work Order No.:		
Contractor's Name:		
Street Address:		
City:	State:	Zip:
Phone: ()	Fax: ()	
E-Mail Address:		
Prepared by: (Print Name)		

Date Submitted:		
Project Period:	From:	TO:

Reuse, Recycling or Disposal Processes To Be Used

Describe the types of recycling processes or disposal activities that will be used for material generated in the project. Indicate the type of process or activity by number, types of materials, and estimated quantities that will be recycled or disposed in the sections below:

- 01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)
- 02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)
- 03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)
- 04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green matls)
- 05 - Recycling commingled loads of C&D matls at an off site mixed debris recycling center or transfer station
- 06 - Recycling material as Alternative Daily Cover at landfills
- 07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).
- 08 - Disposal at a landfill or transfer station.
- 09 - Other (please describe) _____

Types of Material To Be Generated

Use these codes to indicate the types of material that will be generated on the project

A = Asphalt C = Concrete M = Metals I = Mixed Inert G = Green Matls
D = Drywall P/C=Paper/Cardboard W/C = Wire/Cable S= Soils (Non Hazardous)
M/C = Miscellaneous Construction Debris R = Reuse/Salvage W = Wood O = Other (describe)

Facilities Used: Provide Name of Facility and Location (City)

Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period

Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).

SECTION I - RE-USED/RECYCLED MATERIALS

Include all recycling activities for source separated or mixed material recycling centers where recycling will occur.

Type of Material	Type of Activity	Facility to be Used, Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) M	04	ABC Metals, Los Angeles	24	355		
a. Total Diversion			-	-	-	-

SECTION 01 74 19A
CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN
Continued

SECTION II - DISPOSED MATERIALS						
<i>Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling will occur.</i>						
Type of Material	Type of Activity	Facility to be Used, Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) D	08	DEF Landfill, Los Angeles	2	35		
b. Total Disposal				-	-	-

SECTION III - TOTAL MATERIALS GENERATED						
<i>This section calculates the total materials to be generated during the project period (Reuse/Recycle + Disposal = Generation)</i>						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				-	-	-
b. Total Disposed				-	-	-
c. Total Generated				-	-	-

SECTION IV - CONTRACTOR'S LANDFILL DIVERSION RATE CALCULATION						
<i>Add totals from Section I + Section II</i>						
	Tons	Cubic Yards	Other Wt.			
a. Materials Re-Used and Recycled	-					
b. Materials Disposed	-					
c. Total Materials Generated (a. + b. = c.)	-	-	-			
d. Landfill Diversion Rate (Tons Only)*	#DIV/0!					

* Use tons only to calculate recycling percentages: Tons Reused/Recycled/Tons Generated = % Recycled

Contractor's Comments (Provide any additional information pertinent to planned reuse, recycling, or disposal activities):

Notes:

1. Suggested Conversion Factors: From Cubic Yards to Tons (Use when scales are not available)

Asphalt: .61 (ex. 1000 CY Asphalt = 610 tons. Applies to broken chunks of asphalt)

Concrete: .93 (ex. 1000 CY Concrete = 930 tons. Applies to broken chunks of concrete)

Ferrous Metals: .22 (ex. 1000 CY Ferrous Metal = 220 tons)

Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons)

Drywall Scrap: .20

Wood Scrap: .16

SECTION 01 74 19B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT
(Submit With Each Progress Payment)

Project Title:		
Contract or Work Order No.:		
Contractor's Name:		
Street Address:		
City:	State:	Zip:
Phone: ()	Fax: ()	
E-Mail Address:		
Prepared by: (Print Name)		

Date Submitted:		
Period Covered:	From:	To:

Reuse, Recycling or Disposal Processes Used

Describe the types of recycling processes or disposal activities used for material generated in the project. Indicate the type of process or activity by number, types of materials, and quantities that were recycled or disposed in the sections below:

01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)
02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)
03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)
04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green matls)
05 - Recycling commingled loads of C&D matls at an off site mixed debris recycling center or transfer station
06 - Recycling material as Alternative Daily Cover at landfills
07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).
08 - Disposal at a landfill or transfer station.
09 - Other (please describe) _____

Types of Material Generated

Use these codes to indicate the types of material that were generated on the project

A = Asphalt C = Concrete M = Metals I = Mixed Inert G = Green Matls
D = Drywall P/C=Paper/Cardboard W/C = Wire/Cable S= Soils (Non Hazardous)
M/C = Miscellaneous Construction Debris R = Reuse/Salvage W = Wood O = Other (describe)

Facilities Used: Provide Name of Facility and Location (City)

Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period

Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).

SECTION I - RE-USED/RECYCLED MATERIALS

Include all recycling activities for source separated or mixed material recycling centers where recycling occurred.

Type of Material	Type of Activity	Facilities Used, Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) M	04	ABC Metals, Los Angeles	24	355		
a. Total Diversion			-	-	-	-

SECTION 01 74 19B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT
Continued

SECTION II - DISPOSED MATERIALS						
<i>Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling occurred.</i>						
Type of Material	Type of Activity	Facilities Used, Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) D	08	DEF Landfill, Los Angeles	2	35		
b. Total Disposal				-	-	-

SECTION III - TOTAL MATERIALS GENERATED						
<i>This section calculates the total materials generated during the project period (Reuse/Recycle + Disposal = Generation)</i>						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				-	-	-
b. Total Disposed				-	-	-
c. Total Generated				-	-	-

SECTION IV - CONTRACTOR'S LANDFILL DIVERSION RATE CALCULATION						
<i>Add totals from Section I + Section II</i>						
	Tons	Cubic Yards	Other Wt.			
a. Materials Re-Used and Recycled	-					
b. Materials Disposed	-					
c. Total Materials Generated (a. + b. = c.)	-	-	-			
d. Landfill Diversion Rate (Tons Only)*	#DIV/0!					

* Use tons only to calculate recycling percentages: Tons Reused/Recycled/Tons Generated = % Recycled

Contractor's Comments (<i>Provide any additional information pertinent to planned reuse, recycling, or disposal activities</i>):						

Notes:

- Suggested Conversion Factors: From Cubic Yards to Tons (Use when scales are not available)
 Asphalt: .61 (ex. 1000 CY Asphalt = 610 tons. Applies to broken chunks of asphalt)
 Concrete: .93 (ex. 1000 CY Concrete = 930 tons. Applies to broken chunks of concrete)
 Ferrous Metals: .22 (ex. 1000 CY Ferrous Metal = 220 tons)
 Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons)
 Drywall Scrap: .20
 Wood Scrap: .16

SECTION 01 75 00 - STARTING AND ADJUSTING PROCEDURES

*****THIS
SECTION REQUIRES DEVELOPMENT, RELATED TO COMMISSIONING ACTIVITIES, REQUIREMENTS
SPECIFIED IN DIVISIONS 13, 14, 23 AND 26, AND SECTION 01 79 00 – DEMONSTRATION AND
TESTING (IF USED). MODIFY THIS SECTION TO COORDINATE WITH CAMPUS Cx AGENT
REQUIREMENTS.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Starting systems.
- B. Demonstration and instructions.
- C. Testing, adjusting, and balancing.

1.3 RELATED SECTIONS

- A. Section 01 45 00 - Quality Control: Manufacturers field reports.
- B. Section 01 78 03 - Operation and Maintenance Data: System operation and maintenance data and extra materials.
- C. Section 01 79 00 – Demonstration and Testing

1.4 STARTING SYSTEMS

- A. Contractor shall coordinate schedule for start-up of various equipment and systems.
- B. Contractor shall notify University's Representative, Architect and Project Inspector in writing at least seven calendar days prior to start-up of each item.

- C. Contractor shall verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Contractor shall verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Contractor shall verify that wiring and support components for equipment are complete and tested.
- F. Contractor shall execute start-up under supervision of applicable manufacturer's representative and/or Contractor's personnel in accordance with manufacturer's instructions.
- G. When specified in individual specification Sections, Contractor shall require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Contractor shall submit a written report in accordance with Section 01 33 00 - Submittals Procedures that equipment or system has been properly installed and is functioning correctly.

1.5 DEMONSTRATION AND INSTRUCTIONS

- A. Contractor shall demonstrate operation and maintenance of Products to University's personnel at least two weeks prior to date of Contract Completion review.
- B. Contractor shall demonstrate Project equipment and instruct in a classroom environment located at the University. The instruction shall be done by a qualified manufacturers' representative who is knowledgeable about the Project.
- C. For equipment or systems requiring seasonal operation, Contractor shall perform demonstration for other season within six months of completion or, if possible, artificially create a load in the building.
- D. Contractor shall utilize operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with University's personnel in detail to explain all aspects of operation and maintenance.
- E. Contractor shall demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled agreed time and at equipment/designated location.
- F. Contractor shall prepare and insert additional data in operations and maintenance manuals

when need for additional data becomes apparent during instruction.

- G. The amount of time required for instruction on each item of equipment and system is that specified in individual sections. If no time is specified in individual sections, Contractor shall include in his/her bid sum a reasonable sum to perform instruction to the satisfaction of the University.

1.6 TESTING, ADJUSTING, AND BALANCING

- A. Testing Agency: Contractor shall appoint, employ, and pay for services of an independent firm to perform testing, adjusting and balancing.
- B. Reports will be submitted by the independent firm to University's Representative, Architect and Project Inspector indicating observations and results of tests and indicating compliance or non-compliance with the requirements of the Contract Documents.
- C. University reserves the right to hire its own independent testing and balancing company to check the work and the report submitted by the Contractor's testing and balancing firm.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION

SECTION 01 77 00 - CONTRACT CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Contract closeout procedures, including Contract Closeout meetings, correction ("punch") lists, submittals and final payment procedures.

1.3 RELATED SECTIONS

- A. Section 01 33 00 - Submittals Procedures: General requirements for submittals.
- B. Section 01 74 00 - Cleaning Requirements: Progress cleaning and cleaning as part of Contract closeout.
- C. Section 01 78 33 - Warranties and Bonds: Documents to be submitted as part of Contract closeout.
- D. Section 01 78 39 - Project Record Documents: Project record drawings and specifications to be submitted as part of Contract closeout; operation and maintenance data to be submitted as part of Contract closeout.

1.4 FINAL COMPLETION ACTIONS

- A. Contractor Responsibility: Contractor shall be solely responsible for the timely completion of all required Contract closeout items except for filing of Notice of Completion by the Trustees.
- B. Warranties, Bonds and Certificates: Contractor shall submit specific warranties, guarantees, workmanship bonds, maintenance agreements, final certifications and similar documents.
- C. Locks and Keys: Contractor shall change temporary lock cylinders over to permanent keying and transmit keys to Trustees, unless otherwise directed or specified.
- D. Tests and Instructions: Contractor shall complete start-up testing of systems, and instruction

of the University's personnel. Contractor shall remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

1.5 CONTRACT COMPLETION REVIEW

- A. Contractor's Notification for Contract Completion Review Meeting: When the Contractor determines that the Work is complete in accordance with Contract Documents, the Contractor shall submit to University's Representative and Architect written certification that the Contract Documents have been reviewed, the Work has been inspected by the Contractor and by authorities having jurisdiction, and the facility is ready for the Contract Completion review.
- B. Contract Completion Review Meeting: University's Representative and, as authorized by the Trustees, Architect and Architect's and Trustees' representatives and consultants, as appropriate, will attend a meeting at the Project site to review Contract closeout procedures and to review the items to be completed and corrected Punch List to make the Work ready for acceptance by the Trustees. This meeting shall be typically scheduled four to six weeks prior to scheduled completion date.
- C. Punch List: Architect shall prepare subsequent to the Contract completion review meeting, a typewritten, comprehensive list of items to be completed and corrected (Punch List) to make the Work ready for acceptance by the Trustees.
 - 1. The Punch List shall include all items to be completed or corrected prior to the Contractor's application for final payment.
 - 2. The Punch List shall identify items by location (room number or name) and consecutive number. For example, 307-5 would identify item 5 in Room 307, Roof-4 would identify item 4 on Roof.
 - 3. Architect and Architect's consultants shall prepare separate lists according to categories used for Drawings. For example, provide lists for Architectural, Structural, Mechanical (HVAC), Plumbing, Fire Protection (sprinkler) system, Electrical and Equipment. But all lists shall be compiled by the Architect into the all inclusive Master Punch List.
 - 4. Items to be considered shall include but not be limited to:
 - Corrections to construction.
 - Operation and maintenance data (manuals).
 - HVAC testing and balancing reports.
 - Spare parts and extra materials.
 - Keys, permanent keying and lock cylinders.
 - Warranties and guaranties.
 - Project record Drawings and Specifications.
 - Project record construction schedule.
 - State Fire Marshal Inspection.
 - Elevator Inspection (if applicable).
 - Other regulatory inspections.
 - Removal of construction facilities and temporary controls.

Final cleaning and pest control.
Landscape maintenance.
Commissioning/equipment startup.
Demonstration and training.
Acceptance.
Notice of Completion, filing by Trustees.
Final application for payment.
Occupancy by University.
Other closeout items specified.

- D. Contract Completion Meeting: On a date mutually agreed by University's Representative, Architect and Contractor, a meeting shall be conducted at the Project site to determine whether the Work is satisfactory and has achieved Contract Completion.
1. Contractor shall provide a minimum seven calendar days written notice to the University's Representative and Architect for requested date of Contract Completion meeting.
 2. Architect and the Architect's consultants will attend the Contract Completion meeting.
 3. In addition to conducting a walk-through of the facility and reviewing the Punch List, the purpose of the meeting shall include submission of warranties, guarantees and bonds to University, submission of operation and maintenance data (manuals), provision of specified extra materials to University, and submission of other Contract closeout documents and materials as required and if not already submitted.
 4. Architect and Architect's consultants, as appropriate, will conduct a walk-through of the facility with the University's Representative and Contractor to review the Punch List.
 5. Architect shall update the Punch List and record additional items as may identified during the walk-through, including notations of corrective actions to be taken.
 6. Architect shall retype the Punch List and distribute it within five calendar days to those attending the meeting.
- E. Uncorrected Work: Refer to requirements specified in Section 01 45 00 - Quality Control regarding Contract adjustments for non-conforming Work.
- F. Clearing and Cleaning: Prior to the Contract Completion review, Contractor shall conduct a thorough cleaning and clearing of the Project area, including removal of construction facilities and temporary controls. Refer to Section 01 74 00 - Cleaning Requirements.
- G. Inspection and Testing: Prior to the Contract Completion review, Contractor shall complete inspection and testing required for the Work, including securing of approvals by authorities having jurisdiction.
1. Complete all inspections, tests, balancing, sterilization and cleaning of plumbing and HVAC systems.
 2. Complete inspections and tests of electrical power and signal systems.
 3. Complete inspections and tests of conveying (elevator) systems.
- H. Notice of Completion: University will record the Notice of Completion with County Recorder,

when the Project is complete in all respects.

1.6 FINAL COMPLETION SUBMITTALS

- A. Final Completion Submittals: Prior to application for Final Payment, Contractor shall submit the following.
- B. Agency Document Submittals: Contractor shall submit to University all documents required by authorities having jurisdiction, including serving utilities and other agencies. Contractor shall submit original versions of all permit cards, with final sign-off by inspectors. Submit all certifications of inspections and tests.
- C. Final Specifications Submittals: Contractor shall submit to University all documents and products required by Specifications to be submitted, including the following:
 - 1. Project record drawings and specifications.
 - 2. Operating and maintenance data.
 - 3. Guarantees, warranties and bonds.
 - 4. Keys and keying schedule.
 - 5. Spare parts and extra stock.
 - 6. Test reports and certificates of compliance.
- D. Certificates of Compliance and Test Report Submittals: Contractor shall submit to University's Representative certificates and reports as specified and as required by authorities having jurisdiction, including but not limited to the following:

EDIT SUBPARAGRAPHS BELOW TO SUIT PROJECT REQUIREMENTS.

- 1. Sterilization of water systems.
 - 2. Sanitary sewer system tests.
 - 3. Gas system tests.
 - 4. Lighting, power and signal system tests.
 - 5. Ventilation equipment and air balance tests.
 - 6. Fire sprinkler system tests.
 - 7. Roofing inspections and tests.
- E. Subcontractors List: Contractor shall submit two copies of updated Subcontractor and Materials Supplier List to University's Representative and one copy to Architect.
- F. Warranty Documents: Contractor shall prepare and submit to University all warranties and bonds as specified in Section 01 78 33 - Product Warranties and Bonds.
- G. Service Agreements and Service Contracts: Contractor shall submit to University's Representative.

- H. Contractor shall submit final electrical and water meter readings. Refer to section 01 51 00 – Temporary Utilities.

1.7 FINAL PAYMENT

- A. Final Payment: After completion of all items listed for completion and correction and after submission of all documents and products and after final cleaning, Contractor shall submit final Application for Payment, identifying total adjusted Contract Sum, previous payments and sum remaining due. Payment will not be made until the following are accomplished:
1. All Project Record Documents have been received and accepted by the Architect and the University.
 2. All extra materials and maintenance stock have been transferred and accepted by University.
 3. All warranty documents and operation, maintenance data, service agreements, maintenance contracts and salvage materials have been received and accepted by University's Representative.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Format and content of operation and maintenance manuals.
 - 1. Data requirements for materials and finishes.
 - 2. Data requirements for equipment and operating systems.
- B. Instruction of University's personnel.
- C. Submission of operation and maintenance manuals.

1.3 RELATED SECTIONS

- A. Section 01 31 00 - Coordination: Coordination documents and models prepared for performance of the Work, to be incorporated into operation and maintenance data submitted to University's Representative at Contract closeout.
- B. Section 01 45 00 - Quality Control: Manufacturer's instructions; test and balance reports.
- C. Section 01 61 00 - Basic Product Requirements: Systems demonstration.
- D. Section 01 77 00 - Contract Closeout Procedures: Contract closeout procedures.
- E. Section 01 78 33 - Product Warranties and Bonds: Requirements for warranties and bonds.
- F. Section 01 78 39 - Project Record Documents: Submission of Project record documents.
- E. Product Specifications Sections in Divisions 2 through 49: Specific requirements for operation and maintenance data.

1.4 QUALITY ASSURANCE

- A. Contractor shall ensure that preparation of data shall be done by persons:
 - 1. Trained and experienced in maintenance and operation of the described products.
 - 2. Familiar with requirements of this Section.
 - 3. Skilled in technical writing to the extent required to communicate essential data.
 - 4. Skilled as drafters competent to prepare required drawings.

1.5 FORMAT AND CONTENT OF OPERATION AND MAINTENANCE MANUALS

- A. Format for Operation and Maintenance Data Manuals: Contractor shall prepare data in the form of an instructional manual. Contractor shall comply with the general requirements specified below and comply with specific requirements for types of products in Articles following. See Article titled "SUBMISSION OF OPERATION AND MAINTENANCE MANUALS" for number of copies of manuals.
 - 1. The Contractor shall also use and submit 01 78 23 O&M Transition Planning Form.
- B. Operation and Maintenance Data Organization: Contractor shall organize operation and maintenance data in three-ring binders and organize the contents of each binder following the organization of the Contract Specifications. Contractor shall:
 - 1. Organize the group of binders and the contents of individual binders in sequence according to the Section numbers and titles as listed in the Table of Contents of the Project Manual. Number the binders consecutively; coordinate with Paragraph below titled "Tables of Contents."
 - 2. Organize each binder with color-coded tabbed dividers for each distinct product and system, with typed inserts in tabs identifying the product or system.
 - 3. Organize the contents of each tabbed division according to the Article headings in PART 2 - PRODUCTS in each product Specification Section.
 - a. Within each tabbed division, organize the information according to major component parts of equipment and systems, as applicable, and to facilitate locating information.
 - b. Separate operation and maintenance data for each product under separate tabbed divisions, where feasible.
 - c. Within each tabbed division, include a cover sheet identifying the specific products and component parts included in the tabbed division.
 - 4. If the products of more than one Specification Section are included in the binder, provide separate, heavy cover stock dividers to separate information for each Section.
- C. Binders: Contractor shall use 8-1/2 x 11 inch, standard three-ring binders with heavy duty vinyl covers with hard cardboard backing, black color, with provision on binder spine for inserting identification card; Maximum binder ring size shall be three inches. Contractor shall use multiple binders as necessary to avoid overfilling. When multiple binders are used, Contractor shall correlate data into related consistent groupings.

- D. Cover: Contractor shall identify each binder with typed or printed card inserted on binder spine, stating OPERATION AND MAINTENANCE DATA, the Project name and the general subject matter of the contents of the binder.
- E. Title Page: In each volume (binder) of operation and maintenance data, Contractor shall include a title page with the following:
 - 1. Name of the Project.
 - 2. Names, addresses and telephone numbers of the responsible design professionals (Architect and Architect's or University's consultant, as applicable).
 - 3. Name, address and telephone numbers of Contractor, including names of contact persons.
- F. Table of Contents: In each volume (binder) of operation and maintenance data, Contractor shall include a listing of the contents of the volume. In a separate, first binder, Contractor shall provide a master Table of Contents of operation and maintenance data, identifying the product and systems, the applicable Specification Section number and title, and the operation and maintenance data binder number.
- G. Schedule of Products and Systems: In the first volume of the set of operation and maintenance data, Contractor shall include a schedule of products and systems, indexed to the Table of Contents of the volumes (binders) and cross-referenced to the Contract Drawings and Specifications.
- H. Operation and Maintenance Data: In each tabbed division of operation and maintenance data for each product or system, Contractor shall provide the following:
 - 1. On a cover page for each tabbed division, Contractor shall provide the following:
 - a. Identify by name, address and telephone number, the manufacturer, supplier and installer. Include names of contact persons, if known.
 - b. Identify by name, address and telephone number, local sources of supplies, replacement parts and factory-authorized service.
 - 2. Within each tabbed division, Contractor shall include complete operation and maintenance data as published by the product manufacturer where feasible. Otherwise, present all data neatly typewritten on 20 pound, correspondence quality bond paper. Contractor shall strike-through information on printed literature where not applicable.
 - 3. Contractor shall supplement the manufacturer's printed data with neatly typewritten text and professionally drafted diagrams as necessary to suit the particular installation for the Project and to fully explain operation and maintenance procedures. Contractor shall provide logical sequence of instructions for each procedure.
- I. Drawings: Contractor shall supplement operation and maintenance data to illustrate configurations and relationships of component parts of equipment and systems, and to show

control and flow diagrams, as applicable.

1. Contractor shall not use Project Record Documents as maintenance drawings.
 2. Contractor shall neatly fold drawings to size of text pages and provide reinforced, punched binding edge. Add binding strip as necessary to avoid punching through drawing content.
- J. Additional Data: As specified in individual product Specification Sections.
- K. Warranty and Guaranty: Contractor shall include copy of each warranty, and any guaranty, bond and service contract issued. Contractor shall provide information sheet identifying:
1. Proper procedures in event of failure.
 2. Instances that might affect validity of warranties or bonds.
- L. Material Safety Data Sheet (MSDS): For products requiring MSDS, according to CCR Title 8 and the University Contractor Safety Handbook, Contractor shall include copy of each applicable Material Safety Data Sheet (MSDS) for products delivered to the site and incorporated into the completed construction.

1.6 DATA REQUIREMENTS FOR MATERIALS AND FINISHES

- A. Data for Building Products, Applied Materials and Finishes: Contractor shall include product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured Products.
- B. Instructions for Care and Maintenance: Contractor shall include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Data for Moisture Protection and Weather-Exposed Products: Contractor shall include product data listing applicable reference standards, chemical composition, and details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual product Specification Sections.

1.7 DATA REQUIREMENTS FOR EQUIPMENT AND OPERATING SYSTEMS

- A. Data for Equipment and Operating Systems: Contractor shall include description of each unit or system, and component parts.
1. Include manufacturer's printed operation and maintenance instructions.
 2. Identify function, normal operating characteristics and limiting conditions.
 3. Include performance curves, with engineering data and tests.
 4. Include sequence of operation by controls manufacturer, as applicable.

5. Provide diagrams by controls manufacturer for control systems, as applicable and as installed.
- B. Piping Data: Contractor shall provide Contractor's coordination drawings, with piping diagrams as installed. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams. Contractor shall color code diagrams as necessary for clarity.
- C. Reports: Contractor shall include test and balancing reports, as applicable and as specified in individual product Specification Sections.
- D. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls and communications.
- E. Wiring Diagrams: Contractor shall include diagrams of wiring as installed, with color coding as necessary for clarity.
- F. Operating Procedures: Contractor shall include:
 1. Start-up, break-in, and routine normal operating instructions and sequences.
 2. Regulation, control, stopping, shut-down, and emergency instructions.
 3. Summer and winter operating instructions.
 4. Special operating instructions.
- G. Maintenance Requirements: Contractor shall include:
 1. Routine maintenance procedures and guide for trouble-shooting.
 2. Disassembly, repair, and reassembly instructions.
 3. Alignment, adjusting, balancing, and checking instructions.
- H. Servicing and Lubrication: Contractor shall provide servicing and lubrication schedule, and list of lubricants required.
- I. Parts Data: Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams as necessary for service and maintenance. Contractor shall:
 1. Include complete nomenclature and catalog numbers for consumable and replacement parts.
 2. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in stock by the University or operator.
- J. Software: Contractor shall provide all programming codes, access codes and other data necessary for operation, maintenance, future functioning and modifications of microprocessor-controlled products, independent of Original Equipment Manufacturer (OEM).

- K. Additional Requirements: As specified in individual product Specification Sections.

1.8 DATA REQUIREMENTS FOR ELECTRIC AND ELECTRONIC SYSTEMS

- A. Data Requirements for Electrical and Electronic Systems: Contractor shall provide description of each system and component parts, including:
1. Function, normal operating characteristics and limiting conditions.
 2. Performance curves, engineering data and tests.
 3. Complete nomenclature and commercial number of replaceable parts.
- B. Circuit Directories of Panel Boards: Contractor shall include:
1. Electrical service.
 2. Controls.
 3. Communications.
- C. Wiring Diagrams: As-installed, color-coded wiring diagrams.
- D. Operating procedures: Contractor shall provide:
1. Routine and normal operating instructions.
 2. Sequences required.
 3. Special operating instructions.
- E. Maintenance procedures: Contractor shall provide:
1. Routine operations.
 2. Guide to "trouble-shooting."
 3. Disassembly, repair and reassembly.
 4. Adjustment and checking.
- F. Contractor shall provide Manufacturer's printed operating and maintenance instructions.
- G. Contractor shall provide list of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.
- H. Contractor shall prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
- I. Additional requirements for operating and maintenance data: Respective sections of specifications.

1.9 INSTRUCTION OF UNIVERSITY'S PERSONNEL

- A. Instruction of University's Personnel: Prior to Contract Completion review, Contractor shall complete instruction of University's designated personnel in the operation, adjustment and

routine cleaning, service and maintenance of products, equipment, and systems. Contractor shall schedule indoctrination and training sessions at times acceptable to University. Contractor shall coordinate with requirements specified in Section 01 79 00 - Demonstration and Training.

- B. Basis for Instruction: Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- C. Instructional Material: Contractor shall prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.10 SUBMISSION OF OPERATION AND MAINTENANCE MANUALS

- A. Submittal: Contractor shall submit six copies to Architect for review and approval prior to submission of final Application for Payment.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION

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SECTION 01 78 29 - SURVEY AND LAYOUT DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Administrative requirements for survey and layout data submittals.

1.3 RELATED SECTIONS

- A. Section 01 45 00 - Quality Control: Test and inspection reports.
- B. Section 01 72 00 - Preparation Requirements: Layout of the Work and other engineering services required for accomplishing the Work.
- C. Section 01 77 00 - Contract Closeout Procedures: Submittals for occupancy, Acceptance and Final Payment.

1.4 LAYOUT OF THE WORK

- A. Responsibility for Layout of the Work: Contractor shall be solely responsible for complete, timely and accurate layout of the Work including, but not necessarily limited to, horizontal and vertical control and dimensional coordination as necessary to construct the Work in accordance with the Contract Documents. Contractor shall:
 - 1. Employ a Land Surveyor or a Civil Engineer, registered in the State of California, to perform survey work.
 - 2. Employ a Professional Engineer, of the discipline required for the specific service on the Project, and licensed in the State of California where required in the specifications in Divisions 2 through 49.
- B. Survey Reference Points: Existing basic horizontal and vertical control points are shown on the Contract Documents, or location of control points will be furnished by the University Representative. Contractor shall use the University Record of Survey, provided by the University Representative, as the Basis of Bearings for survey horizontal control, and shall tie

at least one Project site control point to a point on the University Record of Survey. Contractor shall:

1. Locate and protect control points prior to starting site work, and preserve all permanent reference points during construction.
2. Make no changes or relocations without prior written notice to Architect.
3. Report to University Representative and Architect when any reference point is lost or destroyed.
4. Require a surveyor to replace project control points which may be lost or destroyed. Establish replacements based on original survey control.

1.5 LAYOUT RECORD SUBMITTALS

- A. Land Surveyor: Contractor shall submit name, address and telephone number of land surveyor before starting survey work.
- B. Survey Logs: On request, Contractor shall submit copies of field documents verifying accuracy of survey Work.
- C. Submittal: Contractor shall submit a copy of registered site drawing and certificate signed by the land surveyor that the elevations and locations of the Work are in conformance with Contract Documents.

1.6 SURVEY RECORD DOCUMENTS

- A. Survey Record Documents: Contractor shall maintain a complete and accurate log of control and survey work as Work progresses. Upon completion of foundation walls and major site improvements, Contractor shall prepare a certified survey illustrating dimensions, locations, angles and elevations of new construction and site work. Contractor shall submit survey record documents as specified in Section 01 77 00 - Contract Closeout Procedures.
- B. Locations provided on the certified survey shall be coordinated with the control points tied to the University Record of Survey as per Section 1.4B.
- C. For each new Project utility or improvement which is not to be owned and maintained by the University, Contractor shall provide a legal description and plot, stamped and signed by a properly licensed surveyor or Civil Engineer, and which will use the University Record of Survey as the Basis of Bearings and will provide a Point of Commencement shown on said Record of Survey.

1.7 CONTRACTOR'S REVIEW

- A. Scope of Contractor's Review: Survey and layout data shall be reviewed by Contractor prior to submission for University's review or filing. Contractor shall sign each submittal copy certifying that:
 - 1. Field measurements have been determined and verified.
 - 2. Field construction criteria have been verified.
 - 3. Conformance with Drawings and Specifications requirements is confirmed.
- B. Contractor's Review Action: Contractor shall indicate clearly on survey and layout data whether the dimensions and coordinates are in compliance with Contract requirements. Contractor shall note clearly and sign each submittal certifying that reported data "Conforms" or "Does Not Conform".
- C. Changes and Deviations: Contractor shall identify all deviations from requirements of Drawings and Specifications. Changes in the Work shall not be authorized by submittals review actions. No review action, implicit or explicit, shall be interpreted to authorized changes in the Work. Changes shall only be authorized by separate written Change Order or Field Instruction, in accordance with the Contract General Conditions.

1.8 REVIEWS BY UNIVERSITY'S REPRESENTATIVE AND ARCHITECT

- A. Reviews by University's Representative and Architect, General: Reviews of survey and layout data by University's Representative and Architect, or other responsible design professional, shall be only for general conformance with the design concept and requirements based on the information presented. Neither Architect nor other responsible design professional shall verify submitted survey and layout data.
- B. Contract Requirements: Reviews by University's Representative, Architect or other responsible design professional shall not relieve the Contractor from compliance with requirements of the Drawings and Specifications. Changes shall only be authorized by separate written Change Order or Field Instruction, in accordance with the Contract General Conditions.

PART 2 - PRODUCTS

Not applicable to this Section.

PART 3 - EXECUTION

Not applicable to this Section.

END OF SECTION

SECTION 01 78 33 - PRODUCT WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. General administrative and procedural requirements for preparation and submission of warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special Project warranties.
 - 1. Refer to the Contract General Conditions for terms of Contractor's special warranty of workmanship and materials.
 - 2. Certifications and other commitments and agreements for continuing services to University are specified elsewhere in the Contract Documents.

1.3 RELATED DOCUMENTS AND SECTIONS

- A. Section 01 33 00 - Submittals Procedures: General administrative requirements for submittals, applicable to warranties and bonds.
- B. Section 01 77 00 - Contract Closeout Procedures: General requirements for closeout of the Contract.
- C. Section 01 78 23 - Operation and Maintenance Data: Operating and maintenance data binders, to include copies of warranties and bonds.
- D. Product Specifications Sections in Divisions 2 through 49: Special Project warranty requirements for specific products or elements of the Work; commitments and agreements for continuing services to University.

1.4 DEFINITIONS

- A. Warranty: Assurance to University by Contractor, installer, supplier, manufacturer or other party responsible as warrantor, for the quantity, quality, performance and other representations of a product, system service of the Work, in whole or in part, for the duration of the specified period of time. The University's standard warranty form shall be used for all

warranties under this Contract unless otherwise agreed to in writing by the University Representative.

- B. Guaranty: Assurance to University by Contractor or product manufacturer or other specified party, as guarantor, that the specified warranty will be fulfilled by the guarantor in the event of default by the warrantor.
- C. Standard Product Warranty: Preprinted, written warranty published by product manufacturer for particular products and specifically endorsed by the manufacturer to the University.
- D. Special Project Warranty: Written warranty required by or incorporated into Contract Documents, to extend time limits provided by standard warranty or to provide greater rights for University.
- E. Guaranty Period: As defined in the Contract General Conditions, guaranty period shall be synonymous with "warranty period", "correction period" and similar terms used in the Contract Specifications. Warranty period shall be one year from the date of Project Completion unless otherwise agreed to in writing by the University Representative.

1.5 WARRANTIES AND GUARANTIES

- A. Warranties and Guaranties, General: Contractor shall provide all warranties and guaranties with University named as beneficiary. For equipment and products, or components thereof, bearing a manufacturer's warranty or guaranty that extends for a period of time beyond the Contractor's warranty and guaranty, Contractor shall so state in the warranty or guaranty.
- B. Provisions for Special Warranties: Contractor shall refer to Contract General Conditions for terms of the Contractor's special warranty of workmanship and materials.
- C. General Warranty and Guaranty Requirements: Warranty shall be an agreement to repair or replace, without cost and undue hardship to University, Work performed under the Contract which is found to be defective during the guaranty period (warranty or guaranty) period. Repairs and replacements due to improper maintenance or operation, or due to normal wear, usage and weathering are excluded from warranty requirements unless otherwise specified.
- D. Specific Warranty and Guaranty Requirements: Specific requirements are included in product Specifications Sections of Divisions 2 through 49, including content and limitations.
- E. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties and guaranties shall not relieve Contractor of responsibility for warranty and guaranty requirements for the Work that incorporates such products, nor shall they relieve suppliers, manufacturers, and installers required to countersign special warranties with Contractor.

- F. **Related Damages and Losses:** When correcting warranted Work that has been found defective, Contractor shall remove and replace other Work that has been damaged as a result of such defect or that must be removed and replaced to provide access for correction of warranted Work.
- G. **Reinstatement of Warranty:** When Work covered by a warranty has been found defective and has been corrected by replacement or rebuilding, Contractor shall reinstate the warranty by written endorsement.
- H. **Replacement Cost:** Upon determination that Work covered by a warranty has been found to be defective, Contractor shall replace or reconstruct the Work to a condition acceptable to University's Representative, complying with applicable requirements of the Contract Documents. Contractor shall be responsible for all costs for replacing or reconstructing defective Work regardless of whether University has benefited from use of the Work through a portion of its anticipated useful service life.
- I. **University's Recourse:** Written warranties made to University shall be in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under law, nor shall warranty periods be interpreted as limitations on time in which University can enforce such other duties, obligations, rights, or remedies.
 - 1. **Rejection of Warranties:** University reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.
- J. **Warranty as Condition of Acceptance:** University reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment shall be required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.6 PREPARATION OF WARRANTY AND BOND SUBMITTALS

- A. **Project Warranty and Guaranty Forms:** Forms for Project warranties and guaranties are included in the Contract Documents. Contractor shall submit the warranty package submittal to the Architect, with a copy to the University Representative, for review and approval. Contractor shall:
 - 1. Refer to product Specifications Sections of Divisions 2 through 49 for specific content requirements, and particular requirements for submittal of special warranties.
 - 2. Prepare standard warranties and guaranties, excepting manufacturers' standard printed warranties and guaranties, on Contractor's, subcontractor's, material suppliers, or manufacturer's own letterhead, addressed to University as directed by University's Representative.
 - 3. Warranty and guaranty letters shall be signed by all responsible parties and by Contractor

in every case, with modifications only as approved in advance by University's Representative to suit the conditions pertaining to the warranty or guaranty.

- B. **Manufacturer's Guaranty Form:** Manufacturer's guaranty form may be used instead of special Project form included in the Contract Documents, if agreed to in writing by the University's Representative. Manufacturer's guaranty form shall contain appropriate terms and identification, ready for execution by the required parties.
 - 1. If proposed terms and conditions restrict guaranty coverage or require actions by University beyond those specified, Contractor shall submit draft of guaranty to the Architect and the University's Representative for review and approval before performance of the Work.
 - 2. In other cases, Contractor shall submit draft of guaranty to the Architect and the University's Representative for approval prior to final execution of guaranty.
- C. **Signatures:** Signatures shall be by person authorized to sign warranties, guaranties and bonds on behalf of entity providing such warranty, guaranty or bond.
- D. **Co-Signature:** All installer's warranties and bonds shall be co-signed by Contractor. Manufacturer's guaranties will not require co-signature.

1.7 FORM OF WARRANTY AND BOND SUBMITTALS

- A. **Form of Warranty and Bond Submittals:** Prior to completion, Contractor shall collect and assemble all written warranties and guaranties into binders and deliver binders to the Architect, with a copy to the University Representative, for final review and acceptance. Contractor shall:
 - 1. Prior to submission, verify that documents are in proper form and contain all required information and are properly signed by Contractor, subcontractor, supplier and manufacturer, as applicable.
 - 2. Organize warranty and guaranty documents into an orderly sequence based on the Table of Contents of the Project Manual.
 - 3. Include Table of Contents for binder, neatly typed, following order and section numbers and titles as used in the Project Manual.
 - 4. Bind warranties, guaranties and bonds in heavy-duty, commercial quality, durable three-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, with clear front and spine to receive inserts, and sized to receive 8-1/2 inch by 11-inch paper.
 - 5. Provide heavy paper dividers with celluloid or plastic covered tabs for each separate warranty. Mark tabs to identify products or installation, and section number and title.
 - 6. Include on separate typed sheet, if information is not contained in warranty or guaranty form, a description of the product or installation, and the name, address, telephone

number and responsible person for applicable installer, supplier and manufacturer.

7. Identify each binder on front and spine with typed or printed inserts with title "WARRANTIES AND BONDS", the Project title or name, and the name of the Contractor. If more than one volume of warranties, guaranties and bonds is produced, identify volume number on binder.
8. When operating and maintenance data manuals are required for warranted construction, include additional copies of each required warranty and guaranty in each required manual. Coordinate with requirements specified in Section 01783 - Operation and Maintenance Data.

1.8 TIME OF WARRANTY AND BOND SUBMITTALS

- A. Submission of Preliminary Copies: Unless otherwise specified, Contractor shall obtain preliminary copies of warranties, guaranties and bonds within ten days of completion of applicable item or Work.
- B. Submission of Final Copies: Contractor shall submit fully executed copies of warranties, guaranties and bonds prior to Notice of Completion.
- C. Date of Warranties and Bonds: Unless otherwise directed or specified, commencement date of warranty, guaranty and bond periods shall be the date established in the Notice of Completion.
 1. Warranties for Work accepted in advance of date stated in Notice of Completion: When a designated system, equipment, component parts or other portion of the Work is completed and occupied or put to beneficial use by University's Representative, by separate written agreement with Contractor, prior to completion date established in the Notice of Completion, Contractor shall submit properly executed warranties to University, as directed by University's Representative, within ten days of completion of that designated portion of the Work. Contractor shall list date of commencement of warranty, guaranty or bond period as the date established in the Notice of Completion.
- D. Duration of Warranties and Guaranties: Unless otherwise specified or prescribed by law, warranty and guaranty periods shall be not less than the guaranty period required by the Contract General Conditions, but in no case less than one year from the date established for completion of the Project in the Notice of Completion. See product Specifications Sections in Divisions 2 through 49 of the Project Manual for extended warranty and guaranty beyond the minimum one-year duration.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION

SECTION 01 78 39 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Condition for certification of each Progress Payment Application. Refer to 01 78 39, 1.4, D, 1.
- B. Requirements for Project Record Documents to be submitted for Contract closeout.

1.3 RELATED SECTIONS

A. Section 01 33 00 - Submittals Procedures: General requirements for submission for shop drawings, product data, samples and quality control reports.

1.4 PROJECT RECORD DOCUMENTS

- A. Project Record Documents, General: Contractor shall not use Record Documents for construction purposes. Contractor shall protect from deterioration and loss in a secure, fire-resistive location; provide access to Record Documents for the Trustees' and the Architect's reference during normal working hours.
 - 1. For projects that have classroom laboratories the Contractor shall provide the following: Fire code analysis, defined control areas including H occupancies, and grade plane designations must be entered into the campus Maximum Allowable Quantity (MAQ) and chemical management software, Risk and Safety Solutions (RSS), for all newly constructed buildings and renovated structures where the renovations alter the building's use and/or control area(s). The project shall ensure that all applicable drawings, approved Hazardous Materials Inventory Statement (HMIS) reports, and code analysis documentation are uploaded and attached within the RSS system. This requirement applies to both new construction projects and qualifying renovations to ensure continued campus compliance with the applicable Fire Code and MAQ tracking requirements for hazardous material storage and use.

- B. Record Drawings: Contractor shall record information continuously as Work progresses. Contractor shall not conceal Work permanently until all required information is recorded. Contractor shall:
1. Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately.
 2. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 3. Legibly and to scale, mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the work.
 4. Mark new information that is important to the University, but was not shown on Contract Drawings or Shop Drawings. Record actual construction, including:
 - a. Measured depths of foundations and footings encountered, measured in relation to finish First Floor datum.
 - b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent ground improvements.
 - c. Field changes of dimension and detail.
 - d. Details not on original Contract Drawings. Application of copies of details produced and provided by Architect during construction will be accepted.
 - e. Permanent Room names and Room numbers.
 5. Note related Change Order numbers where applicable.
 6. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
 7. Store Record Documents separate from documents used for construction.
- C. Record Specifications: Contractor shall record changes made by Addenda and Change Orders. In PART 2 - PRODUCTS in each Section, Contractor shall legibly mark and record in red ink actual Products installed or used, including:
1. Manufacturer's name and product model or catalog number.
 2. Product substitutions or alternates utilized.
- D. Submission:
1. Contractor shall keep Project Record Documents (e.g. As-Built/Red Lines) current, as they will be reviewed for completeness by Architect, Inspector, and University's Representative as condition for certification of each Progress Payment Application. Contractor shall submit electronic copy (PDF) of current Record Drawings with each Progress Payment Application package. Failure by Contractor to submit electronic copy (PDF) of current Record Drawings in Progress Payment Application package may result in rejection of Progress Payment.

2. Prior to the date of the Notice of Completion, Contractor shall submit marked Record Documents to Architect for review, approval and further processing.

PART 2 - PRODUCTS

Not Applicable to this Section.

PART 3 - EXECUTION

Not Applicable to this Section.

END OF SECTION 00 00 00 NAME

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Administrative and procedural requirements for instructing University's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems and equipment.
 - 2. Training in proper operation and maintenance of systems, subsystems, and equipment installed under the Contract.

1.3 RELATED SECTIONS

- A. Section 01 78 23 - Operation and Maintenance Data: Operating and maintenance instructions to be used during training and demonstration.

1.4 SUBMITTALS

- A. Instruction Program: Contractor shall submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Contractor shall include learning objective and outline for each training module. Contractor shall:
 - 1. Make the operations and procedures manuals available for use during the training sessions.
 - 2. Schedule submission of instruction program to allow sufficient time for receipt, review and acceptance of instruction program by the Architect and the University's Representative and shall be not less than three weeks prior to proposed date of first training session.
 - 3. Submit, at completion of training, three complete training manuals for University's use.
- B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Contractor shall include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

- C. Attendance Record: For each training module, Contractor shall submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, Contractor shall submit results and documentation of performance-based test.
- E. Demonstration and Training Video Record: Contractor shall submit two copies at end of each training session.

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: Contractor shall engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and University's Representative for number of participants, instruction times, and location. Facilitator shall be firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: Contractor shall engage qualified instructors to instruct University's personnel how to adjust, operate, and maintain systems, subsystems, and equipment not part of a system. Instructors shall be factory-authorized service representatives, complying with requirements in Section 01450 - Quality Control, experienced in operation and maintenance procedures and training.
 - 1. System manufacturers shall provide qualified instructor to describe system design, operational requirements, criteria, and regulatory requirements.
 - 2. University's Representative will furnish Contractor with names and positions of participants.
- C. Pre-Instruction Conference: Contractor shall conduct conference at Project site to comply with requirements in Section 01310 - Coordination. Contractor shall review methods and procedures related to demonstration and training including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.

EDIT SUBPARAPH BELOW TO SUIT PROJECT REQUIREMENTS.

- 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
- 3. Review required content of instruction.
- 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

- A. Coordination of Instruction Schedule: Contractor shall coordinate instruction schedule with University's operations. Contractor shall adjust schedule as required to minimize disrupting University's operations.
- B. Coordination of Instructors: Contractor shall coordinate instructors, including providing notification of dates, times, length of instruction time, and course content. Contractor shall allow for 30 days written notice to University's Representative.
- C. Coordination with Operation and Maintenance Data: Contractor shall coordinate content of training modules with content of approved emergency, operation, and maintenance manuals.
 - 1. Contractor shall not submit instruction program until operation and maintenance data have been reviewed and accepted by Architect and copies given to University's Representative.
 - 2. Contractor shall coordinate review of operation and maintenance data to make operation and maintenance data available at least two weeks prior to date scheduled for initial training session.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Contractor shall develop an instruction program that includes individual training sessions for each system and operating products not part of a system, as required by Division 2 through 48 Specification Sections. Contractor shall include instruction on operational interfaces between systems.
- B. Schedule of Training Sessions: Contractor shall arrange to have training conducted on consecutive days, with no more than six hours of training scheduled for any one day. Concurrent classes will not be acceptable.
- C. Training Sessions, General: Contractor shall develop a learning objective and teaching outline for each session. Contractor shall include a description of specific skills and knowledge that participant is expected to master. Training sessions shall progress logically. Each training session shall be comprised of time spent both in the classroom and at specific location of subject equipment or system. As a minimum, Contractor shall ensure that each training session covers the following subjects for each item of equipment and system:
 - 1. Familiarization:
 - a. Review catalog, parts lists, drawings, etc., which have been previously provided for the plant files and operation and maintenance manuals.
 - b. Check out the installation of the specific equipment items.

- c. Demonstrate the unit and indicate how all parts of the specifications are met.
 - d. Answer questions.
 - 2. Safety:
 - a. Using material previously provided, review safety references.
 - b. Discuss proper precautions around equipment.
 - 3. Operation:
 - a. Using material previously provided, review reference literature.
 - b. Explain all modes of operation (including emergency).
 - c. Check out University's personnel on proper use of the equipment.
 - 4. Preventive Maintenance:
 - a. Using material previously provided, review preventive maintenance (PM) lists including:
 - 1) Reference material.
 - 2) Daily, weekly, monthly, quarterly, semiannual, and annual jobs.
 - b. Demonstrate how to perform Preventive Maintenance tasks.
 - c. Demonstrate to University's personnel what to look for as indicators of equipment problems.
 - 5. Corrective Maintenance:
 - a. List possible problems.
 - b. Discuss repairs--point out special problems.
 - c. Open up equipment and demonstrate procedures, where practical.
 - 6. Parts:
 - a. Show how to use previously provided parts list and order parts.
 - b. Check over spare parts on hand. Make recommendations regarding additional parts that should be available.
 - 7. Local Representatives:
 - a. Where to order parts: Name, address, telephone.
 - b. Service problems:
 - 1) Who to call.
 - 2) How to get emergency help.
 - 8. Operation and Maintenance Manuals:
 - a. Review any other material submitted.
 - b. Update material, as required.
- D. Classroom Training for Operations Personnel:
- 1. Using projected drawings and photographs, describe and discuss equipment locations in

- plant and present operational overview of systems. Thoroughly discuss operating and maintenance manuals.
2. Describe purpose and plant function of equipment and systems.
 3. Describe operating theory of equipment.
 4. Describe start-up, shutdown, normal operation and emergency operating procedures, including discussion of system integration and electrical interlocks, if any.
 5. Identify and discuss safety items and procedures.
 6. Describe routine preventive maintenance, including specific details on lubrication and maintenance of corrosion protection of the equipment and ancillary components.
 7. Describe operator detection, without test instruments, of specific equipment trouble symptoms.
 8. Describe required equipment performance test procedures and intervals.
 9. Describe routine disassembly and assembly of equipment if applicable (as determined by University's Representative on case-by-case basis) for purposes such as operator inspection of equipment.
- E. Classroom Training for Maintenance and Repair Personnel:
1. Theory of operation.
 2. Description and function of equipment.
 3. Start-up and shutdown procedures.
 4. Normal and major repair procedures.
 5. Equipment inspection and troubleshooting procedures including the use of applicable test instruments and the "pass" and "no pass" test instrument readings.
 6. Routine and long-term calibration procedures.
 7. Safety procedures.
 8. Preventive maintenance such as lubrication; normal maintenance such as belt, seal, and bearing replacement; and up to major repairs such as replacement of major equipment part(s) with the use of special tools, bridge cranes, welding jigs, etc.
- F. Field Training for Operations Personnel:
1. Identify locations of equipment components and controls.
 2. Review of component functions and theory of operation.
 3. Identifying piping and flow options.
 4. Identifying valves and explain their functions at various settings.
 5. Identifying instrumentation:
 - a. Location of primary element.
 - b. Location of instrument readout.
 - c. Discuss purpose, basic operation, and information interpretation.
 6. Discuss, demonstrate, and perform standard operating procedures and round checks, including system start-up and shutdown procedures.
 7. Review and perform safety procedures.
 8. Perform the required equipment exercise procedures.
 9. Discuss and perform preventive maintenance activities.

10. Identify and review safety items and perform safety procedures, if feasible.
- G. Field Training for Maintenance and Repair Personnel: In addition to field training specified above for operations personnel, include the following:
 1. Describe normal repair procedures.
 2. Perform routine disassembly and assembly of equipment, if applicable, for inspections and tests.
 3. Perform routine maintenance and repair tasks, including mechanical and electrical operations for troubleshooting, adjustments and calibration.
- H. Presentation Media:
 1. Presentations may utilize computer-generated, projected graphics utilizing Microsoft PowerPoint software, including animation as appropriate to enhanced presentation and viewer interest. Graphics shall include text and still and moving images. PowerPoint presentation shall be suitable for incorporation into video record of instruction.
 2. Each session shall include mock-ups, samples and other visual aids as appropriate.
 3. Each session shall include printed handouts and notes for each participant.
 4. Produce sufficient printed materials to provide minimum of five unused copies for University's use in subsequent training programs.

PART 3 - EXECUTION

3.1 INSTRUCTION

- A. Preparation. Contractor shall:
 5. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
 6. Set up instructional equipment at instruction location.
- B. Scheduling: Contractor shall provide instruction at mutually agreed on times. For equipment that requires seasonal operation, Contractor shall provide similar instruction at start of each season. Contractor shall:
 1. Schedule training through University's Representative.
 2. Schedule training at time and location convenient to University, with at least 14 calendar days' advance written notice to University's Representative.
- C. Training Sessions: Contractor shall conduct classroom and field training sessions presenting content specified in Article 2.1, titled "Instruction Program," above.
- D. Evaluation: At conclusion of each training session, Contractor shall assess and document each participant's mastery of module by use of written examination or performance-based demonstration test.

- E. Cleanup. Contractor shall:
1. Collect used and leftover educational materials and deliver to University as directed by University's Representative.
 2. Remove instructional equipment.
 3. Restore systems and equipment to condition existing before initial training use.

END OF SECTION

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SECTION 01 81 13 - High Performance Buildings - Sustainability and LEED

PART 1 – GENERAL

1.1 Cal Poly High Performance Building Policy Requirements

- A. The following best practices and sustainability goals shall be included in Cal Poly's Design Standards and Campus Construction Standards for selection of, and communication with, design teams at the beginning of each project, and be integrated into project documents to ensure they are contractually enforceable. This will help designers better understand CSU and Cal Poly sustainable development goals and policies, and the strategies that have been successful on our campus. These include:
1. Design team selection criteria shall include demonstrated experience designing high performance, net zero, and LEED Platinum certified buildings on university campuses. The project shall convene a Sustainability Charrette to involve all stakeholders (design team, client, operations and maintenance staff, contractors, Building Automation System vendor, commissioning agent, etc.) at design kickoff. The charrette will establish sustainability goals (i.e. target EUI, % exceedance of T24, LEED certification level, etc) and metrics for the project to help guide design decisions. Progress toward these goals shall be tracked and reported to the designated Cal Poly Project Manager and Director of Energy, Utilities, and Sustainability at each design submittal. The NREL Charrette Handbook or equivalent shall be used as a model: https://search4.nrel.gov/taxis/search/redirect.html?query=charrettes&pr=metanrel&prox=pag_e&rorder=750&rprox=1000&rdfreq=0&rwfreq=250&rlead=1000&rdepth=62&sufs=1&order=r&u=https%3A/www.nrel.gov/docs/fy09osti/44051.pdf&m=2&p=0
 2. The design team shall become familiar with Cal Poly's Climate Action Plan – PolyCAP – prior to the charrette: https://afd.calpoly.edu/sustainability/campus_resources/climate_action
 3. The design shall prioritize high performance building envelope, mechanical, and lighting systems, and incorporate passive features to reduce the size and energy use of building systems via siting, orientation, thermal massing, shading, natural ventilation, and daylighting.
 4. Schematic design shall include energy modeling and evaluation of at least 3 options for each major building system, with selection based on 30 year life cycle cost analysis (including O&M of all building components/systems) and lowest greenhouse gas emissions using the CSU LCC worksheet or equivalent:

https://www2.calstate.edu/csu-system/doing-business-with-the-csu/capital-planning-design-construction/Documents/Life_Cycle_Cost_Worksheet.xls

5. To minimize project related impacts of transportation, commuting, and parking, the project shall evaluate and strive to reduce net greenhouse gas emissions from commuting by incorporating or expanding bicycle access and parking, electric vehicle charging, and other sustainable transportation infrastructure.
6. The project shall exceed Title 24 (or ASHRAE 90.1 for projects not subject to Title 24) by a minimum of 30% for new construction or major renovation (as per Cal Poly's Climate Action Plan and Master Plan EIR Mitigations) with an aspiration to achieve Zero Net Energy via rooftop solar PV, solar thermal, or other technology as appropriate. Note: Zero Net Energy will be required by Title 24 for residential buildings starting in 2020, which will apply to University housing buildings up to 3 stories. Zero Net Energy will be required by Title 24 for commercial buildings starting in 2030, which will apply to all academic/support buildings and University housing buildings over 3 stories. Until ZNE definitions and Title 24 compliance paths are finalized, design consultants should use the US Department of Energy's "Common Definition for Zero Energy Buildings", as adopted by State agencies: https://energy.gov/sites/prod/files/2015/09/f26/bto_common_definition_zero_energy_buildings_093015.pdf
Note: as of the 2019 code cycle, Title 24 requires Quality Insulation Installation (QII) prescriptive requirement rather than a compliance credit.
7. Projects shall evaluate the potential for rooftop solar PV. If the project budget can afford to procure and install a PV system, that provides the greatest benefit to the University as the energy produced is free for the life of the system. If the project budget cannot afford to pay for a PV system, one may be developed using a Power Purchase Agreement (PPA) using CSU contract templates and pre-qualified vendors. If done via PPA, the design team shall work with the University to solicit proposals using the CSU MEA, and shall be responsible to oversee the solar vendor's design, the utility interconnection application and approval process, and scheduling, oversight, and inspection of PV system design and construction in coordination with the University. If it is not possible to incorporate rooftop solar PV within the project budget or via PPA during construction, but the roof is appropriate for future PV development based on usable area, orientation, and shading, the design shall at a minimum make the building solar PV ready, including:
 - a) Structural evaluation of future PV loading of up to 5 psf, and the calculations to support such.
 - b) A circuit breaker in the service switchgear dedicated for future PV. If the service switchgear is not large enough to accommodate a load side breaker, the solar (contingent on calculations and code) can be connected with a line side tap. If the switchgear is ordered as 'PV ready' and labeled as such for the line side tap, the

contractor won't have to coordinate with UL during the physical interconnection to get the gear re-listed by UL.

- c)** Bi-directional meter at service switchgear for PV, integrated to the campus SCADA system.
 - d)** Conduit pathway from service switchgear to roof or penthouse electrical room.
 - e)** A location in the appropriate electrical room for future PV equipment along with identifying a path for equipment to be installed and removed.
 - f)** PV inverters shall be specified as "smart" inverters, capable of real and reactive power control for future integration into a microgrid.
 - g)** Layout of roof equipment (such as exhaust fans, equipment penthouses, and other objects that take up space and create shading, all the way down to conduit runs and plumbing vents) should take into consideration how to maximize the size of a PV array by providing open clear space with good solar exposure and minimal shading. This needs to be done in an integrated manner to address required roof setbacks from the edge, how fall prevention will be addressed (for buildings without adequate parapet walls requiring an engineered fall restraint anchorage system), and to provide walkways for maintenance access to all roof equipment that could require inspection or service.
 - h)** Pathways for "solar ready" should also include a way to connect the smart inverter to campus backbone Ethernet for communication/remote monitoring. This would require a separate pathway from power conductors by code, and would need to go to a telecomm room rather than main electrical room.
 - i)** The design team shall consider:
 - a. Installation of stanchions (typically ~24" tall 2" galvanized pipe anchored to concrete deck with a base plate and welded cap on top) on an appropriate spacing interval to support an array using an off the shelf racking system. This would ensure that all penetrations of the roof membrane are done when the roof is installed, and are covered under the original roof warranty. This would also remove this cost of mounting infrastructure from the solar project if delivered via PPA, bringing down the price of the PPA in perpetuity, or;
 - b. Preparations for a ballasted PV system rather than fixed tilt requiring structural attachment. This might require specification of a certain type of rigid insulation under the roof membrane to ensure that the ballasted system does not crush it, creating low spots that will pool water and degrade the life and performance of the membrane and insulation. The roofing material submittal shall include the manufacturer's requirements for solar PV.
8. To reduce embedded carbon and facilitate supply from renewable energy sources, the project shall prioritize electricity as the primary energy source rather than natural gas, except for heating systems served by the campus central plant.

9. For projects that require backup or emergency power, the design team shall consider alternatives to the use of diesel generators, which require an Air Pollution Control District (APCD) Permit to Operate for units of 50 engine horsepower or larger, and compliance with increasingly strict emissions limits. Alternatives may include natural gas or dual-fuel natural gas/propane generators which do not require an APCD permit, or batteries. Much like solar PPA's, the CSU has a Master Enabling Agreement with several pre-qualified battery vendors to streamline procurement and installation of battery systems. The CSU's battery MEA finances these systems via a shared savings agreement with the battery vendor, based on projected utility demand charge savings from peak load shaving and time-of-use load shifting. If batteries are selected as the solution by the design team, the builder shall be responsible to work with Cal Poly's Strategic Business Services department to contract with the battery vendor to design, construct, and commission the battery system as part of the project. The shared savings agreement shall be executed between the battery vendor and Cal Poly, and should allow the battery system to be procured and installed with little or no capital required from the project budget.
10. The project shall achieve LEED Gold Certification, with an aspiration for LEED Platinum. All application fees, data collection, documentation, submission to GBCI, and response to GBCI feedback through receipt of Certification shall be the responsibility of the design team.
11. The LEED certification process shall prioritize points that result in reduced energy and water use, and satisfy requirements for Enhanced Commissioning of both MEP systems and the building envelope (including insulation and moisture barrier/waterproofing details), and Advanced Energy Metering.
12. The project shall integrate the building automation system with the campus' Energy Information System for both commissioning of the project and continuous commissioning thereafter.
13. The project shall evaluate opportunities to implement green roofs, rainwater catchment, grey water reuse, bioswales, future availability of recycled water for toilet flushing and other permissible uses, and permeable surfaces in hardscape.
14. Landscape design shall prioritize use of native and water efficient plant species, minimization of turf area, and integration with the campus' CalSense wireless irrigation control system including flow meters and master valves, and shall be ready for conversion to recycled water when available in the future.
15. The project shall incorporate space in building interiors for Zero Waste collection stations and signage at strategic locations on each floor, and outdoor waste collection infrastructure and campus standard signage to prioritize recycling or composting over landfill.

16. The project shall incorporate filtered (but not chilled) water bottle filling stations on each floor.
17. The project shall evaluate and incorporate where appropriate high efficiency hand dryers in restrooms and eliminate paper towel dispensers, and shall specify campus standard toilet paper dispensers designed for tubeless paper rolls.
18. Materials, surfaces, and finishes shall be selected for long life and durability, with low/no maintenance requirements.
19. The project shall apply for PG&E and SoCalGas Energy Design Assistance incentives through the UC/CSU Energy Efficiency Partnership Program, which incentivizes building energy performance that exceeds Title 24 by a minimum of 10%: <https://www.uccsuioeee.org/new-construction>. Applications shall be completed by the design team and submitted to both utilities at 100% schematic design to ensure any useful design feedback can be incorporated into the project. California Energy Design Assistance incentives may be used to offset the cost of LEED Certification. The program includes a separate incentive for the design team (up to \$50K) intended to offset any additional expenses for documentation/submission.
20. Upon transmittal of 100% DD drawings, the Campus Planner (with support from design team if needed) shall present the project design to the Sustainability Advisory Committee covering the following items:

a) General Project Overview – 5 minutes:

- Who is the client, why are we building this building, how was this site selected, and will anything need to be demolished to prepare?
- What is the building type (or mix), who will occupy it, and what is the total GSF?
- What is the project budget and funding source?
- What is the planned completion date?
- Who is the A&E team and what is the chosen project delivery method?
- How is the project consistent with Master Plan goals? (i.e., protection of prime ag land, high density infill development, etc.)
- Where are we in the design process? (ideally these presentations will take place at 100% DD)

b) Sustainability Aspects of the Project – 30 minutes:

- What is the design team's approach to integrated and sustainable design?
 - Was there a sustainability charrette at design kickoff?
 - What were the charrette results and building performance goals chosen? (i.e., exceedance of Title 24, LEED certification goal, participation in Energy Design Assistance, LABS21 goals)
 - Were Campus Standards communicated with the design team at design

kickoff, and are they being followed?

- How is stakeholder input/feedback being solicited and integrated into the design?
- Please describe the design features chosen or under consideration for energy efficiency for:
 - HVAC and controls – Type of mechanical systems chosen? Siemens involved early? Aircuity for labs?
 - Air conditioning – how much of the building will be cooled? Central Plant or local? Total tonnage? Are there any package AC units - VRF or high SEER, and how will they be integrated with BAS?
 - Lighting and lighting controls – LED? Dimming and daylighting? Software for central control? Emergency lighting – generator or battery?
 - Lab or other Group II equipment efficiency? Energy Star for appliances?
 - Elevators – energy recovery type?
 - Building envelope – passive features, natural ventilation, cool roof, high performance insulation and glazing?
 - Commissioning – who is the Cx agent, when were they brought in (ideally at the Sustainability Charrette at schematic design kickoff), and how will they verify performance vs design after occupancy?
- Please describe the design features chosen or under consideration for water efficiency for:
 - Low flow plumbing fixtures
 - Lab or process water use
 - Rain catchment/storage/reuse
 - Grey water reuse
- Please describe the design features chosen or under consideration for site sustainability:
 - Water wise landscape – turf vs native/drought tolerant plantings
 - Integration with CalSense wireless irrigation control system
 - Storm water management – bioswales, permeable surfaces, green roofs, etc.
 - Construction site tree protection or relocation/replacement – especially for unique species
- Solid Waste management
 - Location/size of main landfill/recycle dumpsters, garbage truck access
 - Indoor waste stations – type/size/locations/signage, no interference with building egress
- Transportation
 - Bike racks and lockers?
 - Commuter shower?

c) Question and answer – 10 minutes

21. Should the project require value engineering (VE) or value management (VM) for budget control, the design team must first consider items that will not degrade building energy performance or significantly increase maintenance workload. Proposed alteration or elimination of any design feature that will negatively affect building energy performance or maintenance workload shall be analyzed to determine the life cycle cost impact to the utility and maintenance budgets and be submitted to the Executive Director of Facilities Planning and Capital Projects and Executive Director of Facilities Operations for approval.
22. Upon project completion, and as part of the Commissioning Agent's scope of work to monitor the building over its first year of occupancy, the actual performance of the building shall be measured and compared to the design goals established at the Sustainability Charrette, and the final energy model used for T24 compliance, LEED Certification, and California Energy Design Assistance incentives. Achievement or progress toward all Charrette goals shall be reported to the Executive Director of Facilities Planning and Capital Projects and Executive Director of Facilities Operations for ongoing process improvement.
23. Upon project completion or approval for beneficial occupancy by the State Fire Marshal, when control of the building transfers from FPCP to Operations, the following items shall be substantially complete (with a plan, schedule, and assigned responsibility to resolve all open items in a timely manner within the warranty period), fully documented, submitted to and accepted by the University, and shared with Fac Ops:
 - Punch list
 - Commissioning (except for remaining Cx tasks required post-occupancy)
 - Test and Balance (TAB)
 - As-Built drawings, equipment submittals, and approved substitution requests
 - Operation and Maintenance manuals
 - Contractually required training and training documentation
 - Warranty documentation for all building components/equipment/systems with contractually specified or manufacturer's warranties longer than one year
 - Contact information for transmittal/escalation of warranty items to the contractor with clear roles and responsibilities between the PM, Fac Ops, and department staff
 - Documentation of department vs. FMD equipment/system maintenance responsibilities, and a written plan (coordinated with and signed by the department) for how preventive maintenance will be performed on equipment that is the department's responsibility - by department staff, contractor, or by FMD via recharge
 - Submittal of all building component/equipment/system nameplate data and manufacturer's recommended maintenance tasks and frequencies in Cal Poly templates for entry into Planon for preventive maintenance
 - Creation of PM work orders in Planon to inspect all building components/equipment/systems for potential warranty issues 11 months after the start of the warranty period

PART 2 – PRODUCTS (Not applicable for this section)

PART 3 – EXECUTION (Not applicable for this section)

END OF SECTION 01 81 13

SECTION 01 91 00 – GUIDANCE ON COMMISSIONING INCLUSION IN PROJECT SCOPE

PART 1 - GENERAL

1.1 GUIDELINE

Building commissioning is required for all new construction over 10,000SF per the California Building Code. By policy, the California State University expands this requirement to new and renovation construction of \$3,000,000 or greater in construction costs.

The project team shall define the project specific commissioning requirements with the Cal Poly CxA during the programming stages to meet the minimum code requirements or the CSU/Cal Poly designated sustainability green building certification rating (e.g. Green Globes or LEED).

1.2. RELATED SECTIONS

- A. 01 91 15 General Commissioning Requirements
- B. 23 08 00 Mechanical Systems Commissioning
- C. 26 08 00 Electrical Systems Commissioning

END OF SECTION

SECTION 01 91 15 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Commissioning is a designed quality-assurance process for achieving, verifying and documenting that the performance of facilities, systems, and assemblies meet the Owner's documented objectives and criteria. The design team, contractor and subcontractors provide the quality control for the design, the installation and startup of the building systems. The commissioning process provides review and quantitative functional testing in order to provide assurance that the quality control efforts of the designers and contractors are successfully completed.
- B. Commissioning includes the completion of a formal commissioning process on the equipment and systems within the Commissioning Scope of Work, as specified within Section 01 91 15. Commissioning is performed by the Commissioning Team under the leadership of the Commissioning Authority (CA). The entire Commissioning Team is responsible for performing the process and achieving successful commissioning results. Commissioning Team is defined in Definition of Terms portion of this section of the specifications. The CA is a totally independent firm under contract directly with the Owner, and is not contractually or financially associated with the Design Team or any Contractor performing work on this project.
- C. Commissioning Standards: The commissioning process shall be in accordance with:
 - 1. All sections of the Contract Documents
 - 2. The Building Commissioning Association's (BCA) "Essential Attributes of Building Commissioning"
 - 3. ASHRAE Guideline 0-2019
- D. Contractors' Responsibility: The Contractor is responsible for completion of the specified commissioning work. The contractors responsibilities include:
 - 1. The General Contractor shall provide a Commissioning Coordinator (CC), as defined in Definition of Terms portion of this section of the specifications. The General Contractor's Commissioning Coordinator is responsible for managing the specified commissioning work.
 - 2. The Contractor shall be responsible for providing material, equipment, access, meters and instrumentation, and labor to participate in the specified commissioning process. The Contractor will assure the

- participation and cooperation of sub-contractors and vendors under their jurisdiction, as required to complete the commissioning process
3. Contractor shall be responsible for having independent agencies provide electrical systems tests as specified in Division 26 or other applicable sections of the contract documents.
 4. The Contractor will support the commissioning process by integrating it into the construction process and schedule.
 5. Contractor shall coordinate start-up and testing and balancing phases so as to allow a reasonable time for the commissioning tests to be conducted prior to building occupancy or specified operational date for the project.
 6. Contractor shall demonstrate through functional tests provided by the commissioning authority that systems perform per design.
- E. Support of Materials, Equipment and Systems Suppliers: Suppliers of major equipment and systems within the Commissioning Scope of Work (specified elsewhere in Section 01 91 15) shall support the commissioning process. Minimum support shall consist of the following:
1. Submit the manufacturer's installation & startup manual as a part of the initial equipment submittal.
 2. Submit the manufacturer's operating and maintenance manuals as a part of the initial equipment submittal.
 3. Conduct inspection of completed installations per installation check lists provided by equipment manufacturer and ensure satisfactory completion of installation as recommended by the manufacturers of various equipment.
 4. Conduct inspection of installation per the Pre-Functional Check List established by the Commissioning Authority and coordinate such inspections with the CA.
 5. Assist in developing the final functional test procedures as specified in Sections 01 91 15, Division 23, and related sections.
 6. Provide authorized startup technician as well as other sub-contractor resources as required to perform functional performance testing as specified in Sections 01 91 15, Division 23, and related sections.

1.2. RELATED SECTIONS

- A. 01 33 00 Division 1 Submittal procedures
- B. 01 77 00 Division 1 Closeout procedures
- C. 01 78 23 Division 1 Operating and Maintenance Data
- D. 23 08 00 Mechanical Systems Commissioning
- E. 26 08 00 Electrical Systems Commissioning

1.3. SYSTEMS WITHIN THE COMMISSIONING SCOPE OF WORK

- A. Plumbing Systems and controls as listed in Division 22
- B. HVAC Systems and controls as listed in Division 23
- C. Electrical Systems and controls as listed in Division 26

1.4. SUBMITTALS

Provide the following submittals in accordance with the general submittal requirements specified elsewhere in Division 1:

- A. Start-up procedures – required for acceptance of initial equipment submittal. Provide submittal for the systems and equipment listed in Part 3 under Equipment Startup.
- B. Division 23 DDC System Control Logic Submittal – as specified in Division 23 and/or provided in plans.
- C. Equipment Operation and Maintenance manuals – required for acceptance of initial equipment submittal.
- D. Review of Initial Functional Performance Test (FPT) prepared by the CA.
- E. Completed startup documentation – required for acceptance of initial equipment submittal. Provide submittal for the systems and equipment listed in Part 3 under Equipment Startup.
- F. Completed Pre-Functional Check Lists – Required prior to scheduling FPTs.
- G. Completed test and inspection reports on the electrical systems as conducted and reported by independent testing agencies.

1.5. DEFINITION OF TERMS

- A. Acceptance Criteria: Acceptance of the systems is based on the contractor being able to demonstrate that the systems and their components function in accordance with the commissioning acceptance criteria.

- B. Installation and static testing acceptance criteria: The acceptance criteria for installation and static testing are the materials and methods requirements specified in Division 23.
- B. Functional testing acceptance criteria: The acceptance criteria for functional performance tests are described within the procedures. The functional performance test procedures include descriptions of systems and components responses that are to be verified. These are the functional testing acceptance criteria. The functional testing acceptance criteria are based on the project documents and the basis of design.
- C. The Commissioning Plan is a detailed document prepared and maintained by the CA that describes the entire commissioning process.
- D. Contractor's Pre-Functional Checklist (Also referred to as System Readiness Checklist): These checklists are provided by the CA and include equipment installation and start-up items specified to be performed and verified by the Contractor. These checklists shall be completed by the Contractor and returned to the CA prior to the final CA installation verification and functional performance testing process.
- E. CA Final Installation Verification Process: This process includes the on-site review of related system components for conformance to the Project Documents. The CA will conduct this review and verify system readiness for final functional testing procedures upon receipt of the Contractor completed Pre-Functional Checklists. The CA will document issues identified during this process and assign them to the appropriate party for resolution.
- F. Functional Performance Testing Process: Functional Performance Testing verifies that the systems perform in accordance with the project documents, the design intent, and the A/E's basis of design. The process includes the documented testing of the systems under actual and simulated operating conditions. Functional Performance Test (FPT) procedures are detailed instructions that allow experienced system technicians to perform the FPTs with repeatable results. The repeatability of the procedures and results validate the tests. Final performance testing of systems will begin only after the Contractor certifies that systems are 100% complete and ready for functional testing, and the CA has completed the subsequent installation verification process for the systems to be tested.
- G. Commissioning Issues Log: All issues raised during commissioning shall be logged and tracked until they have been resolved. A commissioning issues log shall maintained by the CA. includes the description of all issues discovered as a result of the commissioning process. The list also includes the current issues

status, assignment to the responsible party and the date of final resolution as confirmed by the CA. Items listed may include issues where design, products, execution or performance does not appear to satisfy the Project Contract Documents and/or the design intent. The resolution of issues identified on this list may be the responsibility of the Contractor, design team, or the Owner.

- H. Back-Checking: Back-Checking is the process of verifying that commissioning related issues have been resolved by the responsible party. The back-checking process takes place once the Contractor has provided written notification that the an issue or issues in the Commissioning Issues Log have been resolved.
- I. Performance Period: The performance period is a set length of time designated to demonstrate proper facility operation prior to acceptance. The performance period commences after successful completion of other functional testing. Performance data is typically collected via DDC system trend logging or data logging. Evaluation typically includes zone temperature stability, optimum start/stop, warm-up period and other related functions. As part of this process the contractor will be required to set up and provide trends of control system parameters per the direction of the CA. The specific trending needed will be outlined in the Commissioning Plan or Functional Performance Test Procedures.
- J. Seasonal or Deferred Testing: This testing is completed during conditions that do not occur during the initial functional testing period; for example during design or seasonal transition temperatures. Seasonal or Deferred FPTs are a limited subset of the original tests and are designed to evaluate capacity and systems' interaction.
- K. Final Commissioning Report: The Final Commissioning Report contains a summary description of the commissioning process as it occurred, and the final versions of all commissioning documentation. The Final Commissioning Report shall be prepared by the Commissioning Authority.
- L. Project Contract Documents: As defined elsewhere in Division 1.
- M. Initial Commissioning Coordination Meeting: This meeting is intended to present the Commissioning Plan to the Contractor and is typically scheduled to occur after bid award and prior to installation of commissioned systems.
- N. The Commissioning Team: Commissioning is performed by the Commissioning Team, which consist of the Owner, Commissioning Authority, the Commissioning Coordinator, the Design Team, all subcontractors performing work on the equipment and systems within the commissioning scope of work, and all materials and equipment suppliers supplying equipment and systems within the

commissioning scope of work. The commissioning team is led by the Commissioning Authority. The Commissioning Coordinator is the on-site manager of the commissioning process.

- O. Commissioning Authority (CA): The CA is the Owner's commissioning consultant and the leader of the commissioning Team. The CA oversees the commissioning process and advises the Owner on issues involving the commissioning process, emphasizing the long-term performance and maintainability of the systems included in the commissioning scope of work. The CA is required to advise the Owner of issues involving the design, construction, testing, adjusting and balancing, or other items that could compromise the ability of the facility to meet the needs. The CA is authorized to recommend to the Owner the acceptance, modification, or rejection of all materials, procedures, schedules, tests, reports, or other required commissioning submittals. The CA is not authorized to change existing contract documents, schedules, costs, or scope of work for any of the parties involved (architect or contractor).

- P. General Contractor's Commissioning Coordinator (CC): The General Contractor shall provide a Commissioning Coordinator. The General Contractor's Commissioning Coordinator is responsible for managing the specified commissioning work. The CC is an employee of the General Contractor who is regularly and frequently on site. Qualifications for the Commissioning Coordinator include experience and excellent abilities to schedule, coordinate, and manage mechanical and electrical subcontractors. The following tasks are some of the critical items included in the CC's scope of work:
 - 1. Providing, updating and managing the commissioning schedule
 - 2. Providing all commissioning submittals
 - 3. Managing training plans in accordance with the commissioning specifications
 - 4. Managing subcontractor and supplier review of the FPT procedures and forms developed by CA, providing written comments regarding issues from all required FPT participants pertaining to safety, equipment protection and warranty, and appropriateness of the procedure for the systems as provided, and providing written comments, even if no exception is taken, for every FPT
 - 5. Managing development, submittal, and performance of: specified flushing, cleaning and start-up procedures;
 - 6. Providing test reports and progress reports in accordance with the commissioning specifications
 - 7. Managing FPT process as specified in the commissioning specifications. CC shall be responsible for organizing and coordinating resources required to perform specified pre-functional checks and functional testing specified by the CA.
 - 8. Managing resolution of issues identified during commissioning

9. Managing preliminary FPTs to verify readiness for final FPT demonstrations, and submitting documented verification that systems will pass FPTs with acceptable results as documented in the FPTs.
10. Coordinating and taking charge of FPT demonstrations to Owner and CA
11. As testing occurs, tracking and collecting the results of contractor functional performance testing (FPTs), and filing the original record sheets for the Final Commissioning Report
12. Managing repeat FPTs that fail due to contract deficiencies until acceptable results are achieved.

1.6. CONSTRUCTION PHASE COMMISSIONING PROCESS OVERVIEW

- A. After the bid award and acceptance of MEP submittals, the Commissioning Authority will conduct a pre-installation commissioning coordination meeting with the Contractor, Owner's Representative and the Design Team. The CA will present the commissioning plan, discuss commissioning process in detail, and identify specific commissioning related responsibilities. Milestone shall be discussed, including contractor start-up and testing forms, preliminary O&M manuals, training agendas and other approved submittals needed to complete the plan. The final plan will be developed after the CA receives all submittals from the contractor and design team.
- B. The Contractor shall provide the Commissioning Submittals
- 01 C. Functional performance Test procedures shall be developed by the CA with input from the Contractor, Owner, and A/E as specified in Part 3.
- D. Commissioning status meetings shall be scheduled to occur during the construction and closeout phase to monitor progress and to help facilitate the commissioning process. Contractor representatives for commissioned systems shall be required to attend these meetings. Meetings will generally be scheduled to occur with scheduled construction or management meetings.
- E. The CA shall perform periodic site visits during construction and identify potential issues in a site report. The Contractor shall review these site reports and resolve issues in accordance with the contract documents.
- F. The Contractors shall prepare the equipment and systems for startup in accordance with the Project Documents, industry standard guidelines, and the guidelines of the equipment and systems manufacturers. Startup shall be provided by the contractors and manufacturer's startup technicians in accordance with the Project Documents, industry standard guidelines, and the guidelines of the equipment and systems manufacturers. The Contractor shall test the systems

to verify that they perform in accordance with the Project Documents, including the Commissioning Functional Performance Test Procedures. The CA may witness equipment start up and testing. The contractor shall notify the CA in writing at least five (5) working days in advance of the start-up and testing dates so that the CA can attend. If the CA is not notified in advance of a scheduled start-up or testing activity, the start-up or testing shall be rescheduled and repeated to the satisfaction of the CA. When scheduled start-up activities are not executed because of lack of preparation or coordination by the Contractor, the Contractor will be subject to back-charges in accordance with the contract documents.

- G. Once the Contractor has provided the CA with written verification (Contractor's System Readiness Checklists or Pre-Functional Checklists) indicating completion of installation procedures, the Commissioning Authority will conduct a final on-site inspection and system readiness review of the specific systems and equipment to be commissioned. Issues noted during this process will be documented by the CA in the Commissioning Issues List.
- H. Upon confirmation of the completed and verified Pre-Functional Checklists and receipt of the preliminary balancing (TAB) report, functional performance testing shall be scheduled. Functional testing shall not commence until all critical issues identified during the Installation Verification Process are resolved.
- I. Contractor shall retain independent testing agencies as required to provide specialized tests related to electrical infrastructure components as specified under Division 26. These tests shall be included as part of the final commissioning close out document, prior to project acceptance.
- J. Issues noted during the functional performance tests or specialized tests provided by independent testing agencies will be documented by the CA. When easily corrected, issues will be resolved at the time of discovery. The appropriate contractor will resolve all other issues at a later time. Issues will be tracked by issue number, responsible party, status, and activity date. The contractor shall be responsible for reporting, in writing, to the CA when issues have been resolved so that the CA can verify the resolution.
- K. The construction phase commissioning process will be complete when all noted issues have been corrected, proved to be in compliance with the Project Documents or otherwise resolved to the satisfaction of the Owner.

1.7. CLOSEOUT PHASE COMMISSIONING PROCESS OVERVIEW

- A. Closeout contractor responsibilities include completion and submission of the Project Closeout Checklist for commissioned systems. The CA shall be responsible for developing the close-out check list related to commissioning activities.
- B. Training on related systems and equipment operation and maintenance shall be scheduled after commissioning is satisfactorily completed, O&M manuals have been accepted and delivered to the Owner, and systems are verified to be complete and functional. Each Contractor is responsible to provide a topical outline of all subjects to be covered in the training session(s), the expected length of time for the training sessions, and a brief resume listing the qualifications of the proposed training presenters. Training will be coordinated with the Owner.
- C. Upon request, the Contractor is responsible for providing the CA with copies of all balancing reports, as-built drawings and O&M manuals relevant to the systems commissioned. The CA will review this material for compliance with Project Documents and will note and report all issues for resolution by the responsible party.
- D. Upon completion of all commissioning activities the CA will prepare and submit to the Owner the Final Commissioning Report detailing the commissioning plan and all commissioning activities.

1.8. BACK-CHARGING

- A. The Contractor is responsible for scheduling and coordinating commissioning activities. The Contractor shall reimburse the Owner for the cost of commissioning activities that must be repeated because of a lack of preparation or coordination by the Contractor.
- B. Repeated back-checking: Commissioning issues are documented in the Commissioning Issues Log. The Contractor shall submit a brief written statement of when and how each issue has been resolved, using issues response forms provided by the CA. The CA will back-check these issues to verify they have been resolved. If the back-checked issues that have not been resolved in the accepted manner the associated cost of the unsuccessful back-check shall be subject to back-charging

PART 2 – PRODUCTS

2.1. CONTRACTOR SYSTEMS READINESS FORMS

- A. The Contractor shall be responsible for maintaining and completing copies of the Contractor's Pre-Functional Check lists, which will be provided by the CA. Initial

forms are provided in the project specifications for illustration of the rigor associated with such inspections, however, working drafts will be created based on actual submittal data and contractor reviews. Checklist forms and supporting documents shall be signed by the Contractor and submitted to the CA upon completion.

- B. Completion of these items shall not release the Contractor from their responsibility to complete other specified requirements of the Project Contract Documents.

2.2. STARTUP PROCEDURES AND FORMS

- A. Startup procedures and checklists for the equipment specified in part three shall be submitted for review as a part of the equipment submittal. Minimum startup procedures are specified in Division 23. Procedures shall also include all installation and start-up procedures and checklists that are provided by the equipment or system manufacturer. The accepted startup documentation shall be completed by the Contractor and submitted to the CA for review and inclusion within the Final Commissioning Report.

2.3. TEST INSTRUMENTATION

- A. The contractor shall provide the commissioning test equipment required to conduct the performance tests. Full line of test instrumentation may include loggers and meters for power, chilled water, hot water, gas flow, sensors for CO₂ concentration, pressure, air or liquid temperature and such others reasonably required for measuring and evaluating the performance of central energy plants and building HVAC systems of the type described in the contract documents.
- B. The test equipment shall be provided in sufficient quantities to execute functional testing in an expedient fashion, consistent with the commissioning and start-up schedule approved by the Owner.
- C. The test equipment shall be suitable for testing and calibration with accuracy and tolerances necessary to demonstrate that system performance is in accordance with the basis of design.
- D. Equipment used for functional testing sensors and gages shall be certified to an accuracy of 10% of the smallest tolerance to be measured. For example, if a temperature gage is required to be ± 2 degrees F, the calibration device must have a minimum accuracy of ± 0.2 degrees F.

- E. Instrumentation used for functional testing system performance must have a minimum repeatability and accuracy of $\pm 1.0\%$ of the acceptance criteria being measured. For example: if a supply temperature of 50F is being verified, the repeatability and accuracy of the test instrument must be at least $\pm 0.5F$
- F. The test equipment shall have calibration certification per equipment manufacturer's interval level or within one year if not specified.
- G. Contractor shall be responsible for organizing the performance data gathered during the tests in an electronic format (such as an Excel workbook format) for the commissioning agent's review and analysis.

2.4. PROJECT CLOSE-OUT CHECKLIST

- A. The Contractor shall complete and sign the Commissioning Project Closeout Checklist provided by the CA to indicate completion of Contractor's specified responsibilities regarding: arrangements for post-construction testing, spare parts for Owner, final O&M manuals, as-built documents, O&M training, performance testing, indoor air quality testing and any other requirements that occur just prior to Owner acceptance of the project.

PART 3 – EXECUTION

3.1. DOCUMENTATION

- A. All checklists, start-up documentation, test forms and other commissioning related documentation required by contract shall be neatly completed and submitted to the CA in a clear and easily readable condition.
- B. All required checklists, start-up documentation, test forms and other commissioning related documentation shall be submitted to the CA in accordance with the commissioning and construction schedule.
- C. When the Contractor is unable to comply with an item as listed on the checklist or form, the Contractor shall immediately notify the CA in writing as to the reasons for non-compliance.

3.2. EQUIPMENT START-UP

- A. The contractor shall perform equipment start-up per the accepted start-up plan and start-up forms. The contractor shall correct issues as they are discovered and

submit the successfully completed start-up documentation to the CA. Systems and equipment are:

1. Air handler systems
2. Exhaust/relief fans
3. Unitary HVAC equipment
4. All controls and control sequences related to HVAC systems

3.3. PRE-FUNCTIONAL CHECKLISTS (PFC)

- A. The contractor shall verify the installation and start-up of each system by completing the verification procedures outlined on the PFC. The contractor shall correct issues as they are discovered and submit the successfully completed documentation to the CA.
- B. The CC shall review and sign off on all PFC prior to submittal to the CA.
- C. The CA shall review all PFC and supporting documentation from installation and start-up activities. The contractor must have approval from the CA to proceed with testing.

3.4. INSTALLATION VERIFICATION (IV)

- A. Contractor shall inspect installed equipment and systems. Contractor shall complete and submit the PFC as an indication of completion of all installation requirements as specified in the Project Contract Documents.
- B. After the Contractor has submitted the PFC, the CA will perform final installation verifications on selected systems. Discrepancies discovered will be reported in the Commissioning Issues Log.
- C. The CA shall back-check and verify that all issues are resolved prior to proceeding with FPT.

3.5. FUNCTIONAL PERFORMANCE TESTS (FPT)

- A. Functional performance testing - FPT (also called Functional Test Plans – FTPs) of commissioned systems shall begin after all critical issues discovered during the installation verification process have been corrected.
- B. The CA shall develop an FPT for each piece of equipment or system being commissioned (example, AHU, Exhaust Fan, etc.) and may also develop FPT for integrated systems, overall systems, and individual sequences within a control

system. The scope and detail within FPT shall be comprehensive enough to demonstrate to the Owner the full range of operability and performance of the installed equipment and systems intended to be commissioned, including not only the peak operating capacity, but also the flexibility to accommodate varying load situations.

- C. The procedure for developing and performing the FPT shall be as follows:
1. The Contractor shall provide the equipment and commissioning submittals as specified in the project documents.
 2. The CA shall draft the FPT based on the submittals.
 3. Each contractor and equipment supplier that is specified as an FPT participant in the FPT Summary Table of this section shall participate in the development and performance of the associated FPT. Each FPT participant shall provide written comments on the associated FPT regarding each of the following issues:
 - a. Verify that the procedures can be performed without compromising the safety of the participants .
 - b. Verify that the procedures can be performed without compromising the warranties of equipment, components, and systems
 - c. Verify that the procedure is appropriate for the equipment, components, and systems as provided.
 - d. At the contractor's option, make recommendations to incorporate the FPTs into the contractor's in-house startup and QC testing process.
 4. The CA shall complete the working drafts of the FPTs
 5. Subcontractors and suppliers shall provide the personnel, expertise and test equipment to operate and maintain the systems during testing.
 6. The Contractor shall perform the FPTs until the acceptable results documented in the FPT procedure have been obtained and recorded. If necessary to obtain acceptable results, the Contractor may consult with the CA to acquire clarification and resolve issues. The CA shall be available for on-site assistance of this nature.
 7. The Contractor shall submit the completed FPT record forms which document acceptable FPT results.
 8. After the CA has accepted the Contractor's submittal of recorded results, the FPTs shall be demonstrated to the CA. If acceptable results are not demonstrated for an FPT, the Contractor shall resolve the issue(s) and the demonstration shall be repeated.
 9. The contractors shall perform the FPT and submit the record sheets for all equipment components and systems. If permitted by the CA and depending on the nature of equipment and systems tested, FPT may be demonstrated for a sample of the systems that comply with all of the

following criteria. This process is referred to in this document as "demonstration sampling."

- a. The systems shall not be a part of a fire alarm, life safety, or security system
 - b. There shall be many of the systems with similar components that have identical sequences of operation
 - c. The components and systems to be included in the Demonstration Samples shall be chosen by the CA at the time of demonstration
 - d. The trend logging portions of all FPTs shall be completed for 100% of the systems
 - e. The sample size shall be in accordance with the Functional Performance Test (FPT) Demonstration Sampling Table. The actual number of units to be sampled shall be calculated by rounding the percentage of total units up to the next whole number.
 - f. Acceptable results must be demonstrated for the entire sample. If the FPT results are not acceptable due to a lack of preparation or coordination by the Contractor for any system or component sampled, the FPT shall be demonstrated for all of the systems and components for which it was written. Whenever the demonstrated results are not acceptable, the contractors shall make corrections and the FPT shall be demonstrated again.
 - g. The trend logging portions of all FPTs shall be completed for 100% of the systems.
 - h. Functional Performance Test (FPT) Demonstration Sampling Table shall be provided in the FPT by the CA for each type of system commissioned. Unless otherwise provided in this specification or authorized in writing, Contractor shall assume that 100% of systems to be commissioned are tested per the FPT.
10. The CC is responsible for scheduling and coordinating functional testing activities. The Contractor demonstrates the functional performance tests after they have verified that performing the FPTs will yield the documented acceptable results.
- D. In addition to participating in functional tests developed by the CA, the Contractor shall be required to complete all start-up and testing procedures as specified elsewhere in the Project Contract Documents.

3.6. ISSUE CORRECTION

- A. Issues entered into the Commissioning Issues Log, shall be resolved by the contractor in a timely manner. The Contractor shall submit a brief written statement of when and how each issue has been resolved, using issues response forms provided by the CA.

3.7. PERFORMANCE PERIOD

- A. The CA shall prepare a performance period test plan including measured variables and success criteria based on performance characteristics described in the Project Documents. The CA will provide the Control System Contractor with a list of required trend log definitions to be implemented as a basis for reviewing performance during this period.
- B. The Contractor will review the performance period test plan and set up the trend log definitions from the CA. The trending shall be provided by the contractor in both a text and graphic format with related system parameters grouped together for easy comparison. If DDC system resident memory is limited or there are other issues with the trending requirements, the Contractor will notify the CA and request the CA redefine the test plan.
- C. The performance period will typically commence within one week of the final functional tests and run for a minimum of 5 days. If failures are encountered, the performance period shall be aborted. After corrections are made, the performance period shall be re-started at day one.

3.8. SYSTEMS ACCEPTANCE

- A. Equipment and systems shall not be accepted by the Owner until all commissioning activities are complete and the performance period standards have been met.

3.9. PROJECT CLOSEOUT

- A. Post construction contractor responsibilities include completion and submission of the Project Closeout Checklist for each commissioned system to the CA for verification of completing contracted obligations for the Owner.
- B. Training shall only be scheduled to commence after functional testing is satisfactorily completed, O&M manuals have been delivered and approved, and systems are verified to be 100% complete and functional. Each Contractor is responsible to provide a topical outline of all subjects to be covered in the training session(s), the expected length of time for the training sessions, and a brief resume listing the qualifications of the proposed training presenters. The CC is responsible for developing the training plan with input from the contractor and directing any video taping efforts. The CC is responsible for coordinating training with the Owner and CA and to verify execution of the training plan.

- C. Upon request, the Contractor is responsible for providing the CA with copies of all balancing reports, as-built drawings and O&M manuals relevant to the systems commissioned. The CA will review this material for compliance with Project Documents and will note and report all issues for resolution by the responsible party.
- D. Upon completion of all commissioning activities the CA will prepare and submit to the Owner the Final Commissioning Report detailing the commissioning plan and all commissioning activities and recommending acceptance to the Owner. The CC will support this effort by coordinating the contractor provided documentation.

3.10. DEFERRED AND SEASONAL TESTING

- A. Deferred or Seasonal testing requirements shall be conducted to ensure that systems operate per design intent during both peak cooling and peak heating seasons. Contractor shall provide required resources to the CA to facilitate seasonal testing.
- B. The Contractor shall provide labour and material for seasonal testing and make corrections to any Contractor related issues discovered.

3.11. NEAR-WARRANTY-END REVIEW

- A. Within two months prior to the end of warranty on commissioned systems, the contractor shall participate in a review of the commissioned systems with the Owner, design team and the CA to identify any operational and outstanding issues.
- B. The review shall consist of a meeting on site with the contractor and appropriate sub contractors with follow up testing and verification by the contractor.
- C. A list of issues will be developed by the Owner and CA. Once issues have been identified, the Contractor shall investigate, test and inspect systems to identify and resolve warranty issues in a timely manner. After correcting warranty issues noted on the Near-Warranty-End Issues List, the Contractor shall sign off on each issue and return the list to the CA for back-checking by the CA prior to the end of warranty.
- D. The Contractor shall ensure the cooperation of appropriate sub-contractors in any follow-up meetings, testing, inspections and investigation regarding warranty issues and in resolving, prior to the end of the warranty, any warranty issues discovered.

- E. Issues identified in this review will remain warranty items until satisfactory completion, even if the warranty period expires during the review and correction period.

END OF SECTION