BUILDING DATA

Calif. Polytechnic State University Building 020, Engineering East.


Occupancy Type: B Occ., with A-3 Accessory (less than 10%) (Per CBC Sec. 303.5), non-sprinkler

Construction Type: V-B

Any Materials allowed by code –Wood framed structure

Exterior walls are non-rated, OK per Table 602, > 20’ separation all sides.
Fire Walls occur at 5 places, creating six Building Areas; See Attachment A. Fire walls are 2 –hr, OK per Table 706.4, note a, with 1-1/2 hr fire doors, OK per Table 716.5

Occupancy Separations: None

No. of Stories: 1 – OK per Table 503, 2 stories Allowed

(E) Building Height- 15’ abv. avg. grd. plane, 40’ allowed

In most areas, Fire separation distance is greater than 30’, NO LIMIT on exterior openings per table 705.8- See Attachment A

Openings analysis at courtyard at Building 20A- See Attachment A for layout.
All (E) openings unprotected
Area One, North Wall-
20’ to assumed PL-
240.5 sf of openings, 756 sf of wall area, per floor
Per Table 705.8 45% allowed, 340 sf- OK
Area Two, North Wall-
20’ to assumed PL-
115.5 sf of openings, 396 sf of wall area, per floor
Per Table 705.8, 45% allowed, 178 sf- OK
West Wall-
20’ to assumed PL-
120.25 sf of openings, 504 sf wall area, per floor
Per Table 705.8, 45% allowed, 227 sf- OK
Area Three, West Wall-
20’ to assumed PL-
197.25 sf of openings, 729 sf of wall area, per floor
Per Table 705.8, 45% allowed, 328 sf- OK
Area Four, South Wall-
20’ to assumed PL-
365.5 sf of openings, 1152 sf of wall area, per floor
Per Table 705.8, 45% allowed, 518 sf- OK
Actual Building Areas (See Attachment A)

**Area One-**
Actual Area- 6,600 sq. ft.

Allowable Area Calculation

\[ Aa = [At + (At \times Lf) + (At \times Is)] \] (Per 506.1)

\[ Lf = \left[ \frac{F}{P} - 0.25 \right] \times \frac{W}{30} \] (Per 506.2)

\[ P = 360 \text{ ft. (Total Perimeter)} \]

\[ F = 305 \]

\( W > 30: \) greater than 30’ separation @ 235’.

\( W < 30: \) 21’ width @ 70’

\[ W = \frac{(L1 \times W1 + L2 \times W2)}{F} = \frac{(70' \times 21' + 235' \times 30')}{305} = 27.9 \]

\[ If = \left[ \frac{F}{P} - 0.25 \right] \times \frac{W}{30} \]

\[ If = \frac{305}{360} - 0.25 \times \frac{27.9}{30} \]

\[ If = 0.55 \]

\[ Is = 0 \text{ (non sprkld)} \]

\[ At = 9,000 \text{ sq. ft. (Per Table 503)} \]

\[ Aa = 9,000 + (9,000 \times 0.55) + (9,000 \times 0) \]

\[ Aa = 9,000 + 4,996 = 13,996 \text{ sq. ft. per Floor} \]

Total Allowable Area 13,996 sq. ft.

Total (E) Area – 6,600 sq. ft. **OK**

**Area Two-**
Actual Area- 11,572 sq. ft.

Allowable Area Calculation

\[ Aa = [At + (At \times Lf) + (At \times Is)] \] (Per 506.1)

\[ Lf = \left[ \frac{F}{P} - 0.25 \right] \times \frac{W}{30} \] (Per 506.2)

\[ P = 488 \text{ ft. (Total Perimeter)} \]

\[ F = 321 \]
W > 30: greater than 30’ separation @ 298’.
W < 30: 25’ width @ 23’

W = (L1xW1 + L2xW2)/ F = (23’x25’ + 298’x30’)/321 = 29.6

If = \([F/P - 0.25]*W/30\)

If = \([321/488 - 0.25]*29.6/30\)

If = .40

Is = 0 (non sprkld)

At = 9,000 sq. ft. (Per Table 503)

Aa = (9,000 + [9,000 x .40] + [9,000 x 0])

Aa = 9,000 + 3614 = 12,614 sq. ft. per Floor

Total Allowable Area - 12,614 sq. ft.

Total (E) Area – 11,572 sq, ft. OK

Area Three-
Actual Area -  7,782 sq. ft.

Allowable Area Calculation

Aa = [At+[At x If] + [At x Is]} (Per 506.1)

Lf = \([F/P-0.25]*W/30\) (Per 506.2)

P = 363 ft. (Total Perimeter)

F = 193

W > 30: greater than 30’ separation @ 143’.
W < 30: 25’ width @ 50’

W= (L1xW1 + L2xW2)/ F = (50’x25’ + 143’x30’)/193 = 28.7

If = \([F/P - 0.25]*W/30\)

If = \([193/363 - 0.25]*28.7/30\)

If = .269

Is = 0 (non sprkld)
At = 9,000 sq. ft. (Per Table 503)

Aa = {9,000 + [9,000 x .269] + [9,000 x 0]}

Aa = 9,000 + 2,425 = 11,428 sq. ft. per Floor

Total Allowable Area - 11,428 sq. ft.

Total (E) Area – 7,782 sq. ft.  OK

**Area Four**

Actual Area – 8,738 sq. ft.

Allowable Area Calculation

Aa = [At+[At x If] + [At x Is]] (Per 506.1)

Lf = [F/P-0.25]*W/30  (Per 506.2)

P = 393 ft. (Total Perimeter)

F = 324

W = 30: greater than 30’ separation.

If = [F/P – 0.25]*W/30

If = [324/393 – 0.25]*30/30

If = 0.574

Is = 0 (non sprkld)

At = 9,000 sq. ft. (Per Table 503)

Aa = {9,000 + [9,000 x .574] + [9,000 x 0]}

Aa = 9,000 + 5,169 = 14,169 sq. ft. per Floor

Total Allowable Area - 14,169 sq. ft.

Total (E) Area – 8,738 sq. ft.  OK
**Area Five**
Actual Area - 4,324 sq. ft.

At = 9,000 sq. ft. (Per Table 503)

Total Allowable Area - 9,000 sq. ft.

Total (E) Area – 4,324 sq. ft.  OK

**Area Six**
Actual Area - 13,500 sq. ft.

Allowable Area Calculation

\[ A_a = \left[ A_t + \left( A_t \times f_p \right) + \left( A_t \times l_s \right) \right] \] (Per 506.1)

\[ f_p = \left[ \frac{P}{2} - 0.25 \right] \times \frac{W}{30} \] (Per 506.2)

P = 542 ft. (Total Perimeter)

F = 448

W > 30: greater than 30’ separation @ 438’.
W < 30: 28’ width @ 10’

\[ W = \frac{(L_1 \times W_1 + L_2 \times W_2)}{F} = \frac{(10' \times 28' + 438' \times 30')}{448} = 29.95 \]

\[ f_p = \left[ \frac{F}{2} - 0.25 \right] \times \frac{W}{30} \]

\[ f_p = \left[ \frac{448}{542} - 0.25 \right] \times 29.95/30 \]

\[ f_p = 0.575 \]

Is = 0 (non sprkld)

At = 9,000 sq. ft. (Per Table 503)

\[ A_a = \left[ 9,000 + \left( 9,000 \times 0.575 \right) + \left( 9,000 \times 0 \right) \right] \]

\[ A_a = 9,000 + 5,175 = 14,175 \text{ sq. ft. per Floor} \]

Total Allowable Area - 14,175 sq. ft.

Total (E) Area – 13,500 sq. ft.  OK
DSA Info-
None.

Fire Sprinkler Info-
No Sprinkler

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