

BUILDING DATA

Calif. Polytechnic State University Building 020, Engineering East.

Original Construction 1956, Major Remodel 1990.

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

$$Aa = [At + [At \times If] + [At \times Is]] \text{ (Per 506.1)}$$

$$Lf = [F/P - 0.25] \times W/30 \text{ (Per 506.2)}$$

P = 360 ft. (Total Perimeter)

F = 305

W > 30: greater than 30' separation @ 235'.

W < 30: 21' width @ 70'

$$W = (L1 \times W1 + L2 \times W2) / F = (70' \times 21' + 235' \times 30') / 305 = 27.9$$

$$If = [F/P - 0.25] \times W/30$$

$$If = [305/360 - 0.25] \times 27.9/30$$

If = .55

Is = 0 (non sprkld)

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

$$Aa = \{9,000 + [9,000 \times .55] + [9,000 \times 0]\}$$

Aa = 9,000 + 4996 = 13,996 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

$$Aa = [At + [At \times If] + [At \times Is]] \text{ (Per 506.1)}$$

$$Lf = [F/P - 0.25] \times W/30 \text{ (Per 506.2)}$$

P = 488 ft. (Total Perimeter)

F = 321

W > 30: greater than 30' separation @ 298'.

W < 30: 25' width @ 23'

$$W = (L1 \times W1 + L2 \times W2) / F = (23' \times 25' + 298' \times 30') / 321 = 29.6$$

$$I_f = [F/P - 0.25] \times W/30$$

$$I_f = [321/488 - 0.25] \times 29.6/30$$

$$I_f = .40$$

$$I_s = 0 \text{ (non sprkld)}$$

$$A_t = 9,000 \text{ sq. ft. (Per Table 503)}$$

$$A_a = \{9,000 + [9,000 \times .40] + [9,000 \times 0]\}$$

$$A_a = 9,000 + 3614 = 12,614 \text{ sq. ft. per Floor}$$

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

$$A_a = [A_t + [A_t \times I_f] + [A_t \times I_s]] \text{ (Per 506.1)}$$

$$I_f = [F/P - 0.25] \times W/30 \text{ (Per 506.2)}$$

$$P = 363 \text{ ft. (Total Perimeter)}$$

$$F = 193$$

W > 30: greater than 30' separation @ 143'.

W < 30: 25' width @ 50'

$$W = (L1 \times W1 + L2 \times W2) / F = (50' \times 25' + 143' \times 30') / 193 = 28.7$$

$$I_f = [F/P - 0.25] \times W/30$$

$$I_f = [193/363 - 0.25] \times 28.7/30$$

$$I_f = .269$$

$$I_s = 0 \text{ (non sprkld)}$$

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

$$Aa = \{9,000 + [9,000 \times .269] + [9,000 \times 0]\}$$

$$Aa = 9,000 + 2425 = 11,428 \text{ sq. ft. per Floor}$$

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

$$Aa = [At + [At \times If] + [At \times Is]] \text{ (Per 506.1)}$$

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

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 = .574

Is = 0 (non sprkld)

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

$$Aa = \{9,000 + [9,000 \times .574] + [9,000 \times 0]\}$$

$$Aa = 9,000 + 5,169 = 14,169 \text{ sq. ft. per Floor}$$

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

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

Lf = [F/P-0.25]*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 = (L1xW1 + L2xW2)/ F = (10'x28' + 438'x30')/448 = 29.95

If = [F/P – 0.25]*W/30

If = [448/542 – 0.25]*29.95/30

If = .575

Is = 0 (non sprkld)

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

Aa = {9,000 + [9,000 x .575] + [9,000 x 0]}

Aa = 9,000 + 5,175 = 14,175 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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ATTACHMENT A

