



STRUCTURAL CALCULATIONS FOR DANA POINT HARBOR BUILDING 12

KPFF Job #1900799



AUGUST 7, 2023

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18400 Von Karman Ave., Suite 600
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| | | | | |
|----------|----------------|---------|-----------|-----------|
| project | DPH - BLDG 12 | by | CSC | sheet no. |
| location | DANA POINT, CA | date | 4/24/2023 | |
| client | SMS | job no. | 1900799 | |
| | STAIR DESIGN | | | |

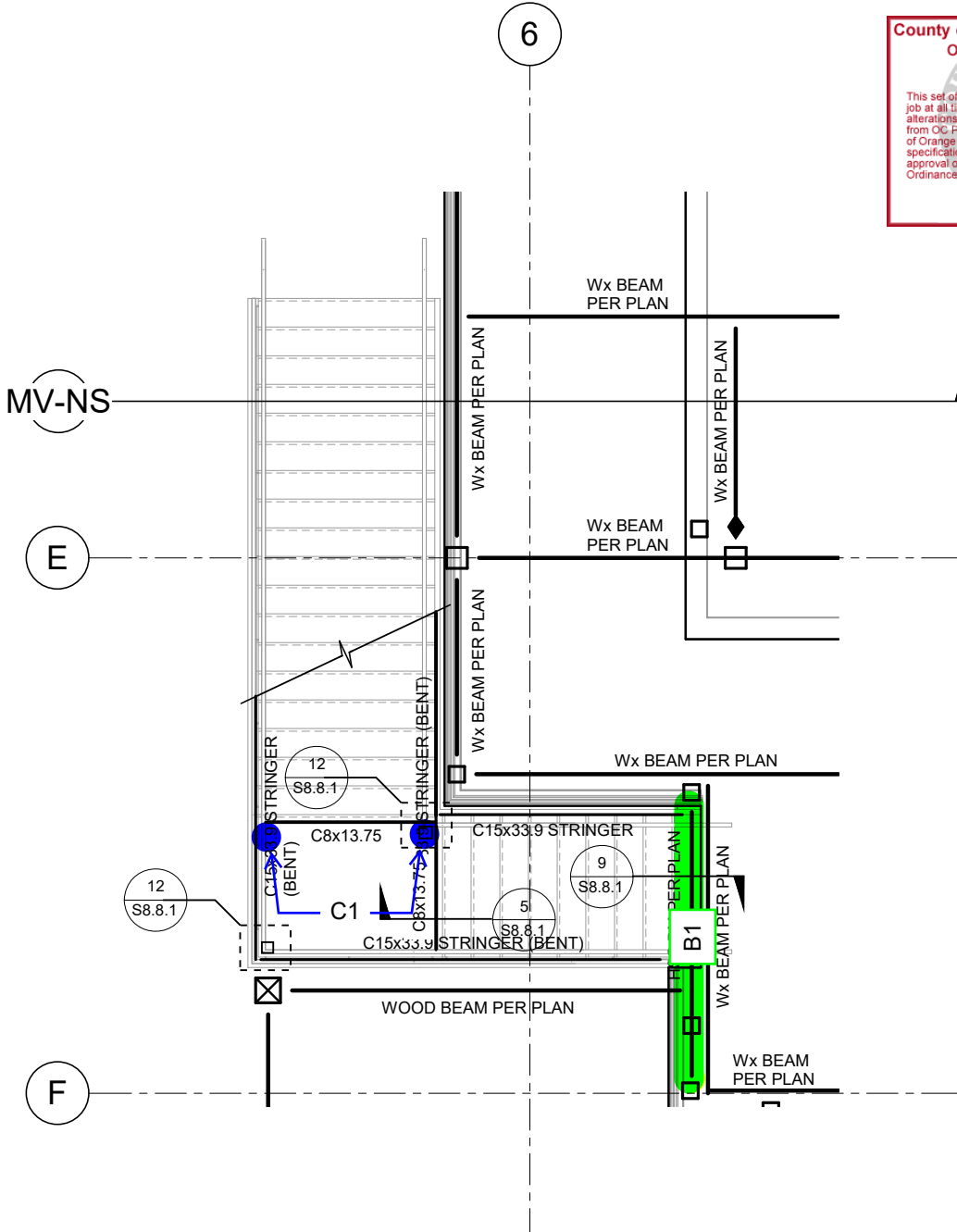
Building&Safety: OCPWazarvandB 12/22/2025

Permits: BNR21-0246

**County of Orange - OC Public Works
OC Development Services
APPROVED**

This set of plans and specifications must be kept on the job at all times. It is unlawful to make any changes or alterations to these plans without written permission from OC Public Works. OC Development Services of Orange County. The stamping of these plan specifications SHALL NOT be held to permit or be an approval of the violation of any provisions of any County Ordinance or State law.

Hadi Tabatabaee
BUILDING OFFICIAL





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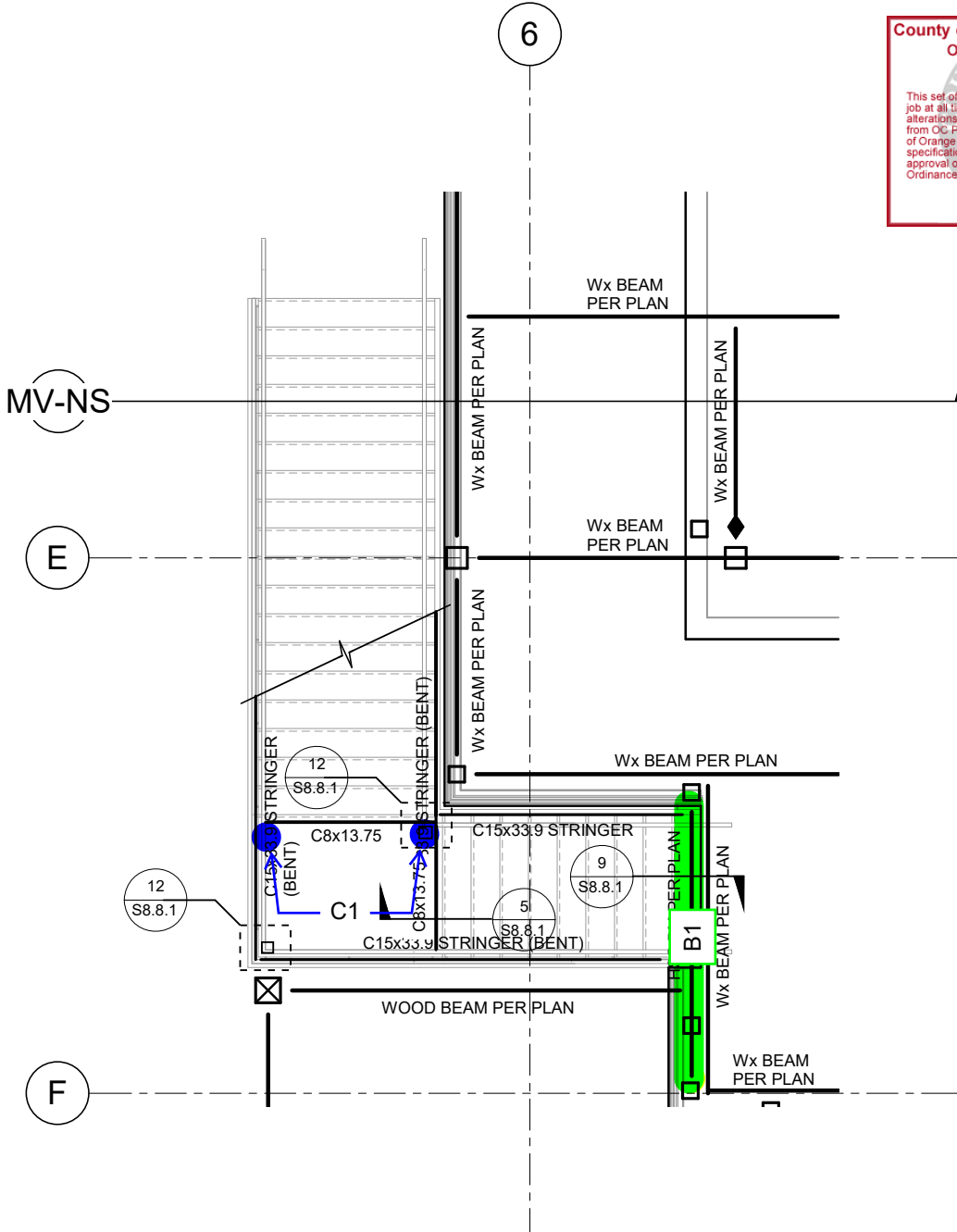
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| project | DPH - Bldg 12 | by | CSC | sheet no. |
| location | Dana Point, CA | date | 4/27/2023 | |
| client | SMS | job no. | 1900477.31 | |
| Steel Stair Design | | | | |

Building&Safety: OCPWazarvandB

12/22/2025

Steel Stair Design

Permits: BNR21-0246

Landing Design

| | | |
|--------------------|-------|-----------------|
| $w_L =$ | 6 | ft |
| $L_L =$ | 3 | ft |
| Trib | 3.0 | ft |
| $w_\Delta =$ | 300.0 | plf |
| $\Delta_{Allow} =$ | 0.200 | in |
| $I_{Req} =$ | 1.51 | in ⁴ |
| $w_u =$ | 642.0 | plf |
| $M_u =$ | 2.89 | kip-ft |
| $V_u =$ | 1.93 | kip |

landing width
total landing width
tributary area for landing angles

total load on angles
allowable deflection (L/360)
required moment of inertia

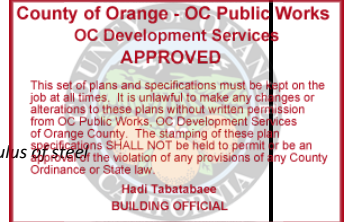
ultimate load on angles
ultimate moment
ultimate shear

Loading

| | | |
|------|-------|-----|
| DL = | 45 | psf |
| LL = | 100 | psf |
| E = | 29000 | ksi |

ASCE 7-16

Young's modulus of steel



Stringer design

| | | |
|-------------------------------|-------|-----------------|
| h = | 10 | ft |
| L = | 16.75 | ft |
| $w_s =$ | 6 | ft |
| $L_s =$ | 19.5 | ft |
| Trib | 3 | ft |
| Compression flange not braced | | |
| $w_u =$ | 642 | plf |
| $M_{iu} =$ | 30.54 | kip-ft |
| $V_u =$ | 6.26 | kip |
| $w_\Delta =$ | 435 | plf |
| $\Delta_{Allow} =$ | 0.650 | in |
| $I_{Req} =$ | 75.17 | in ⁴ |
| $L_p =$ | 3.32 | ft |
| $L_r =$ | 12.1 | ft |
| c = | 1.346 | |
| $h_o =$ | 14.5 | |
| $I_y =$ | 3.86 | in ⁴ |
| $C_w =$ | 112 | in ⁶ |
| $r_{ts} =$ | 0.98 | in |
| $S_x =$ | 21.5 | in ³ |
| J = | 0.369 | in ⁴ |
| $r_y =$ | 0.797 | in |
| $f_y =$ | 36 | ksi |
| $Z_x =$ | 25.6 | in ³ |
| $F_{cr} =$ | 16.33 | ksi |
| $M_p =$ | 921.6 | kip-in |
| $M_n =$ | 29.3 | kip-ft |
| $\phi M_n =$ | 69.12 | kip-ft |
| USE C12x20.7 | | |

rise of stair
length of stair
width of stair
length of stringer
tributary area of stringer

factored dist. Load
ultimate moment
ultimate shear

unfactored dist. Load
allowable deflection (L/360)
required moment of inertia

SLENDER

AISC Table 1-1
AISC Table 1-2

yield stress
plastic section modulus

plastic moment
nominal moment

0.44 factored moment

Header design

| | | |
|---------------------|-------|-----------------|
| $w_L =$ | 6 | ft |
| $L_L =$ | 3 | ft |
| Trib | 3 | ft |
| $w_\Delta =$ | 36.4 | plf |
| $\Delta_{Allow} =$ | 0.200 | in |
| $I_{Req} =$ | 0.18 | in ⁴ |
| $w_u =$ | 642.0 | plf |
| $M_u =$ | 0.72 | kip-ft |
| $V_u =$ | 0.96 | kip |
| Try C8x11.5 | | |
| A = | 3.37 | in ² |
| $I_x =$ | 32.5 | in ⁴ |
| $f_y =$ | 36 | ksi |
| $S_x =$ | 8.14 | in ³ |
| $Z_x =$ | 9.63 | in ⁴ |
| $\phi M_n =$ | 26.00 | kip-ft |
| $\phi V_n =$ | 65.5 | kip |
| $\Delta_{Actual} =$ | 0.001 | |
| USE C8x11.5 | | |

landing width
total landing width
tributary area for header

unfactored dist. Load

0.006
yield stress

0.028 (AISC 360 Eq. F10-2)
0.01 (AISC 360 Eq. G2-1)
plastic section modulus

0.006



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| location | Dana Point, CA | date | 4/27/2023 | |
| client | SMS | job no. | 1900477.31 | |
| | Steel Stair Design | | | |

Building&Safety: OCPWazarvandB

12/22/2025

Seismic Loading

Permits: BNR21-0246

Seismic Loading

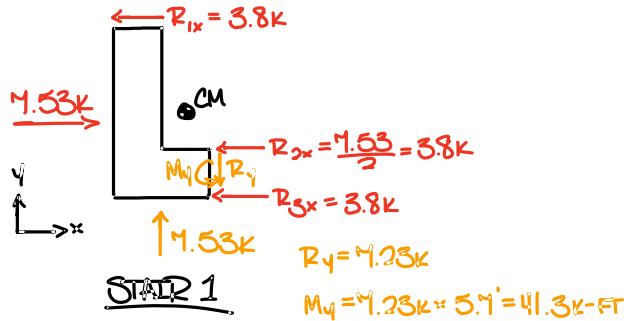
| | |
|-----------------------|---|
| $W_p = 9291$ lb | weight of component |
| $R_p = 2.5$ | egress stairs and ramp fasteners and attachments (ASCE 7-16 Table 13.6-1) |
| $a_p = 2.5$ | |
| $\Omega_0 = 2.5$ | |
| $I_p = 1.0$ | seismic importance factor (ASCE 7-16 Table 1.5-2) |
| $S_1 = 0.455$ | ASCE 7-16 Figure 22-2 |
| $S_2 = 1.27$ | ASCE 7-16 Figure 22-2 |
| $S_{D1} = 0.46$ | ASCE 7-16 Eq's 11.4-4, 11.4-2 |
| $S_{DS} = 1.01$ | ASCE 7-16 Eq's 11.4-1, 11.4-3 |
| $z/h = 0.5$ | attachment ratio |
| $F_p = 7522$ lb | calculated design force (ASCE 7-16 Eq 13.3-1) |
| $F_{pMax} = 15045$ lb | maximum design force (ASCE 7-16 Eq 13.3-2) |
| $F_{pMin} = 2821$ lb | minimum design force (ASCE 7-16 Eq 13.3-3) |

| | |
|-----------------|--|
| $F_p = 7522$ lb | seismic component design force (ASCE 7-16 Eq 13.3-1) |
|-----------------|--|

| | |
|----------------|---|
| $F_p = 846$ lb | vertical seismic component design force (ASCE 7-16 Eq 13.3-1) |
|----------------|---|



LATERAL DESIGN



- CENTER OF MASS

$$M_1 = 4578 \text{ lb} = 24' = 0.5k$$

$$M_2 = 4578 \text{ lb} = 10.4' = 2.81k$$

$$Z = 9.31k$$

$$x = \frac{3' = 0.5k + 11.2' = 2.81k}{9.31k} = 5.5'$$

$$y = \frac{12' = 0.5k + 3' = 2.81k}{9.31k} = 9.5'$$

→ R_4, M_4, R_{2x}, R_{3x} ARE TAKEN BY B1

→ R_{1x} TAKEN BY KB-TZ2 CONN TO SLAB (SEE FOLLOWING)

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: DPH - Bldg 12 Stair Design.ec6

LIC# : KW-06015364, Build:20.22.12.28

KPFF CONSULTING ENGINEERS

(c) ENERCALC INC 1983-2022
 Building&Safety: OCP/AzarvandB

12/22/2025

DESCRIPTION: B1 Design - Cantilever Diaphragm

Permits: BNR21-0246

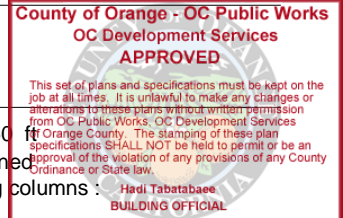
Code References

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Steel Section Name : **W18x35**
 Analysis Method : Load Resistance Factor
 Steel Stress Grade
 Fy : Steel Yield 50.0 ksi
 E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 10.250
 Top & Bottom Fixity Top & Bottom Pinned
 Brace condition for deflection (buckling) along columns :
 X-X (width) axis : Fully braced against buckling ABOUT Y-Y Axis
 Y-Y (depth) axis : Fully braced against buckling ABOUT X-X Axis



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 358.750 lbs * Dead Load Factor

AXIAL LOADS . . .

Axial Load at 10.250 ft, E = 7.230 k

BENDING LOADS . . .

Lat. Uniform Load creating Mx-x, D = 0.30 k/ft

Lat. Point Load at 5.917 ft creating Mx-x, E = 3.80 k

Lat. Point Load at 1.333 ft creating Mx-x, E = 3.80 k

Moment acting about Y-Y axis at 5.125 ft, E = 41.230 k-ft

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.7480** : 1
 Load Combination +1.20D+E
 Location of max.above base 5.159 ft
 At maximum location values are . . .
 Pu 7.661 k
 0.9 * Pn 463.50 k
 Mu-x 15.532 k-ft
 0.9 * Mn-x : 249.375 k-ft
 Mu-y -20.477 k-ft
 0.9 * Mn-y : 30.225 k-ft

Maximum Load Reactions . .
 Top along X-X 4.022 k
 Bottom along X-X 4.022 k
 Top along Y-Y 3.419 k
 Bottom along Y-Y 4.976 k

Maximum Load Deflections . . .
 Along Y-Y 0.01459 in at 5.159ft above base
 for load combination : +D+0.70E
 Along X-X 0.1376 in at 3.027ft above base
 for load combination : E Only

PASS Maximum Shear Stress Ratio = **0.02525** : 1
 Load Combination +1.20D+E
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Vu : Applied 4.022 k
 Vn * Phi : Allowable 159.30 k

Load Combination Results

| Load Combination | Maximum Axial + Bending Stress Ratios | | | | Maximum Shear Ratios | | | | | |
|------------------|---------------------------------------|--------|----------|------|----------------------|---------|---------|--------------|--------|----------|
| | Stress Ratio | Status | Location | Cbx | Cby | KxLx/Ry | KyLy/Rx | Stress Ratio | Status | Location |
| +1.40D | 0.023 | PASS | 5.16 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft |
| +1.20D | 0.019 | PASS | 5.09 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft |
| +1.20D+E | 0.748 | PASS | 5.16 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.025 | PASS | 0.00 ft |
| +0.90D | 0.015 | PASS | 5.09 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft |
| +0.90D+E | 0.743 | PASS | 5.16 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.025 | PASS | 0.00 ft |

Maximum Reactions

Note: Only non-zero reactions are listed.

| Load Combination | Axial Reaction @ Base | X-X Axis Reaction @ Base @ Top | | Y-Y Axis Reaction @ Base @ Top | | Mx - End Moments k-ft @ Base @ Top | | My - End Moments @ Base @ Top | |
|------------------|-----------------------|--------------------------------|--------|--------------------------------|-------|------------------------------------|--|-------------------------------|--|
| | | k | | | | | | | |
| D Only | 0.359 | | | 1.538 | 1.538 | | | | |
| +D+0.70E | 5.420 | -2.816 | -2.816 | 4.976 | 3.419 | | | | |
| +D+0.5250E | 4.155 | -2.112 | -2.112 | 4.116 | 2.949 | | | | |
| +0.60D | 0.215 | | | 0.923 | 0.922 | | | | |

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: DPH - Bldg 12 Stair Design.ec6

LIC# : KW-06015364, Build:20.22.12.28

KPFF CONSULTING ENGINEERS

(c) ENERCALC INC 1983-2022
 Buildings & Safety: OCPW/AzarvandB

12/22/2025

DESCRIPTION: B1 Design - Cantilever Diaphragm

Permits: BNR21-0246

Maximum Reactions

Note: Only non-zero reactions are listed.

| Load Combination | Axial Reaction @ Base | X-X Axis Reaction | | k | Y-Y Axis Reaction | | Mx - End Moments | | My - End Moments | | Mz - End Moments | |
|------------------|--------------------------|-------------------|--------|---|-------------------|-------|------------------|-------|------------------|-------|------------------|-------|
| | | @ Base | @ Top | | @ Base | @ Top | @ Base | @ Top | @ Base | @ Top | @ Base | @ Top |
| +0.60D+0.70E | 5.276 | -2.816 | -2.816 | | 4.361 | 2.804 | | | | | | |
| E Only | 7.230 | -4.022 | -4.022 | | 4.912 | 2.688 | | | | | | |

Extreme Reactions

| Item | Extreme Value | Axial Reaction @ Base | X-X Axis Reaction | | k | Y-Y Axis Reaction | | Mx - End Moments | | My - End Moments | | Mz - End Moments | |
|-------------------------|---------------|--------------------------|-------------------|--------|---|-------------------|-------|------------------|-------|------------------|-------|------------------|-------|
| | | | @ Base | @ Top | | @ Base | @ Top | @ Base | @ Top | @ Base | @ Top | @ Base | @ Top |
| Axial @ Base | Maximum | 7.230 | -4.022 | -4.022 | | 4.912 | 2.688 | | | | | | |
| " | Minimum | 0.215 | | | | 0.923 | 0.922 | | | | | | |
| Reaction, X-X Axis Base | Maximum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| " | Minimum | 7.230 | -4.022 | -4.022 | | 4.912 | 2.688 | | | | | | |
| Reaction, Y-Y Axis Base | Maximum | 5.420 | -2.816 | -2.816 | | 4.976 | 3.419 | | | | | | |
| " | Minimum | 0.215 | | | | 0.923 | 0.922 | | | | | | |
| Reaction, X-X Axis Top | Maximum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| " | Minimum | 7.230 | -4.022 | -4.022 | | 4.912 | 2.688 | | | | | | |
| Reaction, Y-Y Axis Top | Maximum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| " | Minimum | 7.230 | -4.022 | -4.022 | | 4.912 | 2.688 | | | | | | |
| Moment, X-X Axis Base | Maximum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| " | Minimum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| Moment, Y-Y Axis Base | Maximum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| " | Minimum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| Moment, X-X Axis Top | Maximum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| " | Minimum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| Moment, Y-Y Axis Top | Maximum | 0.359 | | | | 1.538 | 1.538 | | | | | | |
| " | Minimum | 0.359 | | | | 1.538 | 1.538 | | | | | | |



Maximum Deflections for Load Combinations

| Load Combination | Max. X-X Deflection | Distance | Max. Y-Y Deflection | Distance |
|------------------|---------------------|----------|---------------------|----------|
| D Only | 0.0000 in | 0.000 ft | 0.005 in | 5.159 ft |
| +D+0.70E | 0.0963 in | 3.027 ft | 0.015 in | 5.159 ft |
| +D+0.5250E | 0.0722 in | 3.027 ft | 0.012 in | 5.159 ft |
| +0.60D | 0.0000 in | 0.000 ft | 0.003 in | 5.159 ft |
| +0.60D+0.70E | 0.0963 in | 3.027 ft | 0.013 in | 5.159 ft |
| E Only | 0.1376 in | 3.027 ft | 0.014 in | 5.159 ft |

Steel Section Properties : W18x35

| | | | | | | | | |
|--------------|---|-------------|------|---|-------------|-----|---|---------------|
| Depth | = | 17.700 in | I xx | = | 510.00 in^4 | J | = | 0.506 in^4 |
| Web Thick | = | 0.300 in | S xx | = | 57.60 in^3 | Cw | = | 1,140.00 in^6 |
| Flange Width | = | 6.000 in | R xx | = | 7.040 in | | | |
| Flange Thick | = | 0.425 in | Zx | = | 66.500 in^3 | | | |
| Area | = | 10.300 in^2 | I yy | = | 15.300 in^4 | | | |
| Weight | = | 35.000 plf | S yy | = | 5.120 in^3 | Wno | = | 25.900 in^2 |
| Kdesign | = | 0.827 in | R yy | = | 1.220 in | Sw | = | 16.500 in^4 |
| K1 | = | 0.750 in | Zy | = | 8.060 in^3 | Qf | = | 10.500 in^3 |
| rts | = | 1.510 in | | | | Qw | = | 32.700 in^3 |
| Ycg | = | 0.000 in | | | | | | |

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Column

Project File: DPH - Bldg 12 Stair Design.ec6

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Building&Safety: OCPW Azarvand

12/22/2025

DESCRIPTION: B1 Design - Cantilever Diaphragm

Permits: BNR21-0246

Sketches





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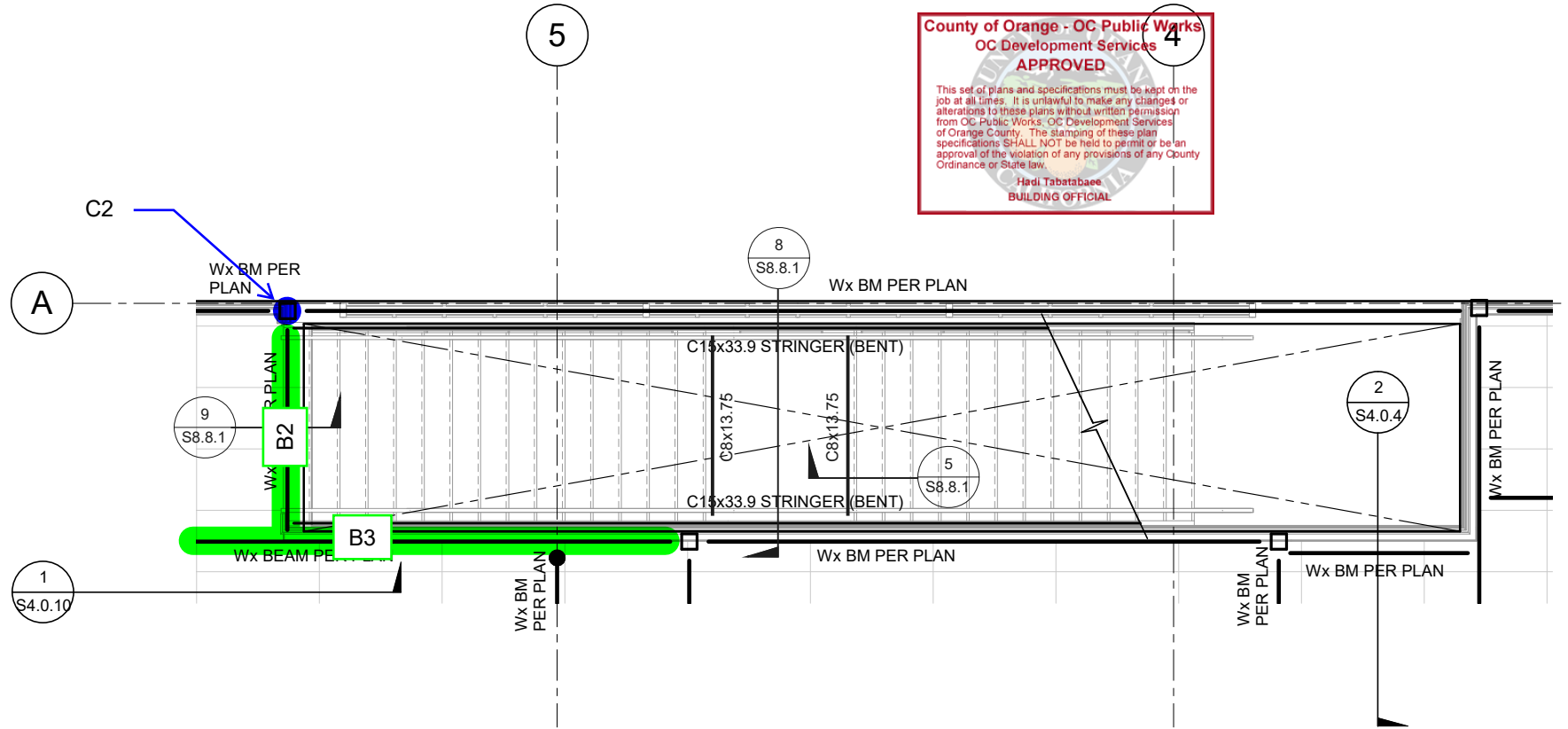
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Steel Stair Design

Landing Design

| | | |
|--------------------|-------|-----------------|
| $w_L =$ | 6 | ft |
| $L_L =$ | 4.5 | ft |
| Trib | 4.5 | |
| $w_\Delta =$ | 450.0 | plf |
| $\Delta_{Allow} =$ | 0.200 | in |
| $I_{Req} =$ | 2.26 | in ⁴ |
| $w_u =$ | 963.0 | plf |
| $M_u =$ | 4.33 | kip-ft |
| $V_u =$ | 2.89 | kip |

landing width
total landing width
tributary area for landing angles

total load on angles
allowable deflection (L/360)
required moment of inertia

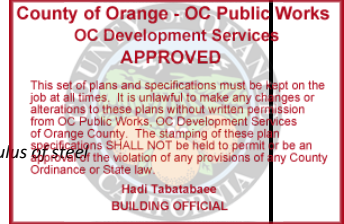
ultimate load on angles
ultimate moment
ultimate shear

Loading

| | | |
|------|-------|-----|
| DL = | 45 | psf |
| LL = | 100 | psf |
| E = | 29000 | ksi |

ASCE 7-16

Young's modulus of steel



Stringer design

| | | |
|-------------------------------|--------|-----------------|
| h = | 16 | ft |
| L = | 29.5 | ft |
| $w_s =$ | 6 | ft |
| $L_s =$ | 33.6 | ft |
| Trib | 3 | |
| Compression flange not braced | | |
| $w_u =$ | 642 | plf |
| $M_u =$ | 90.38 | kip-ft |
| $V_u =$ | 10.77 | kip |
| $w_\Delta =$ | 435 | plf |
| $\Delta_{Allow} =$ | 1.119 | in |
| $I_{Req} =$ | 382.69 | in ⁴ |
| $L_p =$ | 3.75 | ft |
| $L_r =$ | 14.5 | ft |
| c = | 1.089 | |
| $h_o =$ | 14.5 | |
| $I_y =$ | 8.07 | in ⁴ |
| $C_w =$ | 358 | in ⁶ |
| $r_{ts} =$ | 1.13 | in |
| $S_x =$ | 42 | in ³ |
| J = | 1.01 | in ⁴ |
| $r_y =$ | 0.901 | in |
| $f_y =$ | 36 | ksi |
| $Z_x =$ | 50.8 | in ³ |
| Fcr = | 11.18 | ksi |
| $M_p =$ | 1828.8 | kip-in |
| $M_n =$ | 39.1 | kip-ft |
| $\phi M_n =$ | 137.16 | kip-ft |
| USE C15x33.9 | | |

rise of stair
length of stair
width of stair
length of stringer
tributary area of stringer

factored dist. Load
ultimate moment
ultimate shear

unfactored dist. Load
allowable deflection (L/360)
required moment of inertia

SLENDER

AISC Table 1-1
AISC Table 1-2

yield stress
plastic section modulus

plastic moment
nominal moment

0.66 factored moment

Header design

| | | |
|---------------------|-------|-----------------|
| $w_L =$ | 6 | ft |
| $L_L =$ | 4.5 | ft |
| Trib | 3 | |
| $w_\Delta =$ | 43.5 | plf |
| $\Delta_{Allow} =$ | 0.200 | in |
| $I_{Req} =$ | 0.22 | in ⁴ |
| $w_u =$ | 642.0 | plf |
| $M_u =$ | 1.63 | kip-ft |
| $V_u =$ | 1.44 | kip |
| Try C8x11.5 | | |
| A = | 3.37 | in ² |
| $I_x =$ | 32.5 | in ⁴ |
| $f_y =$ | 36 | ksi |
| $S_x =$ | 8.14 | in ³ |
| $Z_x =$ | 9.63 | in ⁴ |
| $\phi M_n =$ | 26.00 | kip-ft |
| $\phi V_n =$ | 65.5 | kip |
| $\Delta_{Actual} =$ | 0.001 | |
| USE C8x11.5 | | |

landing width
total landing width
tributary area for header

unfactored dist. Load

0.007

yield stress

plastic section modulus

0.063

(AISC 360 Eq. F10-2)

0.02

(AISC 360 Eq. G2-1)

0.007



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| | | | | |
|----------|--------------------|---------|------------|-----------|
| project | DPH - Bldg 12 | by | CSC | sheet no. |
| location | Dana Point, CA | date | 4/27/2023 | |
| client | SMS | job no. | 1900477.31 | |
| | Steel Stair Design | | | |

Building&Safety: OCPWazarvandB

12/22/2025

Seismic Loading

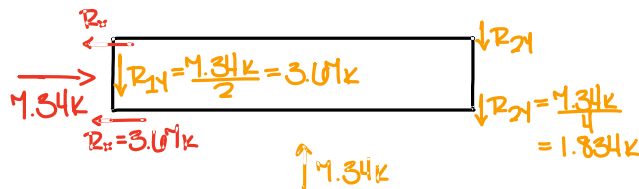
Permits: BNR21-0246

Seismic Loading

| | | |
|--------------|----------|---|
| $W_p =$ | 9061 lb | weight of component |
| $R_p =$ | 2.5 | egress stairs and ramp fasteners and attachments (ASCE 7-16 Table 13.6-1) |
| $a_p =$ | 2.5 | |
| $\Omega_0 =$ | 2.5 | |
| $I_p =$ | 1.0 | seismic importance factor (ASCE 7-16 Table 1.5-2) |
| $S_1 =$ | 0.455 | ASCE 7-16 Figure 22-2 |
| $S_s =$ | 1.27 | ASCE 7-16 Figure 22-2 |
| $S_{D1} =$ | 0.46 | ASCE 7-16 Eq's 11.4-4, 11.4-2 |
| $S_{DS} =$ | 1.01 | ASCE 7-16 Eq's 11.4-1, 11.4-3 |
| $z/h =$ | 0.5 | attachment ratio |
| $F_p =$ | 7336 lb | calculated design force (ASCE 7-16 Eq 13.3-1) |
| $F_{pMax} =$ | 14672 lb | maximum design force (ASCE 7-16 Eq 13.3-2) |
| $F_{pMin} =$ | 2751 lb | minimum design force (ASCE 7-16 Eq 13.3-3) |

$F_p = 7336$ lb seismic component design force (ASCE 7-16 Eq 13.3-1)

$F_p = 825$ lb vertical seismic component design force (ASCE 7-16 Eq 13.3-1)



STAIR 2

→ R_x TAKEN BY KB-T22 CONN TO SLAB (SEE FOLLOWING)

→ R_x R_y TAKEN BY BO

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: DPH - Bldg 12 Stair Design.ec6

LIC# : KW-06015364, Build:20.22.12.28

KPFF CONSULTING ENGINEERS

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 Building&Safety: OCP/AzarvandB

12/22/2025

DESCRIPTION: B2 Design

Permits: BNR21-0246

Code References

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combinations Used : IBC 2018

General Information

Steel Section Name : **W14x22**

Analysis Method : Load Resistance Factor

Steel Stress Grade

Fy : Steel Yield 50 ksi

E : Elastic Bending Modulus 29,000.0 ksi

Overall Column Height 7.25

Top & Bottom Fixity Top & Bottom Pinned

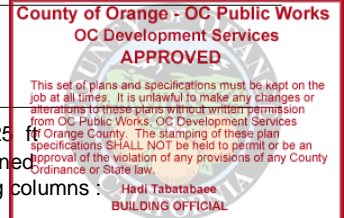
Brace condition for deflection (buckling) along columns :

X-X (width) axis :

Fully braced against buckling ABOUT Y-Y Axis

Y-Y (depth) axis :

Fully braced against buckling ABOUT X-X Axis



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 159.50 lbs * Dead Load Factor

AXIAL LOADS . . .

Axial Load at 7.250 ft, E = 3.670 k

BENDING LOADS . . .

Lat. Point Load at 6.750 ft creating My-y, E = 3.670 k

Lat. Point Load at 6.750 ft creating Mx-x, D = 2.30, L = 5.040 k

Lat. Point Load at 0.50 ft creating My-y, E = 3.670 k

Lat. Point Load at 0.50 ft creating Mx-x, D = 2.30, L = 5.040 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.1393** : 1
 Load Combination +1.20D+0.50L+E
 Location of max.above base 6.374 ft
 At maximum location values are . . .
 Pu 3.861 k
 0.9 * Pn 292.050 k
 Mu-x 2.640 k-ft
 0.9 * Mn-x : 124.50 k-ft
 Mu-y 1.835 k-ft
 0.9 * Mn-y : 16.463 k-ft

Maximum Load Reactions . .
 Top along X-X 3.670 k
 Bottom along X-X 3.670 k
 Top along Y-Y 7.340 k
 Bottom along Y-Y 7.340 k

Maximum Load Deflections . . .
 Along Y-Y 0.007266 in at 3.649ft above base
 for load combination : +D+L
 Along X-X 0.1033 in at 3.649ft above base
 for load combination : E Only

PASS Maximum Shear Stress Ratio = **0.03882** : 1
 Load Combination +1.20D+0.50L+E
 Location of max.above base 0.0 ft
 At maximum location values are . . .
 Vu : Applied 3.670 k
 Vn * Phi : Allowable 94.530 k

Load Combination Results

| Load Combination | Maximum Axial + Bending Stress Ratios | | | | Cbz | Cby | KxLx/Ry | KyLy/Rx | Maximum Shear Ratios | | |
|------------------|---------------------------------------|--------|----------|--------------|------|------|---------|---------|----------------------|----------|--|
| | Stress Ratio | Status | Location | Stress Ratio | | | | | Status | Location | |
| +1.40D | 0.013 | PASS | 1.41 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft | |
| +1.20D+1.60L | 0.044 | PASS | 4.18 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft | |
| +1.20D+0.50L | 0.022 | PASS | 4.23 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft | |
| +1.20D | 0.011 | PASS | 4.14 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft | |
| +1.20D+0.50L+E | 0.139 | PASS | 6.37 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.039 | PASS | 0.00 ft | |
| +0.90D | 0.009 | PASS | 5.69 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.000 | PASS | 0.00 ft | |
| +0.90D+E | 0.126 | PASS | 6.37 ft | 1.00 | 1.00 | 0.00 | 0.00 | 0.039 | PASS | 0.00 ft | |

Maximum Reactions

Note: Only non-zero reactions are listed.

| Load Combination | Axial Reaction | | X-X Axis Reaction | | k | Y-Y Axis Reaction | | Mx - End Moments | | k-ft | My - End Moments | |
|------------------|----------------|--|-------------------|-------|---|-------------------|-------|------------------|-------|------|------------------|-------|
| | @ Base | | @ Base | @ Top | | @ Base | @ Top | @ Base | @ Top | | @ Base | @ Top |
| D Only | 0.160 | | | | | 2.300 | 2.300 | | | | | |
| +D+L | 0.160 | | | | | 7.340 | 7.340 | | | | | |

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Column

Project File: DPH - Bldg 12 Stair Design.ec6

LIC# : KW-06015364, Build:20.22.12.28

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 Building & Safety: OCPW AzarvandB

12/22/2025

DESCRIPTION: B2 Design

Permits: BNR21-0246

Maximum Reactions

Note: Only non-zero reactions are listed.

| Load Combination | Axial Reaction | | X-X Axis Reaction | | k | Y-Y Axis Reaction | | Mx - End Moments | | My - End Moments | |
|-------------------|----------------|-------|-------------------|-------|---|-------------------|-------|------------------|-------|------------------|-------|
| | @ Base | @ Top | @ Base | @ Top | | @ Base | @ Top | @ Base | @ Top | @ Base | @ Top |
| +D+0.750L | 0.160 | | | | | 6.080 | 6.080 | | | | |
| +D+0.70E | 2.729 | | -2.569 | 2.569 | | 2.300 | 2.300 | | | | |
| +D+0.750L+0.5250E | 2.086 | | -1.927 | 1.927 | | 6.080 | 6.080 | | | | |
| +0.60D | 0.096 | | | | | 1.380 | 1.380 | | | | |
| +0.60D+0.70E | 2.665 | | -2.569 | 2.569 | | 1.380 | 1.380 | | | | |
| L Only | | | | | | 5.040 | 5.040 | | | | |
| E Only | 3.670 | | -3.670 | 3.670 | | | | | | | |



Extreme Reactions

| Item | Extreme Value | Axial Reaction | | k | Y-Y Axis Reaction | | Mx - End Moments | | My - End Moments | |
|-------------------------|---------------|----------------|-------|---|-------------------|-------|------------------|-------|------------------|-------|
| | | @ Base | @ Top | | @ Base | @ Top | @ Base | @ Top | @ Base | @ Top |
| Axial @ Base | Maximum | 3.670 | | | | | | | | |
| " | Minimum | | | | 5.040 | 5.040 | | | | |
| Reaction, X-X Axis Base | Maximum | 0.160 | | | 2.300 | 2.300 | | | | |
| " | Minimum | 3.670 | | | | | | | | |
| Reaction, Y-Y Axis Base | Maximum | 0.160 | | | 7.340 | 7.340 | | | | |
| " | Minimum | 3.670 | | | | | | | | |
| Reaction, X-X Axis Top | Maximum | 3.670 | | | | | | | | |
| " | Minimum | 0.160 | | | 2.300 | 2.300 | | | | |
| Reaction, Y-Y Axis Top | Maximum | 0.160 | | | 2.300 | 2.300 | | | | |
| " | Minimum | 3.670 | | | | | | | | |
| Moment, X-X Axis Base | Maximum | 0.160 | | | 2.300 | 2.300 | | | | |
| " | Minimum | 0.160 | | | 2.300 | 2.300 | | | | |
| Moment, Y-Y Axis Base | Maximum | 0.160 | | | 2.300 | 2.300 | | | | |
| " | Minimum | 0.160 | | | 2.300 | 2.300 | | | | |
| Moment, X-X Axis Top | Maximum | 0.160 | | | 2.300 | 2.300 | | | | |
| " | Minimum | 0.160 | | | 2.300 | 2.300 | | | | |
| Moment, Y-Y Axis Top | Maximum | 0.160 | | | 2.300 | 2.300 | | | | |
| " | Minimum | 0.160 | | | 2.300 | 2.300 | | | | |

Maximum Deflections for Load Combinations

| Load Combination | Max. X-X Deflection | Distance | Max. Y-Y Deflection | Distance |
|-------------------|---------------------|----------|---------------------|----------|
| D Only | 0.0000 in | 0.000 ft | 0.002 in | 3.649 ft |
| +D+L | 0.0000 in | 0.000 ft | 0.007 in | 3.649 ft |
| +D+0.750L | 0.0000 in | 0.000 ft | 0.006 in | 3.649 ft |
| +D+0.70E | 0.0723 in | 3.649 ft | 0.002 in | 3.649 ft |
| +D+0.750L+0.5250E | 0.0542 in | 3.649 ft | 0.006 in | 3.649 ft |
| +0.60D | 0.0000 in | 0.000 ft | 0.001 in | 3.649 ft |
| +0.60D+0.70E | 0.0723 in | 3.649 ft | 0.001 in | 3.649 ft |
| L Only | 0.0000 in | 0.000 ft | 0.005 in | 3.649 ft |
| E Only | 0.1033 in | 3.649 ft | 0.000 in | 0.000 ft |

Steel Section Properties : W14x22

| | | | | | | | | |
|-----------------|---|-----------------------|-----------------|---|------------------------|-----------------|---|------------------------|
| Depth | = | 13.700 in | I _{xx} | = | 199.00 in ⁴ | J | = | 0.208 in ⁴ |
| Web Thick | = | 0.230 in | S _{xx} | = | 29.00 in ³ | C _w | = | 314.00 in ⁶ |
| Flange Width | = | 5.000 in | R _{xx} | = | 5.540 in | | | |
| Flange Thick | = | 0.335 in | Z _x | = | 33.200 in ³ | | | |
| Area | = | 6.490 in ² | I _{yy} | = | 7.000 in ⁴ | | | |
| Weight | = | 22.000 plf | S _{yy} | = | 2.800 in ³ | W _{no} | = | 16.700 in ² |
| Kdesign | = | 0.735 in | R _{yy} | = | 1.040 in | S _w | = | 7.000 in ⁴ |
| K1 | = | 0.750 in | Z _y | = | 4.390 in ³ | Q _f | = | 5.340 in ³ |
| r _{ts} | = | 1.270 in | | | | Q _w | = | 16.100 in ³ |
| Y _{cg} | = | 0.000 in | | | | | | |

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Column

Project File: DPH - Bldg 12 Stair Design.ec6

LIC# : KW-06015364, Build:20.22.12.28

KPFF CONSULTING ENGINEERS

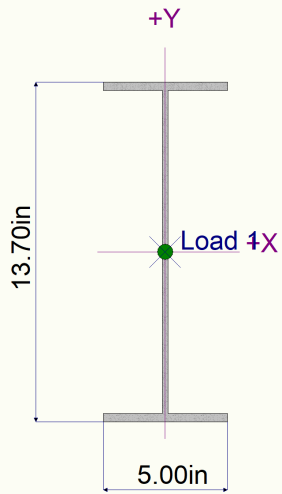
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Building&Safety: OCPW AzarvandB

12/22/2025

DESCRIPTION: B2 Design

Permits: BNR21-0246

Sketches



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OC Development Services
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Hadi Tabatabaee 3.670k
BUILDING OFFICIAL





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Irvine, CA 92612
[949] 252-1022 Fax [949] 252-8082

| | | | | |
|----------|----------------|---------|----------|-----------|
| project | DPH - BLDG 12 | by | CSC | sheet no. |
| location | DANA POINT, CA | date | 8/7/2023 | |
| client | SMS | job no. | 1900799 | |
| | PARAPET DESIGN | | | |

Building&Safety: OCPWazarvandB

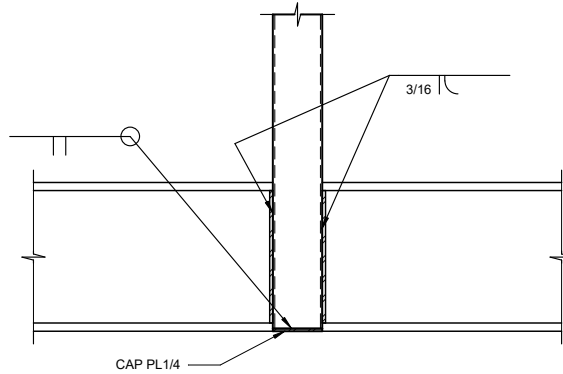
12/22/2025

Permits: BNR21-0246

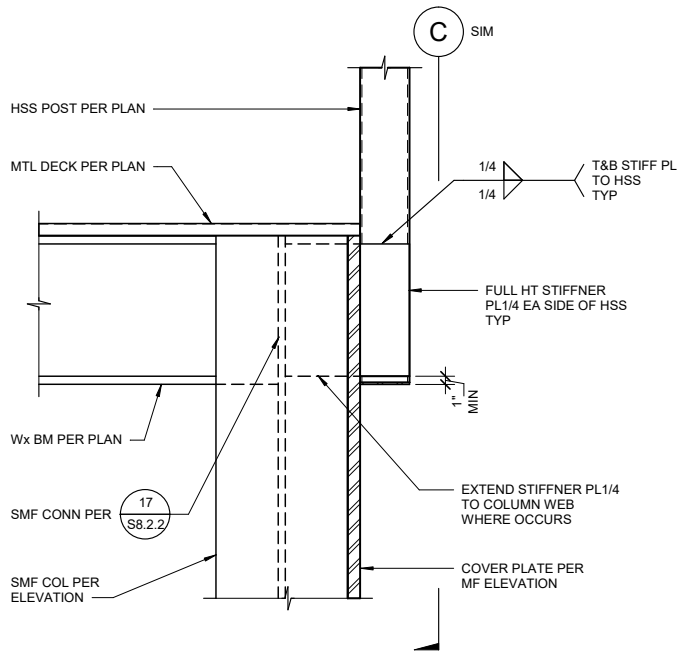
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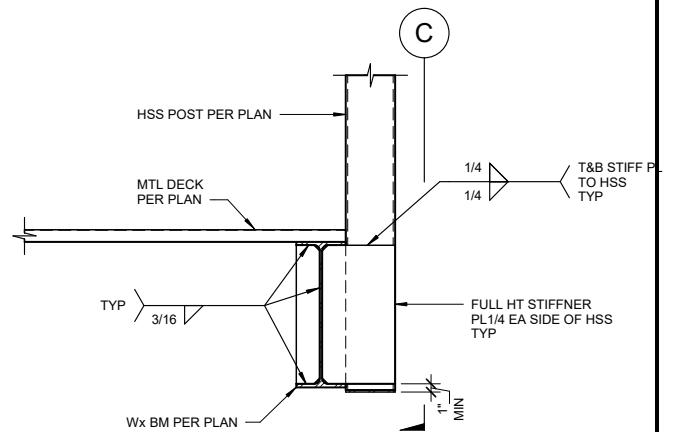
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C SECTION



B SECTION
SCALE: GRID D & 5



A SECTION
SCALE: GRID B & 4



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| | | | | |
|----------|-------------------------|---------|----------|-----------|
| project | DPH PHASE 4B | by | CSC | sheet no. |
| location | Dana Point, CA | date | 8/7/2023 | |
| client | SMS | job no. | 1900799 | |
| | Exterior Opening Design | | | |

Building&Safety: OCPWazarvandB 12/22/2025
Permits: BNR21-0246

Components & Cladding Wind Loads

(ASCE 7-16 - Ch 30, Part 1 & Part 6)

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Hadi Tabatabaee
REGISTERED PROFESSIONAL ENGINEER

Wind Coefficients

| | | |
|--------------------------|----------|-------------------|
| Risk Category | II | Table 1.5-1 |
| Basic Wind Speed | 102 | mph, Fig. 26.5-1B |
| Enclosure Classification | Enclosed | Sec. 26.2 |
| G _{cpi} | 0.18 | Table 26.13-1 |
| K _d | 0.85 | Table 26.6-1 |
| Exposure Category | D | Sec. 26.7.3 |
| G | 0.85 | Sec. 26.11.1 |
| K _e | 1.00 | Table 26.9-1 |
| K _{z @ h} | 1.17 | Table 26.10-1 |
| q _h | 26.5 | psf, Eq. 26.10-1 |

Elevation and Structure Dimensions

| | | |
|----------------------------------|-------|---------------------------|
| Ground Elevation Above Sea Level | 0 | ft |
| Ground to Top of Roof | 32.0 | ft |
| Bottom of Roof to Top of Roof | 1.0 | ft |
| Mean Roof Height, h | 31.5 | ft |
| Roof Angle, θ | 1 | Degree |
| Width of Structure, B | 94.5 | ft |
| Length of Structure, L | 116.5 | ft |
| Width of Pressure Coefficient, a | 9.5 | ft |
| Parapet? | Yes | h _{parapet} 5 ft |
| Calculate K _{zt} ? | No | K _{zt} 1.00 |

| | |
|-----------------------|-----------|
| Strength or Allowable | Strength |
| Roof Type | Flat Roof |
| Roof Overhang | No |

Strength Level Wall Pressures (psf)

Fig. 30.3-1

| Zone | Effective Wind Area (ft ²) | | | | | | |
|------|--|-------|-------|-------|-------|-------|-------|
| | 10 | 20 | 50 | 100 | 200 | 500 | 68 |
| 4 | 28.7 | 27.4 | 25.7 | 24.4 | 23.2 | 21.5 | 25.1 |
| | -31.0 | -29.8 | -28.1 | -26.8 | -25.6 | -23.9 | -27.5 |
| 5 | 28.7 | 27.4 | 25.7 | 24.4 | 23.2 | 21.5 | 25.1 |
| | -38.2 | -35.7 | -32.3 | -29.8 | -27.2 | -23.9 | -31.2 |

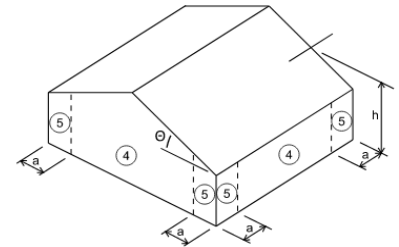


Fig. 30.3-1

Strength Level Roof Pressures (psf)

Fig. 30.3-2A

| Zone | Effective Wind Area (ft ²) | | | | | | | |
|------|--|-------|-------|-------|-------|-------|-------|-------|
| | 10 | 20 | 50 | 100 | 200 | 500 | 1000 | 10 |
| 1' | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 |
| | -28.7 | -28.7 | -28.7 | -28.7 | -24.7 | -19.4 | -16.0 | -28.7 |
| 1 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 |
| | -49.9 | -46.6 | -42.2 | -39.0 | -35.7 | -31.3 | -31.3 | -49.9 |
| 2 | 28.7 | 27.4 | 25.7 | 24.4 | 23.2 | 21.5 | 21.5 | 28.7 |
| | -65.8 | -61.6 | -56.0 | -51.8 | -47.5 | -41.9 | -41.9 | -65.8 |
| 3 | 28.7 | 27.4 | 25.7 | 24.4 | 23.2 | 21.5 | 21.5 | 28.7 |
| | -65.8 | -61.6 | -56.0 | -51.8 | -47.5 | -41.9 | -41.9 | -65.8 |

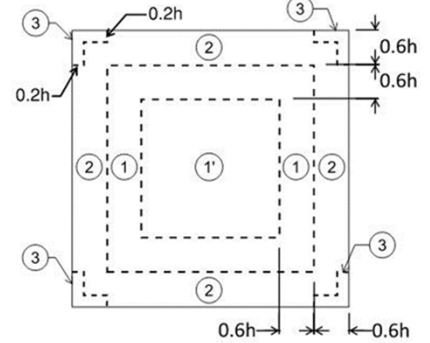


Fig. 30.3-2A

Strength Level Parapet Net Pressures (psf)

q_p 27.2 psf

Fig. 30.8-1

| Zone | Effective Wind Area (ft ²) | | | | | | | |
|------|--|-------|-------|-------|-------|-------|-------|-------|
| | 10 | 20 | 50 | 100 | 200 | 500 | 1000 | 80 |
| 4 | 86.4 | 80.8 | 73.3 | 67.7 | 62.1 | 55.9 | 55.9 | 82.5 |
| | -60.1 | -57.5 | -54.1 | -51.5 | -48.9 | -46.7 | -46.7 | -52.3 |
| 5 | 86.4 | 80.8 | 73.3 | 67.7 | 62.1 | 55.9 | 55.9 | 82.5 |
| | -67.5 | -63.6 | -58.4 | -54.5 | -50.6 | -46.7 | -46.7 | -55.8 |

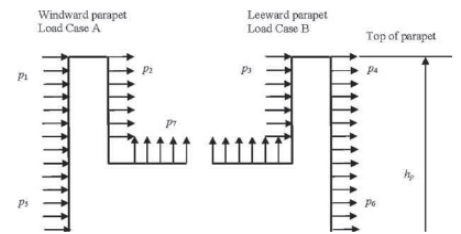


Fig. 30.8-1

$$q_h = 0.00256 K_z K_{zt} K_d K_e V^2 \quad \text{Eq. 26.10-1}$$

$$K_{zt} = (1 + K_1 K_2 K_3)^2 \quad \text{Eq. 26.8-1}$$

$$p = q_h [(GC_p) - (GC_{pi})] \quad \text{Eq. 30.3-1}$$

$$p = q_p [(GC_p) - (GC_{pi})] \quad \text{Eq. 30.8-1}$$



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project DPH- BLDG 12
location DANA POINT, CA
client SMB
PARAPET DESIGN

by CSC
date 8/4/2023
job no. 1903499

sheet no.

CONN DESIGN

Building&Safety: OCPWazarvandB

12/22/2025

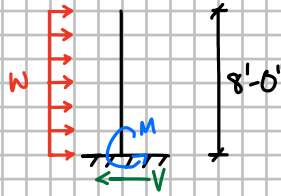
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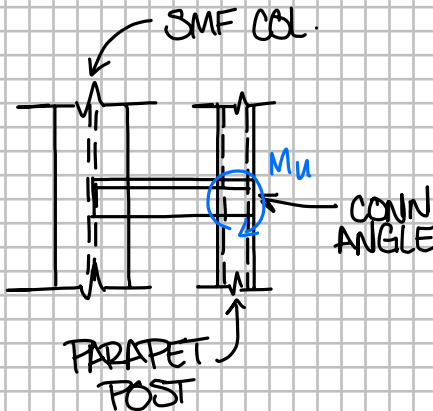
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BUILDING OFFICIAL

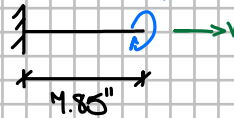
$TRIB = 10'$
 $H = 8'$
 $A_T = 80 FT^2$ TRIB WIND AREA
 $P = 45.3 PSF + 54.1 PSF = 129.4 PSF$
 $W = 129.4 PSF \times 10' = 1.3 KLF$
 $V = V_u = 1.3 KLF \times 8' = 10.4 K$
 $M = M_u = 1.3 KLF \times \frac{(8')^2}{2} = 41.6 K-FT$



→ CONN 1 (TO POST)



- CHECK ANGLE $M/2 = 20.8 K-FT$

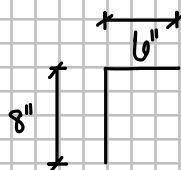


$L = \frac{15.4''}{2} = 7.7''$
 (Note: 1/2 FLAG WIDTH OF W14x193)

→ SEE FOLLOWING ENER CALC

USE $L8 \times 6 \times 7/10$

- CHECK ANGLE TO COL WEB WELD

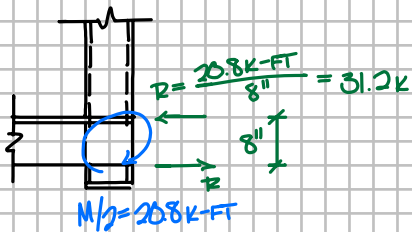


$S_x = \frac{4BD + D^2}{6} = \frac{4 \times 6'' \times 8'' + (8'')^2}{6} = 42 IN^2$

$\phi M_n = 1.392 K/IN \times 5 \times 42 IN^2$
 $= 24 K-FT > 20.8 K-FT$ OKAY

USE $5/16''$ FILLET WELD

- CHECK PARAPET POST TO ANGLE WELD



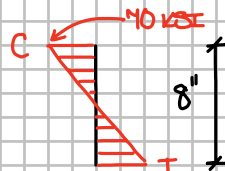
$\phi T_n = 11.8 K + 22.5 K = 34.1 K > 31.2 K$
OKAY

FILLET WELD STRENGTH

$\phi R_n = 1.392 K/FT \times 4 \times 4'' = 22.3 K$

USE $1/4''$ FILLET WELD

FLARE BEVEL WELD STRENGTH



USE $5/16''$ FLARE BEVEL WELD

$\phi R_n = 0.75 \times 0.6 \times \frac{1}{2} \times 40 KSI \times 4'' \times \frac{5}{16}'' = 11.8 K$

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Steel Beam

Project File: DPH - Bldg 12 Parapet.ec6

LIC# : KW-06015364, Build:20.22.12.28

KPFF CONSULTING ENGINEERS

(c) ENERCALC INC 1983-2022
 Buildings&Safety: OCPWazarvandB

12/22/2025

DESCRIPTION: Angle Design

Permits: BNR21-0246

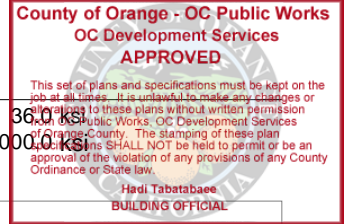
CODE REFERENCES

Calculations per AISC 360-16, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : IBC 2018

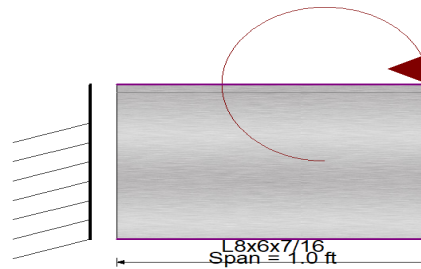
Material Properties

Analysis Method Load Resistance Factor Design
 Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
 Bending Axis : Major Axis Bending

Fy : Steel Yield : 360 KSI
 E: Modulus : 29,000 KSI



Vertical Leg Down



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
 Load(s) for Span Number 1
 Moment : D = 0.250, W = 20.80 k-ft, Loc = 0.6670 ft in span

DESIGN SUMMARY

Design OK

| | | | |
|-----------------------------------|-------------------------------------|------------------------------|------------------|
| Maximum Bending Stress Ratio = | 0.838 : 1 | Maximum Shear Stress Ratio = | 0.000 : 1 |
| Section used for this span | L8x6x7/16 | Section used for this span | L8x6x7/16 |
| Mu : Applied | 21.112 k-ft | Vu : Applied | 0.02828 k |
| Mn * Phi : Allowable | 25.206 k-ft | Vn * Phi : Allowable | 68.118 k |
| Load Combination | +1.20D+W | Load Combination | +1.40D |
| Span # where maximum occurs | Span # 1 | Location of maximum on span | 0.000 ft |
| Span # where maximum occurs | Span # 1 | Span # where maximum occurs | Span # 1 |
| Maximum Deflection | | | |
| Max Downward Transient Deflection | 0.014 in Ratio = 1,715 >=360 | | |
| Max Upward Transient Deflection | 0.000 in Ratio = 0 <360 | Span: 1 : W Only | |
| Max Downward Total Deflection | 0.009 in Ratio = 2802 >=180 | Span: 1 : +D+0.60W | |
| Max Upward Total Deflection | 0.000 in Ratio = 0 <180 | | |

Maximum Forces & Stresses for Load Combinations

| Load Combination | Segment Length | Span # | Max Stress Ratios | | Summary of Moment Values | | | | | Summary of Shear Values | | | | |
|------------------|----------------|--------|-------------------|-------|--------------------------|----------|--------|-------|---------|-------------------------|------|-------|-------|---------|
| | | | M | V | max Mu + | max Mu - | Mu Max | Mnx | Phi*Mnx | Cb | Rm | VuMax | Vnx | Phi*Vnx |
| +1.40D | | | | | | | | | | | | | | |
| Dsgn. L = | 1.00 ft | 1 | 0.014 | 0.000 | -0.36 | 0.36 | 28.01 | 25.21 | 1.00 | 1.00 | 0.03 | 75.69 | 68.12 | |
| +1.20D | | | | | | | | | | | | | | |
| Dsgn. L = | 1.00 ft | 1 | 0.012 | 0.000 | -0.31 | 0.31 | 28.01 | 25.21 | 1.00 | 1.00 | 0.02 | 75.69 | 68.12 | |
| +1.20D+0.50W | | | | | | | | | | | | | | |
| Dsgn. L = | 1.00 ft | 1 | 0.425 | 0.000 | -10.71 | 10.71 | 28.01 | 25.21 | 1.00 | 1.00 | 0.02 | 75.69 | 68.12 | |
| +1.20D+W | | | | | | | | | | | | | | |
| Dsgn. L = | 1.00 ft | 1 | 0.838 | 0.000 | -21.11 | 21.11 | 28.01 | 25.21 | 1.00 | 1.00 | 0.02 | 75.69 | 68.12 | |
| +0.90D+W | | | | | | | | | | | | | | |
| Dsgn. L = | 1.00 ft | 1 | 0.834 | 0.000 | -21.03 | 21.03 | 28.01 | 25.21 | 1.00 | 1.00 | 0.02 | 75.69 | 68.12 | |
| +0.90D | | | | | | | | | | | | | | |
| Dsgn. L = | 1.00 ft | 1 | 0.009 | 0.000 | -0.23 | 0.23 | 28.01 | 25.21 | 1.00 | 1.00 | 0.02 | 75.69 | 68.12 | |

Vertical Reactions

Support notation : Far left is #'

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|-------------------------------------|-----------|-----------|
| Max Upward from all Load Conditions | 0.020 | |
| Max Upward from Load Combinations | 0.020 | |
| Max Upward from Load Cases | 0.020 | |
| D Only | 0.020 | |
| +D+0.60W | 0.020 | |
| +D+0.450W | 0.020 | |

Project Title:
Engineer:
Project ID:
Project Descr:

Steel Beam

Project File: DPH - Bldg 12 Parapet.ec6

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KPFF CONSULTING ENGINEERS

(c) ENERCALC INC 1983-2022
Building&Safety: OCPW Azarvand

12/22/2025

DESCRIPTION: Angle Design

Permits: BNR21-0246

Vertical Reactions

Support notation : Far left is #

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|------------------|-----------|-----------|
| +0.60D+0.60W | 0.012 | |
| +0.60D | 0.012 | |
| W Only | 0.000 | |





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project DPH-BLDG 12
location DANA POINT, CA
client SMS
PARAPET DESIGN

by CEC
date 8/4/2023
job no. 1900MPA

sheet no.

Building&Safety: OCPWazarvandB

12/22/2025

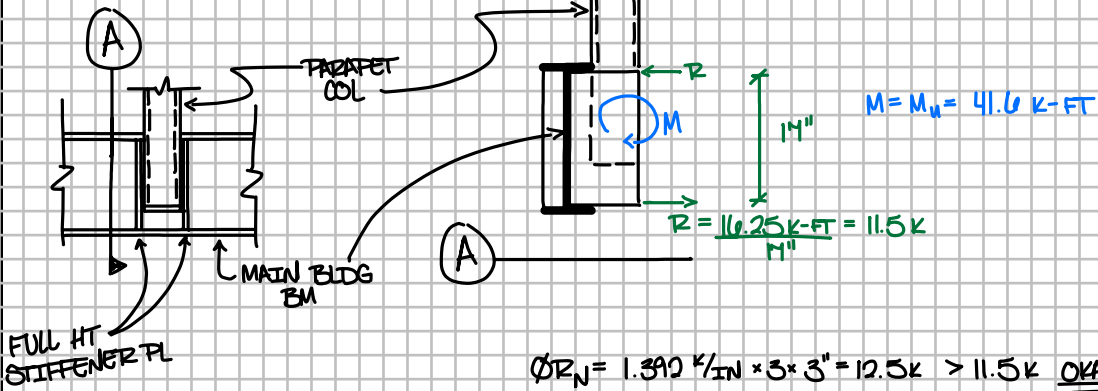
Permits: BNR21-0246

County of Orange - OC Public Works
OC Development Services
APPROVED

This set of plans and specifications must be kept on the job at all times. It is unlawful to make any changes or alterations to these plans without written permission from OC Public Works, OC Development Services of Orange County. The stamping of these plan specifications SHALL NOT be held to permit or be an approval of the violation of any provisions of any County Ordinance or State law.

Hadi Tabatabaee
BUILDING OFFICIAL

→ CONN 2 (TO BM WEB)



USE 3/16" FILLET WELD