PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. System specific commissioning

B. Related Sections:
   1. Section 01 91 15, “General Commissioning Requirements”
   2. Section 01 33 00, “Submittal Procedures”
   3. Section 01 70 00, “Project Closeout”

1.2 DESCRIPTION OF WORK – refer to Section 01 91 15

1.3 SUBMITTALS – refer to Section 01 91 15

PART 2 – PRODUCTS – refer to Section 01 91 15

PART 3 – EXECUTION

3.1 COMMISSIONING PROCESS AND PROCEDURES – refer to Section 01 91 15

3.2 PRE-FUNCTIONAL CHECKLIST

A. Pre-Functional Test is defined under Section 01 91 15. Only the sample checklists are provided in this section as Exhibit 23 09 05-A as an indication of the format and rigor of the required pre-functional checklists and documentation. Though not developed specifically for this project, they show the extent of checks involved associated with typical installations. Actual Pre-Functional Checklist shall be prepared by the CA upon review of all the contractor submittals, including manufacturer’s installation instructions and O&M manuals.

B. These checklists do not take the place of the manufacturer’s recommended checkout and start-up procedures or report.

C. Regardless of whether the CA includes them or not, checks, inspections, safety measures, quality control measures and start-up procedures recommended by the manufacturer shall be implemented by the Contractor prior to initiation of the commissioning activity.

D. The Commissioning Coordinator (CC) employed by the Contractor shall be responsible for directing all Pre-Functional Check lists provided by the CA. The CC shall engage subcontractors and vendors service representatives with expertise in the specific
equipment or system to determine whether the equipment or system passes the checks detailed in the Pre-Functional Checklist.

E. CC shall communicate the actual schedule for the execution of the Pre-Functional Checks to the CA as provided under Section 01 91 15.

F. The Commissioning Authority (CA) may choose to participate in the inspection of items along with the Contractor and specialty subcontractors and vendors. In addition, CA reserves the right to inspect any or all of the items on his own in order to satisfy that the installation conforms to the design objectives and the system is ready for Functional Testing.

G. For additional information on how the Pre-Functional Checklists fits within the overall framework of Commissioning as well as the Contractor's obligations under the same, please see Section 01 91 15.

3.3 FUNCTIONAL PERFORMANCE TEST PROCEDURES (FPTs)

3.4 FUNCTIONAL PERFORMANCE TESTING

A. Contractor shall assist the Commissioning Authority (CA) in developing the Working Functional Performance Test (FPT) Procedures as specified in Section 01 91 15. For any given equipment or system subcontractors and equipment suppliers associated with and specializing in the specific equipment are required to participate in developing the working procedures for the indicated FPTs. It is conceivable that for certain equipment and systems, multiple subcontractors and specialties may be required to participate to contribute to the development of the Functional Test. Contractor shall extend his full cooperation to the CA in securing the subcontractor or supplier resources necessary to develop and implement the Functional Tests.

B. The Contractor's Commissioning Coordinator is required to manage the subcontractors in developing the Working FPT Procedures and Data Forms, and in performing all FPT's.

C. Though not developed specifically for this project, the sample Functional Test Procedures shown under Exhibit 23 09 05-B are provided as an indication of the format and rigor of the required Functional Testing procedures and documentation.

D. CA may approve certain equipment performance tests to be conducted at the factory. If so, Contractor shall make arrangements and pay for travel costs for Owner and the CA to visit the factory and witness such tests at the factory.

E. Contractor shall be responsible for demonstrating the successful testing of 100% of the systems to be commissioned per the Functional Test plans and procedures provided by the CA.

F. CA shall develop the Functional Test following review of all contractor submittals. The Functional Test documents shall be made available immediately upon the successful completion of the Pre-Functional Check Lists and correction of all issues identified in the Pre-Functional Checklist.

G. Contractor shall allow a reasonable time frame after the completion of TAB activities to schedule and conduct the Functional Tests. Functional tests shall commence only upon completion of the TAB activities and all flows and measurement data established through the TAB process are available for the Commissioning Agent's review. In no event shall the commissioning Functional Test duration be less than four weeks, plus what is
reasonably required to correct issues identified and time required for retest and back-check. Contractor shall coordinate the work of other disciplines so that commissioning test procedures are not interrupted as a result of work that needs to be performed inside or outside the building.

H. Refer to Section 01 91 15 for additional requirements regarding Functional Tests.

END OF SECTION