

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--		

PROJECT SUMMARY

Project Name: 25-024 Hubble

Governing Codes:

Building Code: 2018 International Building Code

ASCE: ASCE 7-16

Steel: AISC 360-16

Concrete: ACI 318-14

Masonry: TMS 402/602-16

Module Location: Rafters #1

Module Level: Roof

Module Type: Roof Rafter

Material Type: Solid Sawn Douglas Fir-Larch No. 2

Member Dimensions: (1) 1.5 in. X 7.25 in. X 10 ft @ 16 in. Spacing

Section Adequacy: 42.34%

Controlling Factor: Bending-Compression

Module Location: Trusses #1

Module Level: Roof

Module Type: Roof Rafter

Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL

Member Dimensions: (5) 1.75 in. X 20 in. X 14 ft @ 24 in. Spacing

Section Adequacy: 90.4%

Controlling Factor: Bearing Stress

Module Location: Trusses #2

Module Level: Roof

Module Type: Roof Rafter

Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL

Member Dimensions: (5) 1.75 in. X 20 in. X 41 ft @ 24 in. Spacing

Section Adequacy: 32.25%

Controlling Factor: Deflection Y

Module Location: Rafters #2

Module Level: Roof

Module Type: Roof Rafter

Material Type: Solid Sawn Douglas Fir-Larch No. 2

Member Dimensions: (1) 1.5 in. X 11.25 in. X 15.5 ft @ 12 in. Spacing

Section Adequacy: 6.37%

Controlling Factor: Bending-Tension

Module Location: Rafters #3

Module Level: Roof

Module Type: Roof Rafter

Material Type: Solid Sawn Douglas Fir-Larch No. 2

Member Dimensions: (1) 1.5 in. X 11.25 in. X 15.5 ft @ 12 in. Spacing

Section Adequacy: 6.37%

Controlling Factor: Bending-Tension

Module Location: Trusses #3

Module Level: Roof

Module Type: Roof Rafter

Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL

Member Dimensions: (5) 1.75 in. X 20 in. X 42 ft @ 24 in. Spacing

Section Adequacy: 31.6%

Controlling Factor: Deflection Y

Module Location: Trusses #4

Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 25 ft @ 24 in. Spacing
Section Adequacy: 84.82%
Controlling Factor: Bending Stress Y

Module Location: Trusses #5
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 34.5 ft @ 24 in. Spacing
Section Adequacy: 72.7%
Controlling Factor: Deflection Y

Module Location: Trusses #6
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 5 ft @ 24 in. Spacing
Section Adequacy: 93.27%
Controlling Factor: Bearing Stress

Module Location: Rafters #4
Module Level: Roof
Module Type: Roof Rafter
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 1.5 in. X 7.25 in. X 10 ft @ 16 in. Spacing
Section Adequacy: 30.88%
Controlling Factor: Bending-Compression

Module Location: Rafters #5
Module Level: Roof
Module Type: Roof Rafter
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 1.5 in. X 7.25 in. X 10 ft @ 16 in. Spacing
Section Adequacy: 25.05%
Controlling Factor: Bending Stress Y

Module Location: Trusses #7
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 5 ft @ 24 in. Spacing
Section Adequacy: 93.27%
Controlling Factor: Bearing Stress

Module Location: Trusses #8
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 36 ft @ 24 in. Spacing
Section Adequacy: 63.02%
Controlling Factor: Deflection Y

Module Location: Trusses #9
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 7 ft @ 24 in. Spacing
Section Adequacy: 93.4%
Controlling Factor: Bearing Stress

Module Location: Trusses #10

Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 54 ft @ 24 in. Spacing
Section Adequacy: 64.08%
Controlling Factor: Bearing Stress

Module Location: Trusses #11
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 57 ft @ 24 in. Spacing
Section Adequacy: 73.35%
Controlling Factor: Bearing Stress

Module Location: Trusses #12
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 28 ft @ 24 in. Spacing
Section Adequacy: 84.92%
Controlling Factor: Bearing Stress

Module Location: Trusses #13
Module Level: Roof
Module Type: Roof Rafter
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 34 ft @ 24 in. Spacing
Section Adequacy: 74.18%
Controlling Factor: Deflection Y

Module Location: Rafters #6
Module Level: Roof
Module Type: Roof Rafter
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 1.5 in. X 7.25 in. X 4.25 ft @ 16 in. Spacing
Section Adequacy: 78.59%
Controlling Factor: Shear Stress Y

Module Location: Beam #1
Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 6.75 in. X 13.5 in. X 16 ft
Section Adequacy: 98.63%
Controlling Factor: Bending Stress Y

Module Location: Beam #2
Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 6.75 in. X 13.5 in. X 26 ft
Section Adequacy: 23.37%
Controlling Factor: Bending Stress Y

Module Location: Beam #4
Module Level: Roof
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL
Member Dimensions: (3) 1.75 in. X 7.25 in. X 5 ft
Section Adequacy: 28.63%
Controlling Factor: Shear Stress Y

Module Location: Beam #5

Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 6.75 in. X 18 in. X 18 ft
Section Adequacy: 19.54%
Controlling Factor: Bearing Stress

Module Location: Beam #6

Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 6.75 in. X 18 in. X 18.5 ft
Section Adequacy: 21.26%
Controlling Factor: Bearing Stress

Module Location: Beam #7

Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 6.75 in. X 18 in. X 18.5 ft
Section Adequacy: 28.41%
Controlling Factor: Bearing Stress

Module Location: Beam #8

Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 8.75 in. X 24 in. X 25 ft
Section Adequacy: 12%
Controlling Factor: Bending Stress Y

Module Location: Beam #9

Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 8.75 in. X 24 in. X 23 ft
Section Adequacy: 31.25%
Controlling Factor: Bending Stress Y

Module Location: Beam #10

Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 8.75 in. X 24 in. X 5 ft
Section Adequacy: 55.09%
Controlling Factor: Bearing Stress

Module Location: Girder #3

Module Level: Roof
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (5) 1.75 in. X 20 in. X 15 ft
Section Adequacy: 47.42%
Controlling Factor: Bearing Stress

Module Location: Beam #11

Module Level: Roof
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (1) 1.75 in. X 11.25 in. X 10 ft
Section Adequacy: 10.34%
Controlling Factor: Bending Stress Y

Module Location: Beam #12

Module Level: Roof
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 6.75 in. X 13.5 in. X 11 ft

Section Adequacy: 69.55%

Controlling Factor: Bearing Stress

Module Location: Beam #13

Module Level: Roof

Module Type: Roof Beam

Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 6.75 in. X 18 in. X 11 ft

Section Adequacy: 75.36%

Controlling Factor: Bearing Stress

Module Location: Beam #14

Module Level: Roof

Module Type: Roof Beam

Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 6.75 in. X 13.5 in. X 11 ft

Section Adequacy: 69.55%

Controlling Factor: Bearing Stress

Module Location: Beam #15

Module Level: Roof

Module Type: Roof Beam

Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 8.75 in. X 13.5 in. X 14.5 ft

Section Adequacy: 48.66%

Controlling Factor: Shear Stress Y

Module Location: Beam #16

Module Level: Roof

Module Type: Roof Beam

Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 5.5 in. X 15 in. X 5 ft

Section Adequacy: 31.6%

Controlling Factor: Shear Stress Y

Module Location: Beam #17

Module Level: Roof

Module Type: Roof Beam

Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 8.75 in. X 16.5 in. X 18.5 ft

Section Adequacy: 56.07%

Controlling Factor: Bending Stress Y

Module Location: Beam #18

Module Level: Roof

Module Type: Roof Beam

Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 8.75 in. X 16.5 in. X 18 ft

Section Adequacy: 37.34%

Controlling Factor: Bending Stress Y

Module Location: Beam #19

Module Level: Roof

Module Type: Roof Beam

Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF

Member Dimensions: (1) 5.5 in. X 15 in. X 13 ft

Section Adequacy: 39.51%

Controlling Factor: Bending Stress Y

Module Location: Beam #20

Module Level: Roof

Module Type: Roof Beam

Material Type: Solid Sawn Douglas Fir-Larch No. 2

Member Dimensions: (1) 5.5 in. X 11.5 in. X 15 ft

Section Adequacy: 42.5%

Controlling Factor: Bending Stress Y

Module Location: Beam #23

Module Level: Roof
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (2) 1.75 in. X 7.25 in. X 24.5 ft
Section Adequacy: 11.2%
Controlling Factor: Deflection Y

Module Location: Header #3
Module Level: Headers - 2nd Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 5.5 in. X 9.5 in. X 2.5 ft
Section Adequacy: 29.97%
Controlling Factor: Bearing Stress

Module Location: Header #2
Module Level: Headers - 2nd Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 5.5 in. X 9.5 in. X 3 ft
Section Adequacy: 36.37%
Controlling Factor: Shear Stress Y

Module Location: Joist TEMPLATE
Module Level: Floor - 2nd Level
Module Type: Floor Joist
Material Type: I-Joists Weyerhaeuser TJI 110
Member Dimensions: (1) 1.75 in. X 9.5 in. X 10 ft
Section Adequacy: 46.85%
Controlling Factor: Bending Moment

Module Location: Beam TEMPLATE
Module Level: Floor - 2nd Level
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 5.125 in. X 18 in. X 12.5 ft
Section Adequacy: 99.1%
Controlling Factor: Shear Stress Y

Module Location: Joist #1
Module Level: Floor - 2nd Level
Module Type: Floor Joist
Material Type: I-Joists Weyerhaeuser TJI 110
Member Dimensions: (1) 1.75 in. X 11.875 in. X 38.5 ft
Section Adequacy: 17.82%
Controlling Factor: Bearing Load

Module Location: Joist #2
Module Level: Floor - 2nd Level
Module Type: Floor Joist
Material Type: I-Joists Weyerhaeuser TJI 110
Member Dimensions: (1) 1.75 in. X 11.875 in. X 10 ft
Section Adequacy: 57.87%
Controlling Factor: Bending Moment

Module Location: Joist #3
Module Level: Floor - 2nd Level
Module Type: Floor Joist
Material Type: I-Joists Weyerhaeuser TJI 110
Member Dimensions: (1) 1.75 in. X 9.5 in. X 10 ft
Section Adequacy: 46.85%
Controlling Factor: Bending Moment

Module Location: Joist #4
Module Level: Floor - 2nd Level
Module Type: Floor Joist
Material Type: I-Joists Weyerhaeuser TJI 110
Member Dimensions: (1) 1.75 in. X 9.5 in. X 33 ft

Section Adequacy: 15.46%
Controlling Factor: Bearing Load

Module Location: Beam #3
Module Level: Floor - 2nd Level
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 8.75 in. X 24 in. X 15 ft
Section Adequacy: 11.82%
Controlling Factor: Bearing Stress

Module Location: Girder #1
Module Level: Floor - 2nd Level
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 10.75 in. X 45 in. X 45 ft
Section Adequacy: 39.39%
Controlling Factor: Bearing Stress

Module Location: Girder #2
Module Level: Floor - 2nd Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL
Member Dimensions: (2) 1.75 in. X 18 in. X 43 ft
Section Adequacy: 7.8%
Controlling Factor: Bearing Stress

Module Location: Beam #21
Module Level: Floor - 2nd Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 3.5 in. X 9.25 in. X 5 ft
Section Adequacy: 62.41%
Controlling Factor: Bending Stress Y

Module Location: Beam #22
Module Level: Floor - 2nd Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 3.5 in. X 9.25 in. X 5 ft
Section Adequacy: 51.91%
Controlling Factor: Bending Stress Y

Module Location: Header #1
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 3.5 in. X 7.25 in. X 3 ft
Section Adequacy: 61.74%
Controlling Factor: Bearing Stress

Module Location: Header #4
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL
Member Dimensions: (3) 1.75 in. X 7.25 in. X 2.5 ft
Section Adequacy: 30.99%
Controlling Factor: Shear Stress Y

Module Location: Header #5
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 8.75 in. X 19.5 in. X 12.5 ft
Section Adequacy: 34.42%
Controlling Factor: Shear Stress Y

Module Location: Header #6

Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (3) 1.75 in. X 7.25 in. X 7.5 ft
Section Adequacy: 44.93%
Controlling Factor: Bearing Stress

Module Location: Header #7
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 3.5 in. X 9.25 in. X 2 ft
Section Adequacy: 32.01%
Controlling Factor: Shear Stress Y

Module Location: Header #8
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 3.5 in. X 9.25 in. X 3 ft
Section Adequacy: 42.26%
Controlling Factor: Shear Stress Y

Module Location: Header #9
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (3) 1.75 in. X 9.25 in. X 6 ft
Section Adequacy: 32.78%
Controlling Factor: Shear Stress Y

Module Location: Header #10
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (3) 1.75 in. X 14 in. X 8.5 ft
Section Adequacy: 22.95%
Controlling Factor: Bending Stress Y

Module Location: Header #11
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Steel MC Shapes MC9x25.4
Member Dimensions: 3.5 in. X 9 in. X 15 ft
Section Adequacy: 54.17%
Controlling Factor: Deflection Y

Module Location: Header #12
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 5.5 in. X 5.5 in. X 15 ft
Section Adequacy: 51.5%
Controlling Factor: Bending Stress Y

Module Location: Header #13
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (3) 1.75 in. X 9.25 in. X 10.5 ft
Section Adequacy: 47.24%
Controlling Factor: Bending Stress Y

Module Location: Header #14
Module Level: Headers - 1st Level

Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (3) 1.75 in. X 7.25 in. X 8 ft
Section Adequacy: 41.26%
Controlling Factor: Bearing Stress

Module Location: Header #15
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 3.5 in. X 7.25 in. X 2.5 ft
Section Adequacy: 59.75%
Controlling Factor: Bearing Stress

Module Location: Header #16
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 6.75 in. X 19.5 in. X 14.5 ft
Section Adequacy: 38.31%
Controlling Factor: Bearing Stress

Module Location: Header #17
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Glulams Stress Class Rated 24F-1.8E 24F-V4 DF/DF
Member Dimensions: (1) 8.75 in. X 19.5 in. X 15 ft
Section Adequacy: 53.17%
Controlling Factor: Bearing Stress

Module Location: Header #18
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (3) 1.75 in. X 11.25 in. X 5 ft
Section Adequacy: 27.93%
Controlling Factor: Bearing Stress

Module Location: Header #19
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 5.5 in. X 9.5 in. X 3 ft
Section Adequacy: 25.11%
Controlling Factor: Shear Stress Y

Module Location: Header #20
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2
Member Dimensions: (1) 5.5 in. X 9.5 in. X 3 ft
Section Adequacy: 31.9%
Controlling Factor: Bearing Stress

Module Location: Header #21
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam
LVL
Member Dimensions: (3) 1.75 in. X 14 in. X 10 ft
Section Adequacy: 26.82%
Controlling Factor: Shear Stress Y

Module Location: Header #22
Module Level: Headers - 1st Level
Module Type: Roof Beam
Material Type: Solid Sawn Douglas Fir-Larch No. 2

Member Dimensions: (1) 5.5 in. X 9.5 in. X 6.5 ft

Section Adequacy: 22.32%

Controlling Factor: Bending Stress Y

Module Location: Header #23

Module Level: Headers - 1st Level

Module Type: Roof Beam

Material Type: Structural Composite Lumber Weyerhaeuser 2.0E Microlam LVL

Member Dimensions: (3) 1.75 in. X 11.875 in. X 3 ft

Section Adequacy: 25.02%

Controlling Factor: Shear Stress Y

Module Location: Header #24

Module Level: Headers - 1st Level

Module Type: Roof Beam

Material Type: Solid Sawn Douglas Fir-Larch No. 2

Member Dimensions: (1) 3.5 in. X 7.25 in. X 3 ft

Section Adequacy: 62.95%

Controlling Factor: Shear Stress Y

Module Location: Joists #5

Module Level: Floor - 1st Level

Module Type: Floor Joist

Material Type: I-Joists Weyerhaeuser TJI 110

Member Dimensions: (1) 1.75 in. X 9.5 in. X 40 ft

Section Adequacy: 46.91%

Controlling Factor: Bearing Load

Module Location: Joists #6

Module Level: Floor - 1st Level

Module Type: Floor Joist

Material Type: I-Joists Weyerhaeuser TJI 110

Member Dimensions: (1) 1.75 in. X 9.5 in. X 38 ft

Section Adequacy: 42.53%

Controlling Factor: Bearing Load

Module Location: Joists #7

Module Level: Floor - 1st Level

Module Type: Floor Joist

Material Type: I-Joists Weyerhaeuser TJI 110

Member Dimensions: (1) 1.75 in. X 9.5 in. X 42 ft

Section Adequacy: 43.12%

Controlling Factor: Bearing Load

Module Location: Joists #8

Module Level: Floor - 1st Level

Module Type: Floor Joist

Material Type: I-Joists Weyerhaeuser TJI 110

Member Dimensions: (1) 1.75 in. X 9.5 in. X 44 ft

Section Adequacy: 43.27%

Controlling Factor: Bearing Load

Module Location: Joists #9

Module Level: Floor - 1st Level

Module Type: Floor Joist

Material Type: I-Joists Weyerhaeuser TJI 110

Member Dimensions: (1) 1.75 in. X 9.5 in. X 42 ft

Section Adequacy: 43.12%

Controlling Factor: Bearing Load

Module Location: Joists #10

Module Level: Floor - 1st Level

Module Type: Floor Joist

Material Type: I-Joists Weyerhaeuser TJI 110

Member Dimensions: (1) 1.75 in. X 9.5 in. X 50 ft

Section Adequacy: 43.17%

Controlling Factor: Bearing Load

Module Location: Footing #1

Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 1.333 ft. wide X 10 in. tall
Section Adequacy: 20.6%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #2
Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 3.5 ft. wide X 10 in. tall
Section Adequacy: 17.95%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #3
Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 3 ft. wide X 10 in. tall
Section Adequacy: 19.83%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #4
Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 2 ft. wide X 10 in. tall
Section Adequacy: 28.42%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #5
Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall
Section Adequacy: 23.77%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing - WD-#6
Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall
Section Adequacy: 23.03%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #7
Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 2 ft. wide X 10 in. tall
Section Adequacy: 20.59%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #8
Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 1.333 ft. wide X 10 in. tall
Section Adequacy: 28.06%
Controlling Factor: Soil Bearing Pressure

Module Location: Footing - WD-#9

Module Level: Basement

Module Type: Continuous Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall

Section Adequacy: 40.35%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #10

Module Level: Basement

Module Type: Continuous Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall

Section Adequacy: 24.21%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #11

Module Level: Basement

Module Type: Continuous Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall

Section Adequacy: 21.57%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #12

Module Level: Basement

Module Type: Continuous Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall

Section Adequacy: 21.57%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: Footing #13

Module Level: Basement

Module Type: Continuous Footing

Material Type: Concrete

Member Dimensions: 2.5 ft. wide X 10 in. tall

Section Adequacy: 24.68%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: SpotFtg Bm #1-1

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall X 2 ft long

Section Adequacy: 89.02%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #1-2

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall X 2 ft long

Section Adequacy: 89.02%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #2-1

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 27.39%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #2-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long
Section Adequacy: 25.54%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Bm #2-3

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 91.93%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Hdr #5-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long
Section Adequacy: 17.11%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Hdr #5-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long
Section Adequacy: 20.53%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Bm #3-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long
Section Adequacy: 19.27%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Bm #3-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long
Section Adequacy: 13.7%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Hdr #23-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 1.3334 ft. wide X 10 in. tall X 1.3 ft long
Section Adequacy: 42.63%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 2 Bars. Transversal: 2 Bars

Module Location: SpotFtg Hdr #23-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2 ft. wide X 10 in. tall X 2 ft long
Section Adequacy: 91.93%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #4-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 28.63%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #4-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 28.63%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Hdr #9-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall X 3 ft long
Section Adequacy: 28.55%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #5-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 3 ft. wide X 10 in. tall X 3 ft long
Section Adequacy: 3.71%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 4 Bars

Module Location: SpotFtg Bm #8-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 5 ft. wide X 10 in. tall X 5 ft long
Section Adequacy: 12.99%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 6 Bars. Transversal: 6 Bars

Module Location: SpotFtg Hdr #11-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 8.5%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Hdr #11-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 8.5%
Controlling Factor: Soil Bearing Pressure

Module Location: SpotFtg Bm #7-1

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 5.5 ft. wide X 10 in. tall X 5.5 ft long

Section Adequacy: 20.13%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 7 Bars. Transversal: 7 Bars

Module Location: SpotFtg Bm #8-2

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 5 ft. wide X 10 in. tall X 5 ft long

Section Adequacy: 11.88%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 6 Bars. Transversal: 6 Bars

Module Location: SpotFtg Bm #9-1

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 5 ft. wide X 10 in. tall X 5 ft long

Section Adequacy: 26.22%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 6 Bars. Transversal: 6 Bars

Module Location: SpotFtg Bm #10-1

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall X 2 ft long

Section Adequacy: 91.93%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Gdr #3-1

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long

Section Adequacy: 18.51%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Gdr #3-2

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long

Section Adequacy: 29.47%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Bm #11-1

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 1.3334 ft. wide X 10 in. tall X 1.3 ft long

Section Adequacy: 91.91%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 2 Bars. Transversal: 2 Bars

Module Location: SpotFtg Bm #12-2

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 41.72%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #15-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 3.5 ft. wide X 10 in. tall X 3.5 ft long
Section Adequacy: 24.9%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 4 Bars

Module Location: SpotFtg Bm #15-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 3.5 ft. wide X 10 in. tall X 3.5 ft long
Section Adequacy: 24.88%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 4 Bars

Module Location: SpotFtg Hdr #13

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4 ft. wide X 10 in. tall X 1.3 ft long
Section Adequacy: 67.2%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 2 Bars. Transversal: 5 Bars

Module Location: SpotFtg Bm #14-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2.5 ft. wide X 10 in. tall X 2.5 ft long
Section Adequacy: 41.72%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #16

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long
Section Adequacy: 54.2%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Hsdr #16-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4 ft. wide X 10 in. tall X 4 ft long
Section Adequacy: 33.65%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Hdr #16-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4 ft. wide X 10 in. tall X 4 ft long
Section Adequacy: 33.65%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Hdr #17-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4 ft. wide X 10 in. tall X 4 ft long
Section Adequacy: 34.57%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Hdr #17-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4 ft. wide X 10 in. tall X 4 ft long
Section Adequacy: 34.57%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Bm #17-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 3 ft. wide X 10 in. tall X 3 ft long
Section Adequacy: 32.19%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 4 Bars

Module Location: SpotFtg Bm #17-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 4.5 ft. wide X 10 in. tall X 4.5 ft long
Section Adequacy: 26.35%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 5 Bars. Transversal: 5 Bars

Module Location: SpotFtg Bm #18-2

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 2 ft. wide X 10 in. tall X 2 ft long
Section Adequacy: 91.93%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Hdr #18

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 3 ft. wide X 10 in. tall X 3 ft long
Section Adequacy: 28.89%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 4 Bars

Module Location: Footing - WD-#14

Module Level: Basement
Module Type: Continuous Footing
Material Type: Concrete
Member Dimensions: 3 ft. wide X 10 in. tall
Section Adequacy: 14.78%
Controlling Factor: Soil Bearing Pressure
Reinforcement: # 4 - Longitudinal: 0 Bars. Transversal: 6" O.C. Spacing

Module Location: SpotFtg Bm #19-1

Module Level: Basement
Module Type: Isolated Footing
Material Type: Concrete
Member Dimensions: 3 ft. wide X 10 in. tall X 3 ft long
Section Adequacy: 26.54%
Controlling Factor: Soil Bearing Pressure

Module Location: SpotFtg Bm #19-2

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 3 ft. wide X 10 in. tall X 3 ft long

Section Adequacy: 26.54%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 4 Bars

Module Location: SpotFtg Hdr #21

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 3 ft. wide X 10 in. tall X 3 ft long

Section Adequacy: 4.89%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 4 Bars. Transversal: 4 Bars

Module Location: SpotFtg Bm #20

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 2.5 ft. wide X 10 in. tall X 1.3 ft long

Section Adequacy: 25.15%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 2 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #21

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 2 ft. wide X 10 in. tall X 2 ft long

Section Adequacy: 91.93%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 3 Bars. Transversal: 3 Bars

Module Location: SpotFtg Bm #22

Module Level: Basement

Module Type: Isolated Footing

Material Type: Concrete

Member Dimensions: 1.3334 ft. wide X 10 in. tall X 1.3 ft long

Section Adequacy: 27.11%

Controlling Factor: Soil Bearing Pressure

Reinforcement: # 4 - Longitudinal: 2 Bars. Transversal: 2 Bars



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Rafters #1	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 1.5 X 7.25	16 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 2/12 Actual Length (ft): 10.14 Roof Pitch (in): 2/12 O.C. Spacing (in): 16

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
10.88	47.63	2.04	2.48	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1242	690	180	1418	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.2	1	1.05	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1.15

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0.5				
2	7	0	7	1.166667				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#8314 (,	103.2	207.0	3.1	D+S	1.15
Bending Stress Y (psi)	SDVV#7518 (,	701.2	1220.1	3.1	D+S	1.15
Deflection Y (in)	SDVV#; 61< (,	0.076	0.473 (=L/180)	6.8	D+S	
Compressive Stress (psi)	SDVV#<<15 (,	11.5	1435.4	3.1	D+S	1.15
Tensile Stress (psi)	SDVV#<; 1< (,	8.5	793.5	3	D+S	1.15
Bearing Stress (psi)	SDVV#9714 (,	248.5	692.0	3	D+S	1.15
Bending-Compression (Unit)	SDVV#7516 (,	0.58	1.00	3.1	D+S	1.15
Bending-Tension (Unit)	SDVV#771< (,	0.55	1.00	3	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	182	1159	1341
C	73	463	536

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft ²)	Uniform	120	120	0	10	Snow	Y
Uniform (lb/ft ²)	Uniform	17	17	0	10	Dead	Y
Self Weight (lb/ft)	-	2.48	2.48	0	10	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #1	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 14 Member Slope (in): 0/12 Actual Length (ft): 14 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	11	0	11	0				
2	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<81; (,	13.7	327.8	10.92	D+S	1.15
Bending Stress Y (psi)	SDVV#<:1B (,	73.0	2900.8	5.04	D+S	1.15
Deflection Y (in)	SDVV#<;1k (,	0.004	0.400 (=L/180)	14	D+S	
Bearing Stress (psi)	SDVV#<317 (,	79.7	830.4	11	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	173	1222	1395
B	303	2138	2441
C	0	0	0

Units for V: lbf Units for M: lbf-ft



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	14	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	14	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #2	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 41 Member Slope (in): 0/12 Actual Length (ft): 41 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				
2	38	0	38	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#; 9.18 (,	44.3	327.8	41	D+S	1.15
Bending Stress Y (psi)	SDVV#9.817 (,	1004.8	2900.8	22.14	D+S	1.15
Deflection Y (in)	SDVV#6.515 (,	0.271	0.400 (=L/180)	0	D+S	
Bearing Stress (psi)	SDVV#; 9.15 (,	197.9	830.4	3	D+S	1.15

REACTIONS

Y axis	DEAD	LIVE	SNOW	TOTAL
A	0	0	0	0
B	752	617	5308	6677
C	642	703	4532	5877

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	41	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	41	Dead	Y
Uniform (lbf/ft ²)	Uniform	40	40	15	31.5	Live	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Rafters #2	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 1.5 X 11.25	12 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 15.5 Member Slope (in): 8/12 Actual Length (ft): 18.63 Roof Pitch (in): 8/12 O.C. Spacing (in): 12

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
16.88	177.98	3.16	3.85	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1035	575	180	1350	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1.15

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	2				
2	12.5	0	12.5	8.333335				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#9319 (,	81.5	207.0	3.1	D+S	1.15
Bending Stress Y (psi)	SDVV#917 (,	1113.6	1190.3	9.61	D+S	1.15
Deflection Y (in)	SDVV#8717 (,	0.219	0.481 (=L/180)	0	D+S	
Compressive Stress (psi)	SDVV#< : 15 (,	36.2	1305.1	3.1	D+S	1.15
Tensile Stress (psi)	SDVV#< 813 (,	32.8	661.3	15.5	D+S	1.15
Bearing Stress (psi)	SDVV#9<13 (,	214.5	692.0	3	D+S	1.15
Bending-Compression (Unit)	SDVV#918 (,	0.94	1.00	9.455	D+S	1.15
Bending-Tension (Unit)	SDVV#917 (,	0.94	1.00	9.765	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	241	1386	1627
C	148	849	997

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft ²)	Uniform	120	120	0	15.5	Snow	Y
Uniform (lb/ft ²)	Uniform	17	17	0	15.5	Dead	Y
Self Weight (lb/ft)	-	3.85	3.85	0	15.5	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Rafters #3	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 1.5 X 11.25	12 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 15.5 Member Slope (in): 8/12 Actual Length (ft): 18.63 Roof Pitch (in): 8/12 O.C. Spacing (in): 12

Area	I _x	I _y	BSW	Lams	G	K _{cr}
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
16.88	177.98	3.16	3.85	1	0.5	1

STRENGTH PROPERTIES

	F _b (psi)	F _t (psi)	F _v (psi)	F _c (psi)	F _{c⊥} (psi)	E (psi) x10 ³	E _{min} (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1035	575	180	1350	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1.15

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	2				
2	12.5	0	12.5	8.333335				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#9319 (,	81.5	207.0	3.1	D+S	1.15
Bending Stress Y (psi)	SDVV#917 (,	1113.6	1190.3	9.61	D+S	1.15
Deflection Y (in)	SDVV#8717 (,	0.219	0.481 (=L/180)	0	D+S	
Compressive Stress (psi)	SDVV#< : 15 (,	36.2	1305.1	3.1	D+S	1.15
Tensile Stress (psi)	SDVV#< 813 (,	32.8	661.3	15.5	D+S	1.15
Bearing Stress (psi)	SDVV#9<13 (,	214.5	692.0	3	D+S	1.15
Bending-Compression (Unit)	SDVV#918 (,	0.94	1.00	9.455	D+S	1.15
Bending-Tension (Unit)	SDVV#917 (,	0.94	1.00	9.765	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	241	1386	1627
C	148	849	997

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft ²)	Uniform	120	120	0	15.5	Snow	Y
Uniform (lb/ft ²)	Uniform	17	17	0	15.5	Dead	Y
Self Weight (lb/ft)	-	3.85	3.85	0	15.5	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #3	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 42 Member Slope (in): 0/12 Actual Length (ft): 42 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2	0	2	0				
2	38	0	38	0				
3	2	0	2	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#; 9.18 (,	44.4	327.8	2.1	D+S	1.15
Bending Stress Y (psi)	SDVV#; 98.16 (,	1006.1	2900.8	21	D+S	1.15
Deflection Y (in)	SDVV#; 6.4.19 (,	0.182	0.267 (=L/180)	42	D+S	
Bearing Stress (psi)	SDVV#; : 17 (,	187.9	830.4	2	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	714	5040	5754
C	714	5040	5754
D	0	0	0

Units for V: lbf Units for M: lbf-ft

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	42	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	42	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #4	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 25 Member Slope (in): 0/12 Actual Length (ft): 25 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	25	0	25	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#< 4.13 (,	29.4	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#; 7.1; (,	440.4	2900.8	12.5	D+S	1.15
Deflection Y (in)	SDVV#; : 19 (,	0.206	1.667 (=L/180)	12.5	D+S	
Bearing Stress (psi)	SDVV#; 8.14 (,	111.8	750.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	425	3000	3425
B	425	3000	3425

Reaction Location

A B

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	25	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	25	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #5	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 34.5 Member Slope (in): 0/12 Actual Length (ft): 34.5 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				
2	28.5	0	28.5	0				
3	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV #; < 1k (,	33.2	327.8	31.395	D+S	1.15
Bending Stress Y (psi)	SDVV #; 4.14 (,	546.9	2900.8	17.25	D+S	1.15
Deflection Y (in)	SDVV #; 5.1: (,	0.109	0.400 (=L/180)	34.5	D+S	
Bearing Stress (psi)	SDVV #; 4.17 (,	154.3	830.4	31.5	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	586	4140	4726
C	587	4140	4727
D	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	34.5	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	34.5	Dead	Y

**PASS**

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #6	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values**BEAM DATA**

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				
2	2	0	2	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<: 1 (,	7.5	327.8	3.05	D+S	1.15
Bending Stress Y (psi)	SDVV#<: 14 (,	25.4	2900.8	3	D+S	1.15
Deflection Y (in)	SDVV#<: 1; (,	0.001	0.400 (=L/180)	0	D+S	
Bearing Stress (psi)	SDVV#<: 616 (,	55.9	830.4	3	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	212	1500	1712
C	-43	-300	-343

Reaction Location

A	B	C
---	---	---

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	5	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	5	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Rafters #4	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 1.5 X 7.25	16 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 8/12 Actual Length (ft): 12.02 Roof Pitch (in): 8/12 O.C. Spacing (in): 16

Area	I _x	I _y	BSW	Lams	G	K _{cr}
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
10.88	47.63	2.04	2.48	1	0.5	1

STRENGTH PROPERTIES

	F _b (psi)	F _t (psi)	F _v (psi)	F _c (psi)	F _{c⊥} (psi)	E (psi) x10 ³	E _{min} (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1242	690	180	1418	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.2	1	1.05	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1.15

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	2				
2	7	0	7	4.666667				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#8314 (,	103.2	207.0	3.1	D+S	1.15
Bending Stress Y (psi)	SDVV#641k (,	831.2	1220.1	3.1	D+S	1.15
Deflection Y (in)	SDVV#; 31; (,	0.108	0.561 (=L/180)	6.8	D+S	
Compressive Stress (psi)	SDVV#<91; (,	45.9	1435.4	3.1	D+S	1.15
Tensile Stress (psi)	SDVV#<81; (,	34.1	793.5	3	D+S	1.15
Bearing Stress (psi)	SDVV#9<1; (,	209.6	692.0	3	D+S	1.15
Bending-Compression (Unit)	SDVV#631k (,	0.69	1.00	3.1	D+S	1.15
Bending-Tension (Unit)	SDVV#641; (,	0.68	1.00	3	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	216	1374	1590
C	86	549	635

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft ²)	Uniform	120	120	0	10	Snow	Y
Uniform (lb/ft ²)	Uniform	17	17	0	10	Dead	Y
Self Weight (lb/ft)	-	2.48	2.48	0	10	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Rafters #5	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 1.5 X 7.25	16 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 8/12 Actual Length (ft): 12.02 Roof Pitch (in): 8/12 O.C. Spacing (in): 16

Area	I _x	I _y	BSW	Lams	G	K _{cr}
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
10.88	47.63	2.04	2.48	1	0.5	1

STRENGTH PROPERTIES

	F _b (psi)	F _t (psi)	F _v (psi)	F _c (psi)	F _{c⊥} (psi)	E (psi) x10 ³	E _{min} (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1242	690	180	1418	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.2	1	1.05	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1.15

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	7	0	7	4.666667				
2	3	0	3	2				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV #7 ; 1< (,	105.8	207.0	7	D+S	1.15
Bending Stress Y (psi)	SDVV #5 8 14 (,	914.4	1220.1	7	D+S	1.15
Deflection Y (in)	SDVV #; 3 1; (,	0.108	0.561 (=L/180)	3.2	D+S	
Compressive Stress (psi)	SDVV #< : 1: (,	32.4	1435.4	0	D+S	1.15
Tensile Stress (psi)	SDVV #< 7 14 (,	47.0	793.5	7	D+S	1.15
Bearing Stress (psi)	SDVV #9 < 1: (,	209.6	692.0	7	D+S	1.15
Bending-Compression (Unit)	SDVV #6 : 17 (,	0.63	1.00	7.1	D+S	1.15
Bending-Tension (Unit)	SDVV #6 3 14 (,	0.70	1.00	7	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	86	549	635
B	216	1374	1590
C	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft ²)	Uniform	120	120	0	10	Snow	Y
Uniform (lb/ft ²)	Uniform	17	17	0	10	Dead	Y
Self Weight (lb/ft)	-	2.48	2.48	0	10	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #7	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				
2	2	0	2	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<: 1: (,	7.5	327.8	3.05	D+S	1.15
Bending Stress Y (psi)	SDVV#<: 14 (,	25.4	2900.8	3	D+S	1.15
Deflection Y (in)	SDVV#<: 1; (,	0.001	0.400 (=L/180)	0	D+S	
Bearing Stress (psi)	SDVV#<: 616 (,	55.9	830.4	3	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	212	1500	1712
C	-43	-300	-343

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	5	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	5	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #8	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 36 Member Slope (in): 0/12 Actual Length (ft): 36 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	36	0	36	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7: 14 (,	42.3	327.8	36	D+S	1.15
Bending Stress Y (psi)	SDVV#9: 18 (,	913.1	2900.8	18	D+S	1.15
Deflection Y (in)	SDVV#9 6 13 (,	0.888	2.400 (=L/180)	18	D+S	
Bearing Stress (psi)	SDVV#8: ; 18 (,	161.0	750.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	612	4320	4932
B	612	4320	4932

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	36	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	36	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #9	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 7 Member Slope (in): 0/12 Actual Length (ft): 7 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	4	0	4	0				
2	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<: 1; (,	7.3	327.8	3.99	D+S	1.15
Bending Stress Y (psi)	SDVV#<< 14 (,	25.2	2900.8	3.99	D+S	1.15
Deflection Y (in)	SDVV#<< 1; (,	0.001	0.400 (=L/180)	7	D+S	
Bearing Stress (psi)	SDVV#< 617 (,	54.8	830.4	4	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	30	210	240
B	208	1470	1678
C	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	7	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	7	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #10	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 54 Member Slope (in): 0/12 Actual Length (ft): 54 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				
2	19	0	19	0				
3	32	0	32	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#; 9.18 (,	44.3	327.8	22.14	D+S	1.15
Bending Stress Y (psi)	SDVV#; 4.1; (,	527.6	2900.8	22.14	D+S	1.15
Deflection Y (in)	SDVV#; 8.19 (,	0.308	2.133 (=L/180)	39.42	D+S	
Bearing Stress (psi)	SDVV#; 9.714 (,	298.3	830.4	22	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	261	1841	2102
C	1133	8001	9134
D	442	3118	3560

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	54	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	54	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #11	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 57 Member Slope (in): 0/12 Actual Length (ft): 57 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	24	0	24	0				
2	16	0	16	0				
3	14	0	14	0				
4	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#; <1; (,	33.3	327.8	23.94	D+S	1.15
Bending Stress Y (psi)	SDVV#; <1; (,	295.9	2900.8	23.94	D+S	1.15
Deflection Y (in)	SDVV#<61; (,	0.099	1.600 (=L/180)	10.83	D+S	
Bearing Stress (psi)	SDVV#; 617 (,	221.3	830.4	24	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	332	2347	2679
B	841	5935	6776
C	446	3148	3594
D	319	2250	2569
E	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft ²)	Uniform	120	120	0	57	Snow	Y
Uniform (lb/ft ²)	Uniform	17	17	0	57	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #12	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 28 Member Slope (in): 0/12 Actual Length (ft): 28 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				
2	22	0	22	0				
3	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#;<515 (,	25.6	327.8	3.08	D+S	1.15
Bending Stress Y (psi)	SDVV#; <14 (,	315.6	2900.8	14	D+S	1.15
Deflection Y (in)	SDVV#; ; 14 (,	0.048	0.400 (=L/180)	0	D+S	
Bearing Stress (psi)	SDVV#; 71< (,	125.3	830.4	25	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	476	3360	3836
C	476	3360	3836
D	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	28	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	28	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Trusses #13	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	24 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 34 Member Slope (in): 0/12 Actual Length (ft): 34 Roof Pitch (in): 0/12 O.C. Spacing (in): 24

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2704	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1.04 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				
2	28	0	28	0				
3	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<313 (,	32.7	327.8	3.06	D+S	1.15
Bending Stress Y (psi)	SDVV#; 41; (,	527.0	2900.8	17	D+S	1.15
Deflection Y (in)	SDVV#; 715 (,	0.103	0.400 (=L/180)	0	D+S	
Bearing Stress (psi)	SDVV#; 41; (,	152.1	830.4	31	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	578	4080	4658
C	578	4080	4658
D	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	34	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	34	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Rafters #6	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF RAFTER	NDS:	2018 NDS
MATERIAL:	Solid Sawn		
Douglas Fir-Larch	No. 2	(1) 1.5 X 7.25	16 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 4.25 Member Slope (in): 3/12 Actual Length (ft): 4.38 Roof Pitch (in): 3/12 O.C. Spacing (in): 16

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
10.88	47.63	2.04	2.48	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1242	690	180	1418	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.2	1	1.05	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1.15

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	1.25	0	1.25	0.3125				
2	3	0	3	0.75				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#< ; 19 (,	44.3	207.0	1.275	D+S	1.15
Bending Stress Y (psi)	SDVV#< 3 19 (,	128.5	1367.8	1.275	D+S	1.15
Deflection Y (in)	SDVV#< ; 1: (,	0.003	0.206 (=L/180)	2.89	D+S	
Compressive Stress (psi)	SDVV#< < 18 (,	7.4	1601.2	1.275	D+S	1.15
Tensile Stress (psi)	SDVV#< < 16 (,	5.3	793.5	4.25	D+S	1.15
Bearing Stress (psi)	SDVV#< ; 8 14 (,	103.0	692.0	1.25	D+S	1.15
Bending-Compression (Unit)	SDVV#< 3 19 (,	0.09	1.00	1.275	D+S	1.15
Bending-Tension (Unit)	SDVV#< 3 14 (,	0.10	1.00	1.232	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	78	496	574
C	32	204	236

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	120	120	0	4.25	Snow	Y
Uniform (lbf/ft ²)	Uniform	17	17	0	4.25	Dead	Y
Self Weight (lbf/ft)	-	2.48	2.48	0	4.25	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #1	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 13.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 16 Member Slope (in): 0/12 Actual Length (ft): 16

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
91.12	1383.96	345.99	20.78	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _⊥	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	1	0	1	0				
2	14	0	14	0				
3	1	0	1	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Stress Y (psi)	SDVV#<<13 (,	2.4	238.5	1.12	D		0.9
Bending Stress Y (psi)	SDVV#< ; 19 (,	29.2	2134.0	8	D		0.9
Deflection Y (in)	SDVV#< ; 1: (,	0.002	0.133 (=L/180)	0	D+L		
Bearing Stress (psi)	SDVV#<<15 (,	4.7	598.2	1	D+L		1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	0	0	0
B	166	8	174
C	166	8	174
D	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft)	Uniform	1	1	0	16	Live	Y
Self Weight (lb/ft)	-	20.78	20.78	0	16	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #2	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 13.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 26 Member Slope (in): 0/12 Actual Length (ft): 26

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
91.12	1383.96	345.99	20.78	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc⊥	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)								
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	13	0	13	0				
2	13	0	13	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Stress Y (psi)	SDVV#7818 (,	166.0	304.8	13	D+S	1.15	
Bending Stress Y (psi)	SDVV#5617 (,	1534.4	2002.2	13	D+S	1.15	
Deflection Y (in)	SDVV#; 719 (,	0.133	0.867 (=L/180)	5.46	D+S		
Bearing Stress (psi)	SDVV#5; 1< (,	398.4	560.0	13	D+S	1.15	

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	840	5212	6052
B	2799	17372	20171
C	840	5212	6052

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	20.78	20.78	0	26	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #1	B	151.4546	151.4546	0	26	Dead	Y
Uniform (lbf/ft)	Trusses #1	B	1069.091	1069.091	0	26	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #4	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 7.25	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
38.06	166.72	9.71	11.1	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.07 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#5; 19 (,	233.9	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#6 < 18 (,	1935.9	3202.2	2.5	D+S	1.15
Deflection Y (in)	SDVV#7: 3.13 (,	0.100	0.333 (=L/180)	2.5	D+S	
Bearing Stress (psi)	SDVV#8: 5.19 (,	205.6	750.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE	SNOW	TOTAL
A	761	2	5175	5938
B	761	2	5175	5938

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	5	Live	Y
Self Weight (lbf/ft)	-	11.1	11.1	0	5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #5	B	293.2499	293.2499	0	5	Dead	Y
Uniform (lbf/ft)	Trusses #5	B	2069.998	2069.998	0	5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #5	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 18	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 18 Member Slope (in): 0/12 Actual Length (ft): 18

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
121.5	3280.5	461.32	27.71	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	15	0	15	0				
2	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Stress Y (psi)	SDVV#7; 14 (,	158.1	304.8	14.94	D+S		1.15
Bending Stress Y (psi)	SDVV#79 14 (,	1411.8	2618.4	7.2	D+S		1.15
Deflection Y (in)	SDVV#8; 16 (,	0.167	0.400 (=L/180)	18	D+S		
Bearing Stress (psi)	SDVV#4 < 18 (,	481.3	598.2	15	D+S		1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	1933	9979	11912
B	2900	14969	17869
C	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	27.71	27.71	0	18	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Rafters #2	B	240.798	240.798	0	18	Dead	Y
Uniform (lbf/ft)	Rafters #2	B	1385.973	1385.973	0	18	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #6	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 18	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 18.5 Member Slope (in): 0/12 Actual Length (ft): 18.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
121.5	3280.5	461.32	27.71	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	15.5	0	15.5	0				
2	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#6816 (,	197.1	304.8	15.355	D+S	1.15
Bending Stress Y (psi)	SDVV#5<14 (,	1851.9	2611.2	7.4	D+S	1.15
Deflection Y (in)	SDVV#7613 (,	0.228	0.400 (=L/180)	18.5	D+S	
Bearing Stress (psi)	SDVV#5416 (,	440.9	560.0	15.5	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	2409	12674	15083
B	3565	18757	22322
C	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	27.71	27.71	0	18.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Rafters #2	C	147.5857	147.5857	0	18.5	Dead	Y
Uniform (lbf/ft)	Rafters #2	C	849.4678	849.4678	0	18.5	Snow	Y
Uniform (lbf/ft)	Rafters #3	C	147.5857	147.5857	0	18.5	Dead	Y
Uniform (lbf/ft)	Rafters #3	C	849.4678	849.4678	0	18.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #7	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 18	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 18.5 Member Slope (in): 0/12 Actual Length (ft): 18.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
121.5	3280.5	461.32	27.71	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc⊥	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)								
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	15.5	0	15.5	0				
2	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7: 14 (,	161.3	304.8	15.355	D+S	1.15
Bending Stress Y (psi)	SDVV#7513 (,	1515.4	2611.2	7.4	D+S	1.15
Deflection Y (in)	SDVV#8616 (,	0.187	0.400 (=L/180)	18.5	D+S	
Bearing Stress (psi)	SDVV#5; 17 (,	400.9	560.0	15.5	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	2003	10339	12342
B	2964	15302	18266
C	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	27.71	27.71	0	18.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Rafters #3	B	240.798	240.798	0	18.5	Dead	Y
Uniform (lbf/ft)	Rafters #3	B	1385.973	1385.973	0	18.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #8	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 24	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 25 Member Slope (in): 0/12 Actual Length (ft): 25

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
210	10080	1339.84	47.89	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	25	0	25	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#5<1: (,	214.3	304.8	25	D+S	1.15
Bending Stress Y (psi)	SDVV#4513 (,	2110.9	2398.8	12.5	D+S	1.15
Deflection Y (in)	SDVV#8814 (,	0.749	1.667 (=L/180)	12.5	D+S	
Bearing Stress (psi)	SDVV#6818 (,	361.0	560.0	25	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	5280	24328	29608
B	5346	24680	30026

M@x			
A	0	-1	-1
B	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	47.89	47.89	0	25	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #5	B	2899.887	-	0.25	-	Dead	Y
Point (lbf)	Beam #5	B	14968.52	-	0.25	-	Snow	Y
Point (lbf)	Beam #6	B	3564.724	-	12.5	-	Dead	Y
Point (lbf)	Beam #6	B	18756.81	-	12.5	-	Snow	Y
Point (lbf)	Beam #7	B	2964.422	-	24.75	-	Dead	Y
Point (lbf)	Beam #7	B	15301.59	-	24.75	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #9	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 24	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 23 Member Slope (in): 0/12 Actual Length (ft): 23

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
210	10080	1339.84	47.89	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	23	0	23	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#8519 (,	144.6	304.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#6416 (,	1662.9	2418.9	11.5	D+S	1.15
Deflection Y (in)	SDVV#9315 (,	0.611	1.533 (=L/180)	11.5	D+S	
Bearing Stress (psi)	SDVV#771< (,	308.5	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	2995	12	17250	20257
B	2995	12	17250	20257

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	23	Live	Y
Self Weight (lbf/ft)	-	47.89	47.89	0	23	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #4	B	212.5	212.5	0	23	Dead	Y
Uniform (lbf/ft)	Trusses #4	B	1500	1500	0	23	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #10	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 24	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
210	10080	1339.84	47.89	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#; <1; (,	31.4	304.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#< : 15 (,	78.6	2760.0	2.5	D+S	1.15
Deflection Y (in)	SDVV#< <19 (,	0.001	0.333 (=L/180)	2.5	D+S	
Bearing Stress (psi)	SDVV#8 8 14 (,	251.5	560.0	5	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	651	2	3750	4403
B	651	2	3750	4403

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	5	Live	Y
Self Weight (lbf/ft)	-	47.89	47.89	0	5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #4	B	212.5	212.5	0	5	Dead	Y
Uniform (lbf/ft)	Trusses #4	B	1500	1500	0	5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Girder #3	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(5) 1.75 X 20	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 15 Member Slope (in): 0/12 Actual Length (ft): 15

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
175	5833.33	44.66	51.04	5	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.93 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	15	0	15	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#8317 (,	162.7	327.8	15	D+S	1.15
Bending Stress Y (psi)	SDVV#7:18 (,	1463.9	2789.3	7.5	D+S	1.15
Deflection Y (in)	SDVV#=:816 (,	0.247	1.000 (=L/180)	7.5	D+S	
Bearing Stress (psi)	SDVV#7:17 (,	394.3	750.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	2327	16650	18977
B	2327	16650	18977

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	150	150	0	15	Snow	Y
Uniform (lbf/ft)	Uniform	17	17	0	15	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #5	C	293.251	293.251	0	15	Dead	Y
Uniform (lbf/ft)	Trusses #5	C	2070.016	2070.016	0	15	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #11	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(1) 1.75 X 11.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 0/12 Actual Length (ft): 10

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
19.69	207.64	5.02	5.74	1	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.01 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	10	0	10	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#5519 (,	253.5	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#4316 (,	2704.5	3016.4	5	D+S	1.15
Deflection Y (in)	SDVV#781< (,	0.361	0.667 (=L/180)	5	D+S	
Bearing Stress (psi)	SDVV#861< (,	345.7	750.0	10	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE	SNOW	TOTAL
A	281	5	3047	3333
B	281	5	3047	3333

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	10	Live	Y
Self Weight (lbf/ft)	-	5.74	5.74	0	10	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Outlookers	B	71.69099	71.69099	0	10	Dead	Y
Uniform (lbf/ft)	Outlookers	B	759.3749	759.3749	0	10	Snow	Y
Uniform (lbf/ft)	Trusses #7	C	-21.25	-21.25	0	10	Dead	Y
Uniform (lbf/ft)	Trusses #7	C	-150	-150	0	10	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #12	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 13.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 11 Member Slope (in): 0/12 Actual Length (ft): 11

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
91.12	1383.96	345.99	20.78	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2.5	0	2.5	0				
2	8.5	0	8.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Stress Y (psi)	SDVV#9<1< (,	91.6	304.8	2.53	D+S		1.15
Bending Stress Y (psi)	SDVV#; 319 (,	534.9	2760.0	7.15	D+S		1.15
Deflection Y (in)	SDVV#<31: (,	0.031	0.333 (=L/180)	0	D+S		
Bearing Stress (psi)	SDVV#9<1B (,	170.5	560.0	2.5	D+S		1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	0	0	0	0
B	1300	7	7332	8639
C	709	4	3999	4712

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	11	Live	Y
Self Weight (lbf/ft)	-	20.78	20.78	0	11	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Rafters #4	B	161.9081	161.9081	0	11	Dead	Y
Uniform (lbf/ft)	Rafters #4	B	1030.157	1030.157	0	11	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #13	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 18	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 11 Member Slope (in): 0/12 Actual Length (ft): 11

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
121.5	3280.5	461.32	27.71	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc⊥	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)								
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2.5	0	2.5	0				
2	8.5	0	8.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Stress Y (psi)	SDVV#: 41; (,	55.6	304.8	2.53	D+S		1.15
Bending Stress Y (psi)	SDVV#: < 4.14 (,	243.5	2750.6	7.15	D+S		1.15
Deflection Y (in)	SDVV#: < 9.1; (,	0.011	0.333 (=L/180)	0	D+S		
Bearing Stress (psi)	SDVV#: 8.17 (,	138.0	560.0	2.5	D+S		1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	0	0	0	0
B	1119	7	5866	6992
C	610	4	3200	3814

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	11	Live	Y
Self Weight (lbf/ft)	-	27.71	27.71	0	11	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Rafters #4	C	64.76324	64.76324	0	11	Dead	Y
Uniform (lbf/ft)	Rafters #4	C	412.063	412.063	0	11	Snow	Y
Uniform (lbf/ft)	Rafters #5	A	64.76324	64.76324	0	11	Dead	Y
Uniform (lbf/ft)	Rafters #5	A	412.063	412.063	0	11	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #14	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 13.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 11 Member Slope (in): 0/12 Actual Length (ft): 11

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
91.12	1383.96	345.99	20.78	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2.5	0	2.5	0				
2	8.5	0	8.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Stress Y (psi)	SDVV#9<1< (,	91.6	304.8	2.53	D+S		1.15
Bending Stress Y (psi)	SDVV#; 319 (,	534.9	2760.0	7.15	D+S		1.15
Deflection Y (in)	SDVV#<31: (,	0.031	0.333 (=L/180)	0	D+S		
Bearing Stress (psi)	SDVV#9<1B (,	170.5	560.0	2.5	D+S		1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	0	0	0	0
B	1300	7	7332	8639
C	709	4	3999	4712

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	11	Live	Y
Self Weight (lbf/ft)	-	20.78	20.78	0	11	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Rafters #5	B	161.9081	161.9081	0	11	Dead	Y
Uniform (lbf/ft)	Rafters #5	B	1030.157	1030.157	0	11	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #15	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 13.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 14.5 Member Slope (in): 0/12 Actual Length (ft): 14.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
118.12	1794.02	753.66	26.94	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	14.5	0	14.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7; 1: (,	156.5	304.8	14.5	D+S	1.15
Bending Stress Y (psi)	SDVV#8519 (,	1272.6	2683.2	7.25	D+S	1.15
Deflection Y (in)	SDVV#; 417 (,	0.276	0.967 (=L/180)	7.25	D+S	
Bearing Stress (psi)	SDVV#8716 (,	256.0	560.0	14.5	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	2055	11	10264	12330
B	2055	11	10268	12334

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	26.94	26.94	0	14.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #12	B	1300.33	-	0.25	-	Dead	Y
Point (lbf)	Beam #12	B	7.117647	-	0.25	-	Live	Y
Point (lbf)	Beam #12	B	7332.291	-	0.25	-	Snow	Y
Point (lbf)	Beam #13	B	1119.158	-	7.25	-	Dead	Y
Point (lbf)	Beam #13	B	7.117649	-	7.25	-	Live	Y
Point (lbf)	Beam #13	B	5865.838	-	7.25	-	Snow	Y
Point (lbf)	Beam #14	B	1300.33	-	14.25	-	Dead	Y
Point (lbf)	Beam #14	B	7.117647	-	14.25	-	Live	Y
Point (lbf)	Beam #14	B	7332.291	-	14.25	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #16	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 5.5 X 15	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
82.5	1546.88	207.97	18.82	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#6419 (,	208.5	304.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#9<1; (,	833.8	2760.0	2.5	D+S	1.15
Deflection Y (in)	SDVV#<614 (,	0.023	0.333 (=L/180)	2.5	D+S	
Bearing Stress (psi)	SDVV#6516 (,	379.0	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	1464	2	10001	11467
B	1464	2	10001	11467

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	5	Live	Y
Self Weight (lbf/ft)	-	18.82	18.82	0	5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #10	C	566.7437	566.7437	0	5	Dead	Y
Uniform (lbf/ft)	Trusses #10	C	4000.543	4000.543	0	5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #17	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 16.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 18.5 Member Slope (in): 0/12 Actual Length (ft): 18.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
144.38	3275.51	921.14	32.93	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	18.5	0	18.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#-: 5.18 (,	83.8	304.8	18.5	D+S	1.15
Bending Stress Y (psi)	SDVV#89.14 (,	1127.6	2566.6	9.25	D+S	1.15
Deflection Y (in)	SDVV#9; 17 (,	0.390	1.233 (=L/180)	9.25	D+S	
Bearing Stress (psi)	SDVV#-: 3.14 (,	167.6	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	1268	6799	8067
B	1268	6799	8067

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	32.93	32.93	0	18.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #9	B	104.125	104.125	0	18.5	Dead	Y
Uniform (lbf/ft)	Trusses #9	B	735	735	0	18.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #18	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 16.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 18 Member Slope (in): 0/12 Actual Length (ft): 18

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
144.38	3275.51	921.14	32.93	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	18	0	18	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#8 < 19 (,	123.2	304.8	18	D+S	1.15
Bending Stress Y (psi)	SDVV#6 : 16 (,	1612.7	2573.6	9	D+S	1.15
Deflection Y (in)	SDVV#8 9 13 (,	0.528	1.200 (=L/180)	9	D+S	
Bearing Stress (psi)	SDVV#8 9 13 (,	246.4	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	1731	10127	11858
B	1731	10127	11858

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	32.93	32.93	0	18	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	D	159.3996	159.3996	0	18	Dead	Y
Uniform (lbf/ft)	Trusses #11	D	1125.174	1125.174	0	18	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #19	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 5.5 X 15	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 13 Member Slope (in): 0/12 Actual Length (ft): 13

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
82.5	1546.88	207.97	18.82	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	13	0	13	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7: 16 (,	160.5	304.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#6<18 (,	1669.5	2760.0	6.5	D+S	1.15
Deflection Y (in)	SDVV#961; (,	0.314	0.867 (=L/180)	6.5	D+S	
Bearing Stress (psi)	SDVV#7: 1< (,	291.9	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	1203	7626	8829
B	1203	7626	8829

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	18.82	18.82	0	13	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	A	166.2161	166.2161	0	13	Dead	Y
Uniform (lbf/ft)	Trusses #11	A	1173.29	1173.29	0	13	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #20	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 5.5 X 11.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 15 Member Slope (in): 0/12 Actual Length (ft): 15

Area	I _x	I _y	BSW	Lams	G	K _{cr}
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
63.25	697.07	159.44	14.43	1	0.5	1

STRENGTH PROPERTIES

	F _b (psi)	F _t (psi)	F _v (psi)	F _c (psi)	F _{c⊥} (psi)	E (psi) x10 ³	E _{min} (psi) x10 ³
Base Values	875	425	170	600	625	1300	470
Adjusted Values	875	425	170	600	625	1300	470
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2	0	2	0				
2	11	0	11	0				
3	2	0	2	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#: 31; (,	57.0	195.5	12.9	D+S	1.15
Bending Stress Y (psi)	SDVV#: 75.18 (,	578.6	1006.3	7.5	D+S	1.15
Deflection Y (in)	SDVV#: 5.16 (,	0.074	0.267 (=L/180)	15	D+S	
Bearing Stress (psi)	SDVV#: 6.18 (,	110.4	667.6	13	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	547	2793	3340
C	547	2793	3340
D	0	0	0

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	14.43	14.43	0	15	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Rafters #6	B	58.52446	58.52446	0	15	Dead	Y
Uniform (lbf/ft)	Rafters #6	B	372.368	372.368	0	15	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Roof	LOADING:	ASD
MEMBER NAME:	Beam #23	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(2) 1.75 X 7.25	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 24.5 Member Slope (in): 0/12 Actual Length (ft): 24.5

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
25.38	111.15	6.48	7.4	2	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.07 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	4.5	0	4.5	0				
2	20	0	20	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#9813 (,	114.6	327.8	24.5	D+S	1.15
Bending Stress Y (psi)	SDVV#651: (,	2153.9	3202.2	18.865	D+S	1.15
Deflection Y (in)	SDVV#4415 (,	1.184	1.333 (=L/180)	16.66	D+S	
Bearing Stress (psi)	SDVV#; 918 (,	108.2	801.1	4.5	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	312	1772	2084
C	260	1678	1938

Units for V: lbf Units for M: lbf-ft



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	300	300	0	4	Snow	Y
Uniform (lbf/ft)	Uniform	34	34	0	4	Dead	Y
Uniform (lbf/ft)	Uniform	300	300	17	24.5	Snow	Y
Uniform (lbf/ft)	Uniform	34	34	17	24.5	Dead	Y
Self Weight (lbf/ft)	-	7.4	7.4	0	24.5	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 2nd Level	LOADING:	ASD
MEMBER NAME:	Header #3	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 5.5 X 9.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 2.5 Member Slope (in): 0/12 Actual Length (ft): 2.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
52.25	392.96	131.71	11.92	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	875	425	170	600	625	1300	470
Adjusted Values	875	425	170	600	625	1300	470
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2.5	0	2.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7: 13 (,	103.7	195.5	0	D+S	1.15
Bending Stress Y (psi)	SDVV#9: 18 (,	327.4	1006.3	1.25	D+S	1.15
Deflection Y (in)	SDVV#<: 13 (,	0.005	0.167 (=L/180)	1.25	D+S	
Bearing Stress (psi)	SDVV#6313 (,	437.7	625.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	LIVE ROOF	SNOW	TOTAL
A	461	1	3150	3612
B	461	1	3150	3612

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	2.5	RoofLive	Y
Self Weight (lbf/ft)	-	11.92	11.92	0	2.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #3	B	357.0012	357.0012	0	2.5	Dead	Y
Uniform (lbf/ft)	Trusses #3	B	2519.998	2519.998	0	2.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 2nd Level	LOADING:	ASD
MEMBER NAME:	Header #2	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 5.5 X 9.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 3 Member Slope (in): 0/12 Actual Length (ft): 3

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
52.25	392.96	131.71	11.92	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	875	425	170	600	625	1300	470
Adjusted Values	875	425	170	600	625	1300	470
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#6917 (,	124.4	195.5	3	D+S	1.15
Bending Stress Y (psi)	SDVV#8614 (,	471.4	1006.3	1.5	D+S	1.15
Deflection Y (in)	SDVV#<71; (,	0.010	0.200 (=L/180)	1.5	D+S	
Bearing Stress (psi)	SDVV#8;13 (,	262.6	625.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	553	2	3780	4335
B	553	2	3780	4335

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	3	RoofLive	Y
Self Weight (lbf/ft)	-	11.92	11.92	0	3	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #3	C	356.9922	356.9922	0	3	Dead	Y
Uniform (lbf/ft)	Trusses #3	C	2520.062	2520.062	0	3	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Joist TEMPLATE	CODE:	2018 International Building Code
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS
MATERIAL:	I-Joists		

Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 0/12 Actual Length (ft): 10 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	10	0	10	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Force (lbf)	SDVV#8917 (,	531.5	1220.0	0	D+L	1
Bending Moment (lbf-ft)	SDVV#7916 (,	1328.8	2500.0	5	D+L	1
Deflection Y (in)	SDVV#9819 (,	0.115	0.333 (=L/360)	5	L	
Bearing Load (lbf)	SDVV#8917 (,	531.5	1220.0	0	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	132	400	532
B	132	400	532

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	NSR	B	NSR
---	-----	---	-----

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	10	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	10	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	10	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Beam TEMPLATE	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		
Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 5.125 X 18	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 12.5 Member Slope (in): 0/12 Actual Length (ft): 12.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
92.25	2490.75	201.92	21.04	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	12.5	0	12.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<<14 (,	2.1	238.5	0	D	0.9
Bending Stress Y (psi)	SDVV#<<15 (,	17.8	2160.0	6.25	D	0.9
Deflection Y (in)	SDVV#<<1: (,	0.003	0.833 (=L/180)	6.25	D+L	
Bearing Stress (psi)	SDVV#<<14 (,	4.9	560.0	0	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	131	6	137
B	131	6	137

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	12.5	Live	Y
Self Weight (lbf/ft)	-	21.04	21.04	0	12.5	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Joist #1	CODE:	2018 International Building Code
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS
MATERIAL:	I-Joists		

Weyerhaeuser	TJI 110	(1) 11.875	0 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 38.5 Member Slope (in): 0/12 Actual Length (ft): 38.5 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
267	2.5	1	4.5	3160	1560	910	1375	1225	1560	1935	2350	2295	2705

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	13.5	0	13.5	0
2	10.5	0	10.5	0
3	14.5	0	14.5	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Force (lbf)	SDVV#761; (,	876.4	1560.0	24.255	D+L	1	
Bending Moment (lbf-ft)	SDVV#6<13 (,	1926.1	3160.0	32.34	D+L	1	
Deflection Y (in)	SDVV#9615 (,	0.178	0.483 (=L/360)	31.955	L		
Bearing Load (lbf)	SDVV#4 : 1; (,	1492.8	1816.4	24	D+L	1	

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	150	452	602
B	340	1026	1366
C	371	1121	1492
D	159	481	640

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B	C	D
NSR	NSR	NSR	NSR

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	38.5	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	38.5	Dead	Y
Self Weight (lbf/ft)	-	2.5	2.5	0	38.5	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Joist #2	CODE:	2018 International Building Code
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS
MATERIAL:	I-Joists		
Weyerhaeuser	TJI 110	(1) 11.875	0 (in) O.C.
			DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 0/12 Actual Length (ft): 10 O.C. Spacing (in): 24

						End Rcap	End Rcap	End Rcap	End Rcap	Int Rcap	Int Rcap	Int Rcap	Int Rcap
El x 10 ⁶	BSW	Lams	K x 10 ⁶	Mcap	Vcap	1.75 NS	3.5 NS	1.75 WS	3.5 WS	3.5 NS	5.25 NS	3.5 WS	5.25 WS
(lbf-in ²)	(lbf/ft)		(lbf)	(lbf-ft)	(lbf)	(lbf)	(lbf)	(lbf)	(lbf)	(lbf)	(lbf)	(lbf)	(lbf)
267	2.5	1	4.5	3160	1560	910	1375	1225	1560	1935	2350	2295	2705

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	10	0	10	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Force (lbf)	SDVV#981< (,	532.5	1560.0	0	D+L	1	
Bending Moment (lbf-ft)	SDVV#8 : 1< (,	1331.3	3160.0	5	D+L	1	
Deflection Y (in)	SDVV#< : < 1; (,	0.067	0.333 (=L/360)	5	L		
Bearing Load (lbf)	SDVV#9416 (,	532.5	1375.0	0	D+L	1	

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	132	400	532
B	132	400	532

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	10	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	10	Dead	Y
Self Weight (lbf/ft)	-	2.5	2.5	0	10	Dead	Y

**PASS**

DATE:	1/26/2026	COMPANY:	SMC Design		
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis		
CUSTOMER:		REVIEWED BY:	Stephen Curtis		
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble		
	--				
LEVEL:	Floor - 2nd Level	LOADING:	ASD		
MEMBER NAME:	Joist #3	CODE:	2018 International Building Code		
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS		
MATERIAL:	I-Joists				
Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY	

BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 0/12 Actual Length (ft): 10 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	10	0	10	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Force (lbf)	SDVV#8917 (,	531.5	1220.0	0	D+L	1
Bending Moment (lbf-ft)	SDVV#791k (,	1328.8	2500.0	5	D+L	1
Deflection Y (in)	SDVV#9819 (,	0.115	0.333 (=L/360)	5	L	
Bearing Load (lbf)	SDVV#8917 (,	531.5	1220.0	0	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	132	400	532
B	132	400	532

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B
NSR	NSR

CONNECTORS

(All connectors are Simpson Strong-Tie connectors)*

Support A	Model	Type	Adequacy (%)	Header Fastening (in)	Joist Nails (in)	Nailer Thickness (in)
Primary	MIU1.81/9	Hanger	76.94	(16) 0.162 x 3.5	(2) 0.148 x 1.5	N/A

Hanger at support A has seat sloped 0 degrees, skewed 0 degrees.

WSR = web stiffeners required

*Capacity values are adjusted based on specific gravity when members use grades other than those specified in Simpson Strong-Tie's capacity tables.

**LOAD LIST**

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	10	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	10	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	10	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Joist #4	CODE:	2018 International Building Code
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS
MATERIAL:	I-Joists		

Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 33 Member Slope (in): 0/12 Actual Length (ft): 33 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	9	0	9	0
2	10	0	10	0
3	14	0	14	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Force (lbf)	SDVV#5 < 13 (,	866.8	1220.0	19.14	D+L		1
Bending Moment (lbf-ft)	SDVV#5 : 1; (,	1803.8	2500.0	18.81	D+L		1
Deflection Y (in)	SDVV#7 9 1; (,	0.248	0.467 (=L/360)	26.73	L		
Bearing Load (lbf)	SDVV#4 8 18 (,	1535.6	1816.4	19	D+L		1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	99	301	400
B	239	727	966
C	380	1156	1536
D	150	456	606

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B	C	D
NSR	NSR	NSR	NSR

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	33	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	33	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	33	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Beam #3	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 24	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 15 Member Slope (in): 0/12 Actual Length (ft): 15

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
210	10080	1339.84	47.89	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	15	0	15	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#761: (,	171.5	304.8	1.95	D+S	1.15
Bending Stress Y (psi)	SDVV#8416: (,	1228.6	2524.6	7.5	D+S	1.15
Deflection Y (in)	SDVV#; 31: (,	0.193	1.000 (=L/180)	7.5	D+S	
Bearing Stress (psi)	SDVV#441; (,	493.8	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	3539	1268	20227	25034
B	3537	1615	18539	23691

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	47.89	47.89	0	15	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #3	B	357.0012	357.0012	2	5	Dead	Y
Uniform (lbf/ft)	Trusses #3	B	357.0012	357.0012	7.5	11	Dead	Y
Uniform (lbf/ft)	Trusses #3	B	357.0012	357.0012	13.5	15	Dead	Y
Uniform (lbf/ft)	Trusses #3	B	2519.998	2519.998	2	5	Snow	Y
Uniform (lbf/ft)	Trusses #3	B	2519.998	2519.998	7.5	11	Snow	Y
Uniform (lbf/ft)	Trusses #3	B	2519.998	2519.998	13.5	15	Snow	Y
Uniform (lbf/ft)	Trusses #6	C	-21.25	-21.25	0	15	Dead	Y
Uniform (lbf/ft)	Trusses #6	C	-150	-150	0	15	Snow	Y
Point (lbf)	Header #3	A	461.1473	-	5	-	Dead	Y
Point (lbf)	Header #3	A	461.1473	-	11	-	Dead	Y
Point (lbf)	Header #3	B	461.1473	-	7.5	-	Dead	Y
Point (lbf)	Header #3	B	461.1473	-	13.5	-	Dead	Y
Point (lbf)	Header #3	A	3149.998	-	5	-	Snow	Y
Point (lbf)	Header #3	A	3149.998	-	11	-	Snow	Y
Point (lbf)	Header #3	B	3149.998	-	7.5	-	Snow	Y
Point (lbf)	Header #3	B	3149.998	-	13.5	-	Snow	Y
Uniform (lbf/ft)	Joist #1	A	74.78617	74.78617	2	13	Dead	Y
Uniform (lbf/ft)	Joist #1	A	225.7696	225.7696	2	13	Live	Y
Uniform (lbf/ft)	Joist #2	A	66.25	66.25	13	15	Dead	Y
Uniform (lbf/ft)	Joist #2	A	200	200	13	15	Live	Y
Point (lbf)	Girder #1	B	1021.052	-	2	-	Dead	Y
Point (lbf)	Girder #1	B	8256.633	-	2	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Girder #1	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 10.75 X 45	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 45 Member Slope (in): 0/12 Actual Length (ft): 45

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
483.75	81632.81	4658.61	110.33	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _⊥	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				
2	15.5	0	15.5	0				
3	10	0	10	0				
4	14.5	0	14.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<516 (,	23.5	304.8	30.6	D+S	1.15
Bending Stress Y (psi)	SDVV#<91< (,	49.6	1604.0	30.6	D+S	1.15
Deflection Y (in)	SDVV#<<19 (,	0.004	0.967 (=L/180)	38.25	D+S	
Bearing Stress (psi)	SDVV#<6<17 (,	381.9	630.0	30.5	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	0	0	0
B	1021	8257	9278
C	954	10660	11614
D	1126	11189	12315
E	485	4994	5479

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	150	150	0	45	Snow	Y
Uniform (lbf/ft)	Uniform	17	17	0	45	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Outlookers	A	-7.965663	-7.965663	0	45	Dead	Y
Uniform (lbf/ft)	Outlookers	B	71.69099	71.69099	5	45	Dead	Y
Uniform (lbf/ft)	Outlookers	A	-84.37495	-84.37495	0	45	Snow	Y
Uniform (lbf/ft)	Outlookers	B	759.3749	759.3749	5	45	Snow	Y
Point (lbf)	Beam #23	B	311.876	-	0	-	Dead	Y
Point (lbf)	Beam #23	B	1771.873	-	0	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Girder #2	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(2) 1.75 X 18	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 43 Member Slope (in): 0/12 Actual Length (ft): 43

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
63	1701	16.08	18.38	2	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.95C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				
2	13.5	0	13.5	0				
3	10	0	10	0				
4	14.5	0	14.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7318 (,	195.1	327.8	28.81	D+S	1.15
Bending Stress Y (psi)	SDVV#8917 (,	1122.0	2570.6	28.38	D+S	1.15
Deflection Y (in)	SDVV#; 516 (,	0.171	0.967 (=L/180)	36.55	D+S	
Bearing Stress (psi)	SDVV#; 1; (,	738.6	801.1	28.5	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft
	DEAD	SNOW	TOTAL
A	0	0	0
B	994	8568	9562
C	911	10038	10949
D	1282	12936	14218
E	529	5442	5971

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	150	150	0	43	Snow	Y
Uniform (lbf/ft)	Uniform	17	17	0	43	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Outlookers	B	71.69099	71.69099	5	43	Dead	Y
Uniform (lbf/ft)	Outlookers	B	759.3749	759.3749	5	43	Snow	Y
Point (lbf)	Beam #23	C	260.4513	-	0	-	Dead	Y
Point (lbf)	Beam #23	C	1678.125	-	0	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Beam #21	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		
Douglas Fir-Larch	No. 2	(1) 3.5 X 9.25	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
32.38	230.84	33.05	7.38	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1080	632	180	1350	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#9815 (,	62.6	180.0	0	D+L	1
Bending Stress Y (psi)	SDVV#9517 (,	406.0	1080.0	2.5	D+L	1
Deflection Y (in)	SDVV#<61; (,	0.021	0.333 (=L/180)	2.5	D+L	
Bearing Stress (psi)	SDVV#; ; 1; (,	70.2	625.0	0	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	348	1002	1350
B	348	1002	1350

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	5	Live	Y
Self Weight (lbf/ft)	-	7.38	7.38	0	5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Joist #2	B	66.25	66.25	0	5	Dead	Y
Uniform (lbf/ft)	Joist #2	B	200	200	0	5	Live	Y
Uniform (lbf/ft)	Joist #3	A	65.75	65.75	0	5	Dead	Y
Uniform (lbf/ft)	Joist #3	A	200	200	0	5	Live	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Floor - 2nd Level	LOADING:	ASD
MEMBER NAME:	Beam #22	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		
Douglas Fir-Larch	No. 2	(1) 3.5 X 9.25	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
32.38	230.84	33.05	7.38	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1080	632	180	1350	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#8818 (,	80.1	180.0	0	D+L	1
Bending Stress Y (psi)	SDVV#841< (,	519.3	1080.0	2.5	D+L	1
Deflection Y (in)	SDVV#<514 (,	0.026	0.333 (=L/180)	2.5	D+L	
Bearing Stress (psi)	SDVV#; 819 (,	89.8	625.0	0	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	443	1285	1728
B	443	1285	1728

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	5	Live	Y
Self Weight (lbf/ft)	-	7.38	7.38	0	5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Joist #1	B	169.9088	169.9088	0	5	Dead	Y
Uniform (lbf/ft)	Joist #1	B	512.9324	512.9324	0	5	Live	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #1	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 3.5 X 7.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 3 Member Slope (in): 0/12 Actual Length (ft): 3

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
25.38	111.15	25.9	5.79	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1170	690	180	1418	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.3	1.2	1	1.05	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#9715 (,	74.2	207.0	3	D+S	1.15
Bending Stress Y (psi)	SDVV#: 519 (,	368.5	1345.5	1.5	D+S	1.15
Deflection Y (in)	SDVV#< 81: (,	0.009	0.200 (=L/180)	1.5	D+S	
Bearing Stress (psi)	SDVV#941: (,	239.1	625.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	LIVE ROOF	SNOW	TOTAL
A	116	2	1139	1257
B	116	2	1139	1257

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	3	RoofLive	Y
Self Weight (lbf/ft)	-	5.79	5.79	0	3	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Outlookers	B	71.69099	71.69099	0	3	Dead	Y
Uniform (lbf/ft)	Outlookers	B	759.3749	759.3749	0	3	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #4	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		
Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 7.25	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 2.5 Member Slope (in): 0/12 Actual Length (ft): 2.5

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
38.06	166.72	9.71	11.1	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.07 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2.5	0	2.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#6413 (,	226.2	327.8	2.5	D+S	1.15
Bending Stress Y (psi)	SDVV#9617 (,	1170.4	3202.2	1	D+S	1.15
Deflection Y (in)	SDVV#<419 (,	0.014	0.167 (=L/180)	1.225	D+S	
Bearing Stress (psi)	SDVV#8 ; 1: (,	309.8	750.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	TOTAL
A	714	301	1	4166	5182
B	818	301	1	4922	6042

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	2.5	RoofLive	Y
Self Weight (lbf/ft)	-	11.1	11.1	0	2.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #1	A	86.54543	86.54543	0	2.5	Dead	Y
Uniform (lbf/ft)	Trusses #1	A	610.9089	610.9089	0	2.5	Snow	Y
Uniform (lbf/ft)	Trusses #3	C	356.9922	356.9922	1	2.5	Dead	Y
Uniform (lbf/ft)	Trusses #3	C	2520.062	2520.062	1	2.5	Snow	Y
Point (lbf)	Header #2	B	553.3633	-	1	-	Dead	Y
Point (lbf)	Header #2	B	3780.093	-	1	-	Snow	Y
Uniform (lbf/ft)	Joist #1	D	79.71153	79.71153	0	2.5	Dead	Y
Uniform (lbf/ft)	Joist #1	D	240.6386	240.6386	0	2.5	Live	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #5	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 19.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 12.5 Member Slope (in): 0/12 Actual Length (ft): 12.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
170.62	5406.68	1088.62	38.91	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	12.5	0	12.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#6717 (,	199.8	304.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#7515 (,	1517.6	2625.0	6.125	D+S	1.15
Deflection Y (in)	SDVV#-: 913 (,	0.200	0.833 (=L/180)	6.25	D+S	
Bearing Stress (psi)	SDVV#7; 18 (,	288.7	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	SNOW	TOTAL
A	3370	1373	19363	24106
B	3061	1810	18630	23501

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	38.91	38.91	0	12.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #1	A	86.54543	86.54543	0	12.5	Dead	Y
Uniform (lbf/ft)	Trusses #1	A	610.9089	610.9089	0	12.5	Snow	Y
Uniform (lbf/ft)	Trusses #2	C	320.9866	320.9866	8	12.5	Dead	Y
Uniform (lbf/ft)	Trusses #2	C	351.71	351.71	8	12.5	Live	Y
Uniform (lbf/ft)	Trusses #2	C	2265.787	2265.787	8	12.5	Snow	Y
Uniform (lbf/ft)	Trusses #3	C	356.9922	356.9922	0	2	Dead	Y
Uniform (lbf/ft)	Trusses #3	C	356.9922	356.9922	5	8	Dead	Y
Uniform (lbf/ft)	Trusses #3	C	2520.062	2520.062	0	2	Snow	Y
Uniform (lbf/ft)	Trusses #3	C	2520.062	2520.062	5	8	Snow	Y
Point (lbf)	Header #2	A	553.3633	-	2	-	Dead	Y
Point (lbf)	Header #2	B	553.3633	-	5	-	Dead	Y
Point (lbf)	Header #2	A	3780.093	-	2	-	Snow	Y
Point (lbf)	Header #2	B	3780.093	-	5	-	Snow	Y
Uniform (lbf/ft)	Joist #3	B	65.75	65.75	0	8	Dead	Y
Uniform (lbf/ft)	Joist #3	B	200	200	0	8	Live	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #6	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 7.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 7.5 Member Slope (in): 0/12 Actual Length (ft): 7.5

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
38.06	166.72	9.71	11.1	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.07 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	7.5	0	7.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#931k (,	128.2	327.8	7.5	D+S	1.15
Bending Stress Y (psi)	SDVV#8316 (,	1591.2	3202.2	3.75	D+S	1.15
Deflection Y (in)	SDVV#9613 (,	0.185	0.500 (=L/180)	3.75	D+S	
Bearing Stress (psi)	SDVV#771k (,	413.0	750.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	440	4	2812	3256
B	440	4	2812	3256

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	7.5	RoofLive	Y
Self Weight (lbf/ft)	-	11.1	11.1	0	7.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #6	B	106.25	106.25	0	7.5	Dead	Y
Uniform (lbf/ft)	Trusses #6	B	750	750	0	7.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #7	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 3.5 X 9.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 2 Member Slope (in): 0/12 Actual Length (ft): 2

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
32.38	230.84	33.05	7.38	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1080	632	180	1350	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2	0	2	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#6513 (,	140.7	207.0	0	D+S	1.15
Bending Stress Y (psi)	SDVV#319 (,	365.2	1242.0	1	D+S	1.15
Deflection Y (in)	SDVV#< : 1; (,	0.003	0.133 (=L/180)	1	D+S	
Bearing Stress (psi)	SDVV#861: (,	289.3	625.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	TOTAL
A	383	308	1	2654	3346
B	383	308	1	2654	3346

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	2	RoofLive	Y
Self Weight (lbf/ft)	-	7.38	7.38	0	2	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #2	B	376.0162	376.0162	0	2	Dead	Y
Uniform (lbf/ft)	Trusses #2	B	308.2943	308.2943	0	2	Live	Y
Uniform (lbf/ft)	Trusses #2	B	2654.228	2654.228	0	2	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #8	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 3.5 X 9.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 3 Member Slope (in): 0/12 Actual Length (ft): 3

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
32.38	230.84	33.05	7.38	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1080	632	180	1350	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.2	1.1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7516 (,	119.5	207.0	3	D+S	1.15
Bending Stress Y (psi)	SDVV#9518 (,	465.2	1242.0	1.5	D+S	1.15
Deflection Y (in)	SDVV#<81; (,	0.009	0.200 (=L/180)	1.5	D+S	
Bearing Stress (psi)	SDVV#931: (,	245.7	625.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	LIVE ROOF	SNOW	TOTAL
A	330	2	2250	2582
B	330	2	2250	2582

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	3	RoofLive	Y
Self Weight (lbf/ft)	-	7.38	7.38	0	3	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #4	A	212.5	212.5	0	3	Dead	Y
Uniform (lbf/ft)	Trusses #4	A	1500	1500	0	3	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #9	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 9.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 6 Member Slope (in): 0/12 Actual Length (ft): 6

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
48.56	346.26	12.39	14.16	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.04 C_r = 1 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	6	0	6	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#651 (,	220.3	327.8	6	D+S	1.15
Bending Stress Y (psi)	SDVV#7719 (,	1714.8	3097.8	3	D+S	1.15
Deflection Y (in)	SDVV#- 813 (,	0.100	0.400 (=L/180)	3	D+S	
Bearing Stress (psi)	SDVV#6<19 (,	452.8	750.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	LIVE ROOF	SNOW	TOTAL
A	922	3	6210	7135
B	922	3	6210	7135

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	6	RoofLive	Y
Self Weight (lbf/ft)	-	14.16	14.16	0	6	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #5	B	293.2499	293.2499	0	6	Dead	Y
Uniform (lbf/ft)	Trusses #5	B	2069.998	2069.998	0	6	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #10	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 14	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 8.5 Member Slope (in): 0/12 Actual Length (ft): 8.5

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
73.5	1200.5	18.76	21.44	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.98 C_r = 1 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	8.5	0	8.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV##851B (,	155.8	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV##551k (,	2256.1	2927.9	4.25	D+S	1.15
Deflection Y (in)	SDVV##: 816 (,	0.140	0.567 (=L/180)	4.25	D+S	
Bearing Stress (psi)	SDVV##6817 (,	484.6	750.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	1295	6337	7632
B	1295	6337	7632

Reaction Location

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	21.44	21.44	0	8.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #6	A	2408.595	-	4.25	-	Dead	Y
Point (lbf)	Beam #6	A	12673.51	-	4.25	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #11	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	AISC:	AISC 360-16
MATERIAL:	Steel		
MC Shapes	MC9x25.4	A992-50	

BEAM PROPERTIES

Start (ft): 0 End (ft): 15 Member Slope (in): 0/12 Actual Length (ft): 15

Es x 10 ³	Fy x 10 ³	Fu x 10 ³	Area	Depth	tw	tf	bf	Ix	Iy	Zx	Zy	J	Cw
(psi)	(psi)	(psi)	(in ²)	(in)	(in)	(in)	(in)	(in ⁴)	(in ⁴)	(in ³)	(in ³)	(in ⁴)	(in ⁶)
29000	50	65	7.47	9	0.45	0.55	3.5	87.9	7.57	23.5	5.7	0.691	104

DESIGN PROPERTIES

Lp	Lr	Flange	Web	Flange	Web		
(in)	(in)	Flexure	Flexure	Compression	Compression	Cv	Cv_WA
43	199	Compact	Compact	Non-Slender	Non-Slender	1	1

BEAM DATA

Span	Length (ft)	Unbraced Length		Beam End									
		Top	Bottom	Elev. Diff	Pnt/ι	Pnc/ι	Mn/ι	Mn-OOP/ι	Vn/ι	Vn-OOP/ι	Cb	Cb-OOP	
1	15	0	15	0	0	0	0	0	0	0	0	0	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	AISC CODE	LOAD COMBO
Shear Force Y (lbf)	SDVV#; <15 (,	-7822.7	72754.5	15	G2-1	D+S
Moment Y (lbf-ft)	SDVV#8918 (,	25518.9	58632.7	7.5	F2-1	D+S
Deflection Y (in)	SDVV#8715 (,	0.458	1.000 (=L/180)	7.5		D+S

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	1486	6337	7823
B	1486	6337	7823

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	25.4	25.4	0	15	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #10	A	1295.407	-	3.25	-	Dead	Y
Point (lbf)	Header #10	B	1295.407	-	11.75	-	Dead	Y
Point (lbf)	Header #10	A	6336.756	-	3.25	-	Snow	Y
Point (lbf)	Header #10	B	6336.756	-	11.75	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #12	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		
Douglas Fir-Larch	No. 2	(1) 5.5 X 5.5	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 15 Member Slope (in): 0/12 Actual Length (ft): 15

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
30.25	76.26	76.26	6.9	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	750	475	170	700	625	1300	470
Adjusted Values	750	475	170	700	625	1300	470
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	15	0	15	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#<618 (,	10.0	153.0	15	D	0.9
Bending Stress Y (psi)	SDVV#8418 (,	327.4	675.0	7.5	D	0.9
Deflection Y (in)	SDVV#9<14 (,	0.309	1.000 (=L/180)	7.5	D	
Bearing Stress (psi)	SDVV#<914 (,	24.5	625.0	0	D	0.9

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	TOTAL
A	202	202
B	202	202

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	20	20	0	15	Dead	Y
Self Weight (lbf/ft)	-	6.9	6.9	0	15	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #13	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 9.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 10.5 Member Slope (in): 0/12 Actual Length (ft): 10.5

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
48.56	346.26	12.39	14.16	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.04 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	10.5	0	10.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7: 4.16 (,	61.1	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#7: 15 (,	1634.3	3097.8	5.25	D+S	1.15
Deflection Y (in)	SDVV#9917 (,	0.235	0.700 (=L/180)	5.25	D+S	
Bearing Stress (psi)	SDVV#9918 (,	251.3	750.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	LIVE ROOF	SNOW	TOTAL
A	380	5	1600	1985
B	380	5	1600	1985

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	10.5	RoofLive	Y
Self Weight (lbf/ft)	-	14.16	14.16	0	10.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #13	C	610.4495	-	5.25	-	Dead	Y
Point (lbf)	Beam #13	C	3199.547	-	5.25	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #14	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 7.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 8 Member Slope (in): 0/12 Actual Length (ft): 8

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
38.06	166.72	9.71	11.1	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.07 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	8	0	8	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV##8 ; 16 (,	136.7	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV##7618 (,	1810.4	3202.2	4	D+S	1.15
Deflection Y (in)	SDVV##8814 (,	0.240	0.533 (=L/180)	4	D+S	
Bearing Stress (psi)	SDVV##7416 (,	440.6	750.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	469	4	3000	3473
B	469	4	3000	3473

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	8	RoofLive	Y
Self Weight (lbf/ft)	-	11.1	11.1	0	8	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #7	B	106.25	106.25	0	8	Dead	Y
Uniform (lbf/ft)	Trusses #7	B	750	750	0	8	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #15	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 3.5 X 7.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 2.5 Member Slope (in): 0/12 Actual Length (ft): 2.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
25.38	111.15	25.9	5.79	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1170	690	180	1418	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.3	1.2	1	1.05	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	2.5	0	2.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#9516 (,	78.1	207.0	0	D+S	1.15
Bending Stress Y (psi)	SDVV#913 (,	323.1	1345.5	1.25	D+S	1.15
Deflection Y (in)	SDVV#<91< (,	0.005	0.167 (=L/180)	1.25	D+S	
Bearing Stress (psi)	SDVV#8<1: (,	251.6	625.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	170	1	1151	1322
B	170	1	1151	1322

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	2.5	RoofLive	Y
Self Weight (lbf/ft)	-	5.79	5.79	0	2.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #10	B	130.3961	130.3961	0	2.5	Dead	Y
Uniform (lbf/ft)	Trusses #10	B	920.4437	920.4437	0	2.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #16	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 6.75 X 19.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 14.5 Member Slope (in): 0/12 Actual Length (ft): 14.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
131.62	4170.87	499.76	30.02	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	14.5	0	14.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7: 1 (,	159.4	304.8	14.5	D+S	1.15
Bending Stress Y (psi)	SDVV#7917 (,	1422.7	2654.3	7.25	D+S	1.15
Deflection Y (in)	SDVV#6: 619 (,	0.256	0.967 (=L/180)	7.25	D+S	
Bearing Stress (psi)	SDVV#6; 16 (,	345.5	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	1927	12064	13991
B	1927	12064	13991

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	30.02	30.02	0	14.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #9	A	14.87501	14.87501	0	14.5	Dead	Y
Uniform (lbf/ft)	Trusses #9	A	105	105	0	14.5	Snow	Y
Uniform (lbf/ft)	Trusses #10	D	220.8602	220.8602	0	14.5	Dead	Y
Uniform (lbf/ft)	Trusses #10	D	1559.013	1559.013	0	14.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #17	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Glulams		

Stress Class Rated 24F-1.8E	24F-V4 DF/DF	(1) 8.75 X 19.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 15 Member Slope (in): 0/12 Actual Length (ft): 15

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
170.62	5406.68	1088.62	38.91	1	0.5	1

STRENGTH PROPERTIES

	Fbx+	Fbx-	Fby	Ft	Fvx	Fvy	Fc	Fc _L	Ex	Exmin	Ey	Eymin
	(psi)	(psi)	(psi)	(psi)	(psi)							
Base Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
Adjusted Values	2400	1850	1450	1100	265	230	1650	650	1800000	950000	1600000	850000
C _M	1	1	1	1	1	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1	1	1	1	1	1

Bending Adjustment Factors C_{vr} = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	15	0	15	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#9316 (,	121.0	304.8	15	D+S	1.15
Bending Stress Y (psi)	SDVV#891: (,	1117.4	2577.5	7.5	D+S	1.15
Deflection Y (in)	SDVV#-; 18 (,	0.215	1.000 (=L/180)	7.5	D+S	
Bearing Stress (psi)	SDVV#8615 (,	262.3	560.0	0	D+S	1.15

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	SNOW	TOTAL
A	1964	11805	13769
B	1964	11805	13769

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	38.91	38.91	0	15	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	C	222.9812	222.9812	0	15	Dead	Y
Uniform (lbf/ft)	Trusses #11	C	1573.985	1573.985	0	15	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #18	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 11.25	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 5 Member Slope (in): 0/12 Actual Length (ft): 5

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
59.06	622.92	15.07	17.23	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1.01 C_r = 1 Volume factor is applied on a load combination basis and is not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	5	0	5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#6713 (,	216.2	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#941; (,	1153.1	3016.4	2.5	D+S	1.15
Deflection Y (in)	SDVV#; ; 18 (,	0.038	0.333 (=L/180)	2.5	D+S	
Bearing Stress (psi)	SDVV#5 : 1< (,	540.5	750.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	1094	2	7419	8515
B	1094	2	7419	8515

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	5	RoofLive	Y
Self Weight (lbf/ft)	-	17.23	17.23	0	5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	B	420.4032	420.4032	0	5	Dead	Y
Uniform (lbf/ft)	Trusses #11	B	2967.552	2967.552	0	5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #19	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 5.5 X 9.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 3 Member Slope (in): 0/12 Actual Length (ft): 3

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
52.25	392.96	131.71	11.92	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	875	425	170	600	625	1300	470
Adjusted Values	875	425	170	600	625	1300	470
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#5814 (,	146.4	195.5	3	D+S	1.15
Bending Stress Y (psi)	SDVV#771k (,	554.8	1006.3	1.5	D+S	1.15
Deflection Y (in)	SDVV#<61k (,	0.012	0.200 (=L/180)	1.5	D+S	
Bearing Stress (psi)	SDVV#831B (,	309.1	625.0	0	D+S	1.15

REACTIONS

Y axis	DEAD	SNOW	TOTAL
A	648	4451	5099
B	648	4451	5099

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Self Weight (lbf/ft)	-	11.92	11.92	0	3	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	B	420.4032	420.4032	0	3	Dead	Y
Uniform (lbf/ft)	Trusses #11	B	2967.552	2967.552	0	3	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #20	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 5.5 X 9.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 3 Member Slope (in): 0/12 Actual Length (ft): 3

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
52.25	392.96	131.71	11.92	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	875	425	170	600	625	1300	470
Adjusted Values	875	425	170	600	625	1300	470
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#7; 17 (,	100.8	195.5	3	D+S	1.15
Bending Stress Y (psi)	SDVV#9513 (,	382.0	1006.3	1.5	D+S	1.15
Deflection Y (in)	SDVV#< 81; (,	0.008	0.200 (=L/180)	1.5	D+S	
Bearing Stress (psi)	SDVV#641< (,	425.6	625.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	451	2	3060	3513
B	451	2	3060	3513

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	3	RoofLive	Y
Self Weight (lbf/ft)	-	11.92	11.92	0	3	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #13	C	289.001	289.001	0	3	Dead	Y
Uniform (lbf/ft)	Trusses #13	C	2040.016	2040.016	0	3	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #21	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 14	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 10 Member Slope (in): 0/12 Actual Length (ft): 10

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
73.5	1200.5	18.76	21.44	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 0.98 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	10	0	10	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#591: (,	239.8	327.8	0	D+S	1.15
Bending Stress Y (psi)	SDVV#5<1: (,	2055.8	2927.9	5	D+S	1.15
Deflection Y (in)	SDVV#9: 13 (,	0.220	0.667 (=L/180)	5	D+S	
Bearing Stress (psi)	SDVV#661: (,	497.4	750.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	1552	5	10200	11757
B	1552	5	10200	11757

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	10	RoofLive	Y
Self Weight (lbf/ft)	-	21.44	21.44	0	10	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #13	B	288.9991	288.9991	0	10	Dead	Y
Uniform (lbf/ft)	Trusses #13	B	2039.999	2039.999	0	10	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #22	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		

Douglas Fir-Larch	No. 2	(1) 5.5 X 9.5	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 6.5 Member Slope (in): 0/12 Actual Length (ft): 6.5

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
52.25	392.96	131.71	11.92	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	875	425	170	600	625	1300	470
Adjusted Values	875	425	170	600	625	1300	470
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1	1	1	1	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	6.5	0	6.5	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#8416 (,	95.2	195.5	0	D+S	1.15
Bending Stress Y (psi)	SDVV#5516 (,	781.7	1006.3	3.25	D+S	1.15
Deflection Y (in)	SDVV#; 418 (,	0.080	0.433 (=L/180)	3.25	D+S	
Bearing Stress (psi)	SDVV#681: (,	402.0	625.0	0	D+S	1.15

REACTIONS

Y axis	Units for V: lbf		Units for M: lbf-ft	
	DEAD	LIVE ROOF	SNOW	TOTAL
A	350	3	2966	3319
B	350	3	2966	3319

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	6.5	RoofLive	Y
Self Weight (lbf/ft)	-	11.92	11.92	0	6.5	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Outlookers	B	71.69099	71.69099	0	6.5	Dead	Y
Uniform (lbf/ft)	Outlookers	B	759.3749	759.3749	0	6.5	Snow	Y
Uniform (lbf/ft)	Rafters #6	C	24.0983	24.0983	0	6.5	Dead	Y
Uniform (lbf/ft)	Rafters #6	C	153.328	153.328	0	6.5	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #23	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Structural Composite Lumber		

Weyerhaeuser	2.0E Microlam LVL	(3) 1.75 X 11.875	DRY		
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BEAM PROPERTIES

Start (ft): 0 End (ft): 3 Member Slope (in): 0/12 Actual Length (ft): 3

Area	Ix	Iy	BSW	Lams	Cfn	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
62.34	732.62	15.91	18.18	3	7.35	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	2600	1895	285	2510	750	2000	1016.54
Adjusted Values	2600	1895	285	2510	750	2000	1017
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1

Bending Adjustment Factors C_V = 1 C_r = 1 Volume factor is applied on a load combination basis And is Not reflected in the adjusted values

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#5813 (,	245.8	327.8	3	D+S	1.15
Bending Stress Y (psi)	SDVV#<41; (,	246.8	2994.3	2.73	D+S	1.15
Deflection Y (in)	SDVV#<<13 (,	0.002	0.200 (=L/180)	1.71	D+S	
Bearing Stress (psi)	SDVV#891; (,	324.3	750.0	3	D+S	1.15

REACTIONS

Y axis	DEAD	LIVE	LIVE ROOF	SNOW	TOTAL
A	281	541	2	836	1660
B	1013	458	1	9201	10673

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	3	RoofLive	Y
Self Weight (lbf/ft)	-	18.18	18.18	0	3	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Joist #4	B	119.4406	119.4406	0	2.75	Dead	Y
Uniform (lbf/ft)	Joist #4	B	363.3175	363.3175	0	2.75	Live	Y
Point (lbf)	Girder #2	C	910.9876	-	2.75	-	Dead	Y
Point (lbf)	Girder #2	C	10037.89	-	2.75	-	Snow	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Headers - 1st Level	LOADING:	ASD
MEMBER NAME:	Header #24	CODE:	2018 International Building Code
MEMBER TYPE:	ROOF BEAM	NDS:	2018 NDS
MATERIAL:	Solid Sawn		
Douglas Fir-Larch	No. 2	(1) 3.5 X 7.25	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 3 Member Slope (in): 0/12 Actual Length (ft): 3

Area	Ix	Iy	BSW	Lams	G	Kcr
(in ²)	(in ⁴)	(in ⁴)	(lbf/ft)			Creep Factor
25.38	111.15	25.9	5.79	1	0.5	1

STRENGTH PROPERTIES

	Fb (psi)	Ft (psi)	Fv (psi)	Fc (psi)	Fc _⊥ (psi)	E (psi) x10 ³	Emin (psi) x10 ³
Base Values	900	575	180	1350	625	1600	580
Adjusted Values	1170	690	180	1418	625	1600	580
C _M	1	1	1	1	1	1	1
C _T	1	1	1	1	1	1	1
C _i	1	1	1	1	1	1	1
C _F	1.3	1.2	1	1.05	1	1	1

Bending Adjustment Factors C_{fu} = 1 C_r = 1

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End				
		Top	Bottom	Elev. Diff (ft)	CL(Top)	CL(Bottom)	CL(Left)	CL(Right)
1	3	0	3	0				

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Stress Y (psi)	SDVV#951< (,	66.7	180.0	3	D+L	1
Bending Stress Y (psi)	SDVV#-41: (,	331.2	1170.0	1.5	D+L	1
Deflection Y (in)	SDVV#<914 (,	0.008	0.200 (=L/180)	1.5	D+L	
Bearing Stress (psi)	SDVV#9819 (,	214.9	625.0	0	D+L	1

REACTIONS

Y axis	DEAD	LIVE	LIVE ROOF	TOTAL
A	287	841	2	1130
B	287	841	2	1130

Reaction Location



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	3	RoofLive	Y
Self Weight (lbf/ft)	-	5.79	5.79	0	3	Dead	Y

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Joist #1	C	185.7185	185.7185	0	3	Dead	Y
Uniform (lbf/ft)	Joist #1	C	560.6595	560.6595	0	3	Live	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design	
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis	
CUSTOMER:		REVIEWED BY:	Stephen Curtis	
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble	
	--			
LEVEL:	Floor - 1st Level	LOADING:	ASD	
MEMBER NAME:	Joists #5	CODE:	2018 International Building Code	
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS	
MATERIAL:	I-Joists			
Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 40 Member Slope (in): 0/12 Actual Length (ft): 40 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	7.75	0	7.75	0
2	7.75	0	7.75	0
3	10	0	10	0
4	7.5	0	7.5	0
5	7	0	7	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Force (lbf)	SDVV#8: 17 (,	520.2	1220.0	15.6	D+L	1
Bending Moment (lbf-ft)	SDVV#8: 417 (,	714.2	2500.0	25.6	D+L	1
Deflection Y (in)	SDVV#7: <13 (,	0.037	0.333 (=L/360)	20.4	L	
Bearing Load (lbf)	SDVV#791k (,	964.3	1816.4	25.5	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	82	251	333
B	219	666	885
C	238	723	961
D	239	726	965
E	200	609	809
F	74	226	300

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B	C	D	E	F
NSR	NSR	NSR	NSR	NSR	NSR

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	40	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	40	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	40	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 1st Level	LOADING:	ASD
MEMBER NAME:	Joists #6	CODE:	2018 International Building Code
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS
MATERIAL:	I-Joists		

Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY
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BEAM PROPERTIES

Start (ft): 0 End (ft): 38 Member Slope (in): 0/12 Actual Length (ft): 38 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	5	0	5	0
2	8.5	0	8.5	0
3	10	0	10	0
4	7.5	0	7.5	0
5	7	0	7	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Force (lbf)	SDVV#891< (,	525.8	1220.0	13.68	D+L	1
Bending Moment (lbf-ft)	SDVV#9<18 (,	762.1	2500.0	13.68	D+L	1
Deflection Y (in)	SDVV#<315 (,	0.033	0.333 (=L/360)	18.62	L	
Bearing Load (lbf)	SDVV#7518 (,	1043.9	1816.4	13.5	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	43	131	174
B	188	573	761
C	258	786	1044
D	234	711	945
E	202	614	816
F	74	225	299

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B	C	D	E	F
NSR	NSR	NSR	NSR	NSR	NSR

CONNECTORS		(All connectors are Simpson Strong-Tie connectors)*			Header	Joist Nails (in)	Nailer
Support A	Model	Type	Adequacy (%)	Fastening (in)		Thickness (in)	
Primary	IUS1.81/9.5	Hanger	81.65	(8) 0.148 x 3	(NULL) NULL	N/A	

Hanger at support A has seat sloped 0 degrees, skewed 0 degrees.

WSR = web stiffeners required

*Capacity values are adjusted based on specific gravity when members use grades other than those specified in Simpson Strong-Tie's capacity tables.



LOAD LIST							
Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	38	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	38	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	38	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Floor - 1st Level	LOADING:	ASD
MEMBER NAME:	Joists #7	CODE:	2018 International Building Code
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS
MATERIAL:	I-Joists		

Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY
--------------	---------	---------	-------------	-----

BEAM PROPERTIES

Start (ft): 0 End (ft): 42 Member Slope (in): 0/12 Actual Length (ft): 42 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	6.5	0	6.5	0
2	8	0	8	0
3	10	0	10	0
4	8.5	0	8.5	0
5	9	0	9	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Force (lbf)	SDVV#871 (,	552.2	1220.0	33.18	D+L	1
Bending Moment (lbf-ft)	SDVV#319 (,	736.0	2500.0	33.18	D+L	1
Deflection Y (in)	SDVV#917 (,	0.041	0.300 (=L/360)	37.8	L	
Bearing Load (lbf)	SDVV#7614 (,	1033.1	1816.4	33	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	66	202	268
B	201	610	811
C	247	751	998
D	240	729	969
E	256	778	1034
F	95	290	385

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B	C	D	E	F
NSR	NSR	NSR	NSR	NSR	NSR

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	42	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	42	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	42	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design	
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis	
CUSTOMER:		REVIEWED BY:	Stephen Curtis	
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble	
	--			
LEVEL:	Floor - 1st Level	LOADING:	ASD	
MEMBER NAME:	Joists #8	CODE:	2018 International Building Code	
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS	
MATERIAL:	I-Joists			
Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 44 Member Slope (in): 0/12 Actual Length (ft): 44 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	8.5	0	8.5	0
2	8	0	8	0
3	10	0	10	0
4	8.5	0	8.5	0
5	9	0	9	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Force (lbf)	SDVV#871< (,	549.7	1220.0	35.2	D+L	1
Bending Moment (lbf-ft)	SDVV#413 (,	726.1	2500.0	34.76	D+L	1
Deflection Y (in)	SDVV#917 (,	0.041	0.300 (=L/360)	40.04	L	
Bearing Load (lbf)	SDVV#7616 (,	1030.5	1816.4	35	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	91	276	367
B	238	723	961
C	236	719	955
D	242	736	978
E	255	776	1031
F	95	290	385

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B	C	D	E	F
NSR	NSR	NSR	NSR	NSR	NSR

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	44	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	44	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	44	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design	
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis	
CUSTOMER:		REVIEWED BY:	Stephen Curtis	
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble	
	--			
LEVEL:	Floor - 1st Level	LOADING:	ASD	
MEMBER NAME:	Joists #9	CODE:	2018 International Building Code	
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS	
MATERIAL:	I-Joists			
Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 42 Member Slope (in): 0/12 Actual Length (ft): 42 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	6.5	0	6.5	0
2	8	0	8	0
3	10	0	10	0
4	8.5	0	8.5	0
5	9	0	9	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR	CD
Shear Force (lbf)	SDVV#871 (,	552.2	1220.0	33.18	D+L	1	
Bending Moment (lbf-ft)	SDVV#319 (,	736.0	2500.0	33.18	D+L	1	
Deflection Y (in)	SDVV#917 (,	0.041	0.300 (=L/360)	37.8	L		
Bearing Load (lbf)	SDVV#7614 (,	1033.1	1816.4	33	D+L	1	

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	66	202	268
B	201	610	811
C	247	751	998
D	240	729	969
E	256	778	1034
F	95	290	385

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required

A	B	C	D	E	F
NSR	NSR	NSR	NSR	NSR	NSR

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft ²)	Uniform	40	40	0	42	Live	Y
Uniform (lbf/ft ²)	Uniform	12	12	0	42	Dead	Y
Self Weight (lbf/ft)	-	2.3	2.3	0	42	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design	
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis	
CUSTOMER:		REVIEWED BY:	Stephen Curtis	
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble	
	--			
LEVEL:	Floor - 1st Level	LOADING:	ASD	
MEMBER NAME:	Joists #10	CODE:	2018 International Building Code	
MEMBER TYPE:	FLOOR JOIST	NDS:	2018 NDS	
MATERIAL:	I-Joists			
Weyerhaeuser	TJI 110	(1) 9.5	0 (in) O.C.	DRY

BEAM PROPERTIES

Start (ft): 0 End (ft): 50 Member Slope (in): 0/12 Actual Length (ft): 50 O.C. Spacing (in): 24

El x 10 ⁶ (lbf-in ²)	BSW (lbf/ft)	Lams	K x 10 ⁶ (lbf)	Mcap (lbf-ft)	Vcap (lbf)	End Rcap 1.75 NS (lbf)	End Rcap 3.5 NS (lbf)	End Rcap 1.75 WS (lbf)	End Rcap 3.5 WS (lbf)	Int Rcap 3.5 NS (lbf)	Int Rcap 5.25 NS (lbf)	Int Rcap 3.5 WS (lbf)	Int Rcap 5.25 WS (lbf)
157	2.3	1	4.5	2500	1220	910	1220	910	1220	1935	2350	1935	2350

BEAM DATA

Span	Length (ft)	Unbraced Length (ft)		Beam End
		Top	Bottom	Elev. Diff (ft)
1	9.25	0	9.25	0
2	6.25	0	6.25	0
3	8	0	8	0
4	10	0	10	0
5	8.5	0	8.5	0
6	8	0	8	0

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOCATION (ft)	LOAD COMBO	DURATION FACTOR CD
Shear Force (lbf)	SDVV##8718 (,	554.7	1220.0	9	D+L	1
Bending Moment (lbf-ft)	SDVV##9918 (,	838.2	2500.0	23.5	D+L	1
Deflection Y (in)	SDVV##718 (,	0.048	0.308 (=L/360)	4	L	
Bearing Load (lbf)	SDVV##7615 (,	1032.3	1816.4	23.5	D+L	1

REACTIONS

Units for V: lbf Units for M: lbf-ft

Y axis	DEAD	LIVE	TOTAL
A	99	303	402
B	247	753	1000
C	149	453	602
D	255	777	1032
E	243	740	983
F	237	721	958
G	83	253	336

Reaction Location WS-Web Stiffener Required NSR-No Stiffener Required



LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lb/ft ²)	Uniform	40	40	0	50	Live	Y
Uniform (lb/ft ²)	Uniform	12	12	0	50	Dead	Y
Self Weight (lb/ft)	-	2.3	2.3	0	50	Dead	Y



PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #1	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
1.333 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(2) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING				
Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)	
1.333	10	161.0708	193.3333	
CONCRETE				
fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)	
3000	3122019	145	0.75	
STEM WALL				
Width (in)	Height (in)	Material	Stemwall Offset(in)	
8	24	Concrete	0	
SOIL				
Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0
REBAR				
Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)	
4	6	60000	2.9E+07	
COVER				
Top Cover (in)	Bottom Cover (in)	Side Cover (in)		
3	3	3		

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV##53.19 (,	1191.1	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV##<.16 (,	74.9	10513.6	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV##<.16 (,	80.1	11245.8	1.2D+1.6S+L	LRFD

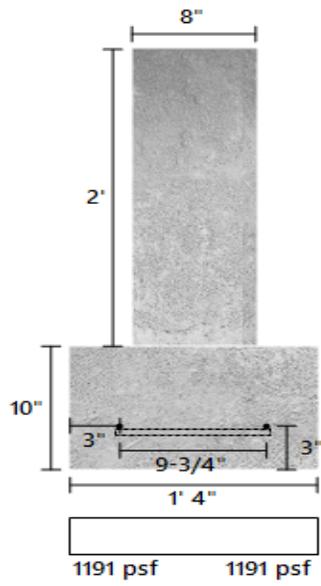
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Outlookers	B	71.69099	71.69099	0	1	Dead	Z
Uniform (lbf/ft)	Outlookers	B	759.3749	759.3749	0	1	Snow	Z
Uniform (lbf/ft)	Rafters #1	C	54.62957	54.62957	0	1	Dead	Z
Uniform (lbf/ft)	Rafters #1	C	347.5864	347.5864	0	1	Snow	Z

Footing #1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #2	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3.5 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(5) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
3.5	10	422.9167	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#4; 13 (,	1230.7	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV#<51< (,	1958.3	27605.2	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV#; 719 (,	1730.7	11245.8	1.2D+1.6S+L	LRFD

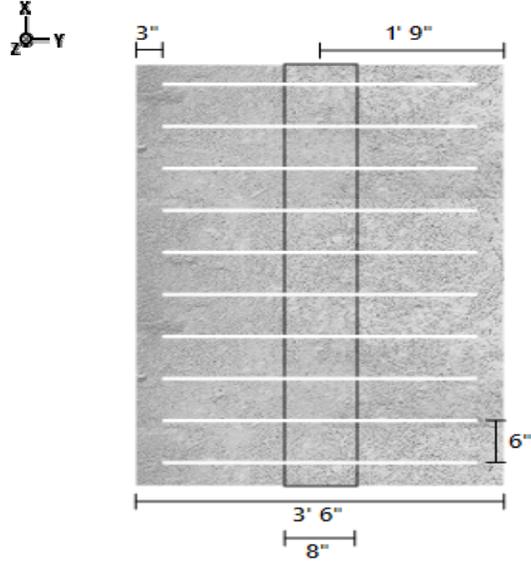
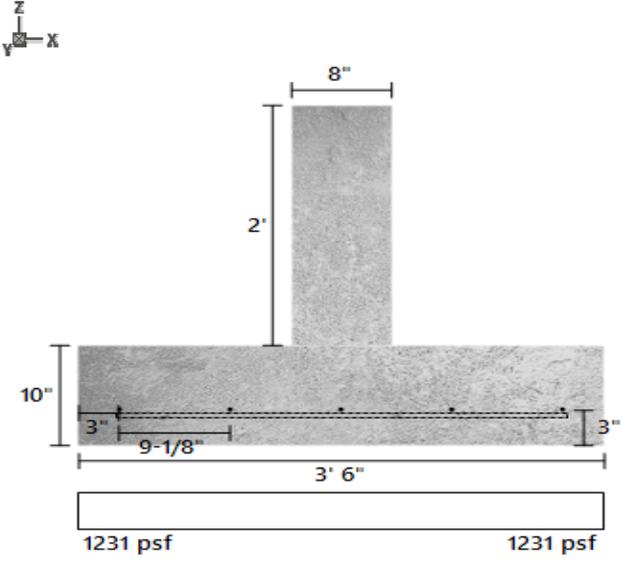
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #1	A	86.54543	86.54543	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #1	A	610.9089	610.9089	0	1	Snow	Z
Uniform (lbf/ft)	Trusses #3	C	356.9922	356.9922	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #3	C	2520.062	2520.062	0	1	Snow	Z
Uniform (lbf/ft)	Joist #1	D	79.71153	79.71153	0	1	Dead	Z
Uniform (lbf/ft)	Joist #1	D	240.6386	240.6386	0	1	Live	Z
Uniform (lbf/ft)	Joists #5	F	37.09798	37.09798	0	1	Dead	Z
Uniform (lbf/ft)	Joists #5	F	112.8456	112.8456	0	1	Live	Z

Footing #2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #3	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(4) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
3	10	362.5	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#4<1; (,	1202.6	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV#<6.19 (,	1504.8	23661.6	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV#; <1: (,	1156.7	11245.8	1.2D+1.6S+L	LRFD

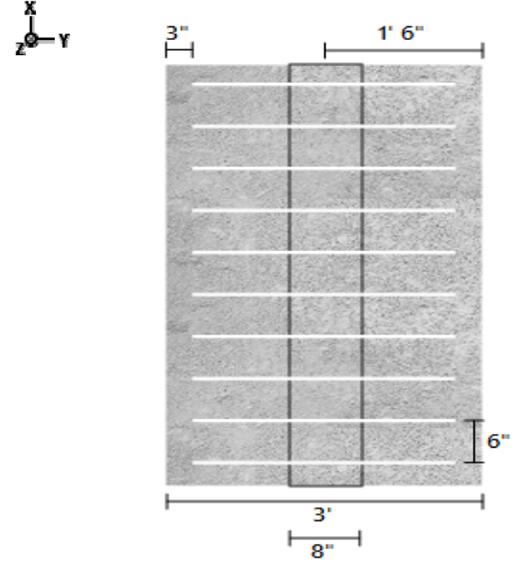
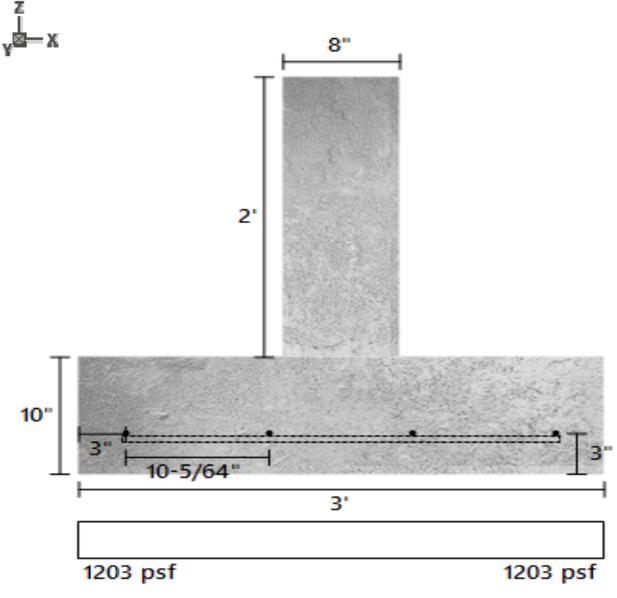
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #2	B	376.0162	376.0162	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #2	B	308.2943	308.2943	0	1	Live	Z
Uniform (lbf/ft)	Trusses #2	B	2654.228	2654.228	0	1	Snow	Z
Uniform (lbf/ft)	Joists #6	A	21.56203	21.56203	0	1	Dead	Z
Uniform (lbf/ft)	Joists #6	A	65.58791	65.58791	0	1	Live	Z

Footing #3 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #4	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(3) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
2	10	241.6667	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#5; 17 (,	1073.8	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV#<91; (,	511.8	15774.4	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV#<: 17 (,	295.1	11245.8	1.2D+1.6S+L	LRFD

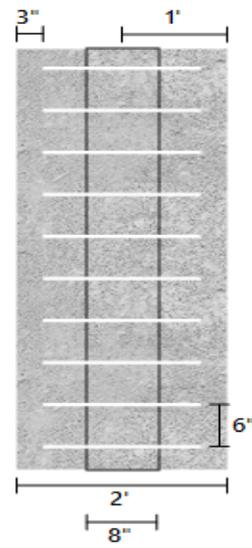
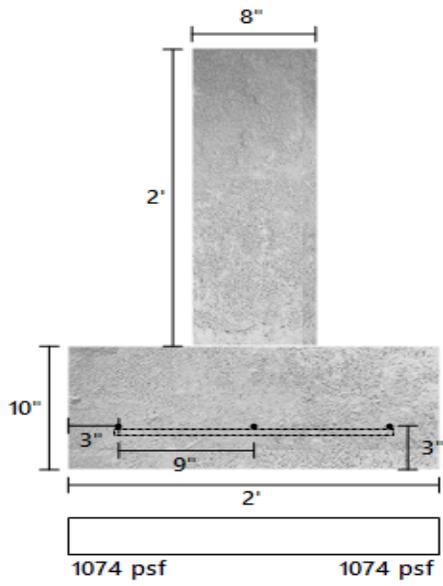
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #4	A	212.5	212.5	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #4	A	1500	1500	0	1	Snow	Z

Footing #4 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #5	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.5 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(4) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
2.5	10	302.0833	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#561; (,	1143.5	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV#<816 (,	931.5	19718.0	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV#<718 (,	615.9	11245.8	1.2D+1.6S+L	LRFD

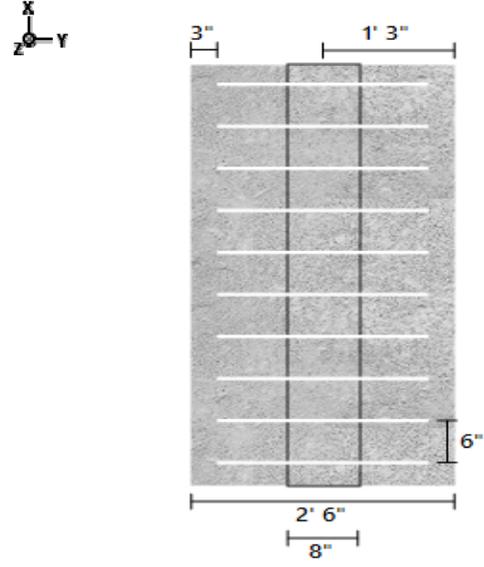
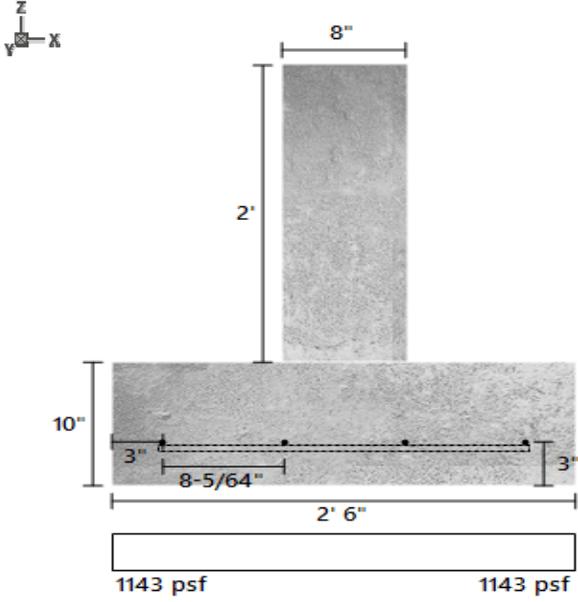
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #5	B	293.2499	293.2499	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #5	B	2069.998	2069.998	0	1	Snow	Z

Footing #5 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing - WD-#6	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.5 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(6) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
4.5	10	543.75	84.58334

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
3.5	24	Wood	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#5613 (,	1154.6	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV#<41< (,	2868.9	35492.4	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV#991; (,	3729.6	11245.8	1.2D+1.6S+L	LRFD

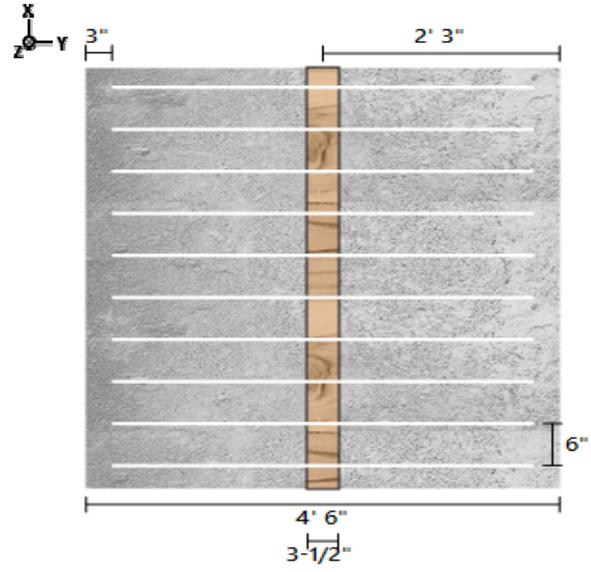
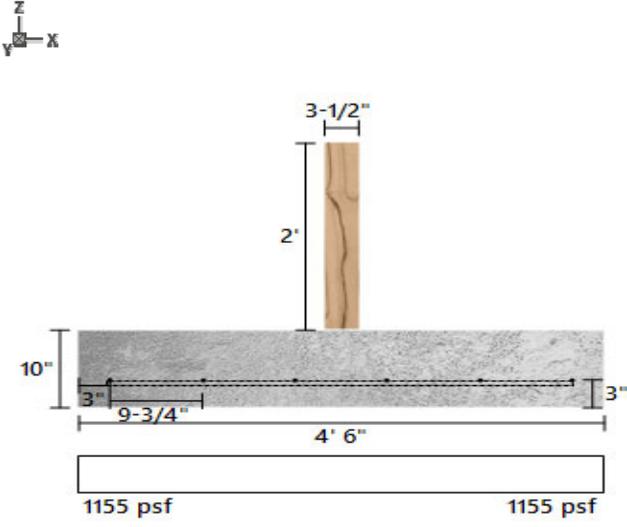
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #10	C	566.7437	566.7437	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #10	C	4000.543	4000.543	0	1	Snow	Z

Footing - WD-#6 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #7	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(3) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING				
Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)	
2	10	241.6667	193.3333	
CONCRETE				
fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)	
3000	3122019	145	0.75	
STEM WALL				
Width (in)	Height (in)	Material	Stemwall Offset(in)	
8	24	Concrete	0	
SOIL				
Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0
REBAR				
Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)	
4	6	60000	2.9E+07	
COVER				
Top Cover (in)	Bottom Cover (in)	Side Cover (in)		
3	3	3		

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV##53.19 (,	1191.2	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV##<9.15 (,	606.7	15774.4	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV##<9.1k (,	349.8	11245.8	1.2D+1.6S+L	LRFD

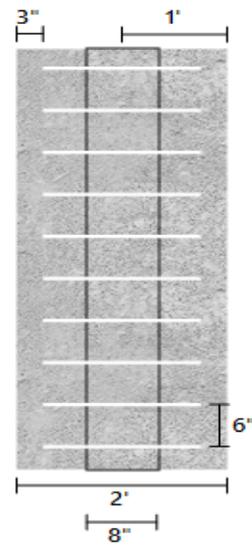
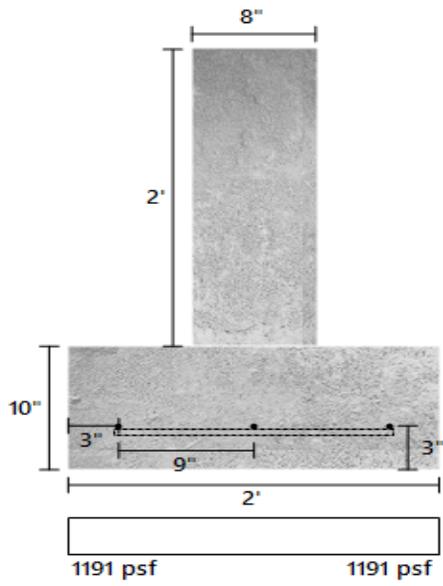
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #9	A	14.87501	14.87501	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #9	A	105	105	0	1	Snow	Z
Uniform (lbf/ft)	Trusses #10	D	220.8602	220.8602	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #10	D	1559.013	1559.013	0	1	Snow	Z
Uniform (lbf/ft)	Joists #9	F	47.6692	47.6692	0	1	Dead	Z
Uniform (lbf/ft)	Joists #9	F	145.0014	145.0014	0	1	Live	Z

Footing #7 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #8	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
1.333 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(2) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING				
Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)	
1.333	10	161.0708	193.3333	
CONCRETE				
fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)	
3000	3122019	145	0.75	
STEM WALL				
Width (in)	Height (in)	Material	Stemwall Offset(in)	
8	24	Concrete	0	
SOIL				
Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0
REBAR				
Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)	
4	6	60000	2.9E+07	
COVER				
Top Cover (in)	Bottom Cover (in)	Side Cover (in)		
3	3	3		

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV##5; 14 (,	1079.1	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV##< 16 (,	69.0	10513.6	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV##< 16 (,	73.7	11245.8	1.2D+1.6S+L	LRFD

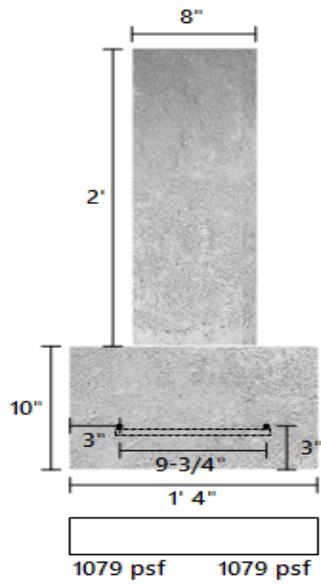
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #10	B	130.3961	130.3961	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #10	B	920.4437	920.4437	0	1	Snow	Z
Uniform (lbf/ft)	Joists #9	A	33.19706	33.19706	0	1	Dead	Z
Uniform (lbf/ft)	Joists #9	A	100.9797	100.9797	0	1	Live	Z

Footing #8 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing - WD-#9	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(3) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
2	10	241.6667	84.58334

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
3.5	24	Wood	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#<73.17 (,	894.7	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV#<8.16 (,	745.5	15774.4	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV#<8.13 (,	559.2	11245.8	1.2D+1.6S+L	LRFD

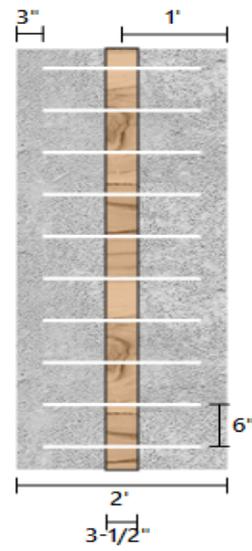
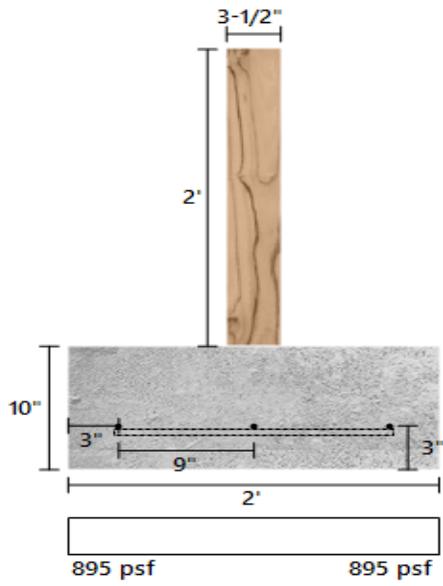
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	A	166.2161	166.2161	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #11	A	1173.29	1173.29	0	1	Snow	Z
Uniform (lbf/ft)	Joists #10	B	123.7244	123.7244	0	1	Dead	Z
Uniform (lbf/ft)	Joists #10	B	376.3481	376.3481	0	1	Live	Z

Footing - WD-#9 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #10	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(3) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
2	10	241.6667	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV##5715 (,	1136.8	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV##<917 (,	571.1	15774.4	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV##< : 14 (,	329.3	11245.8	1.2D+1.6S+L	LRFD

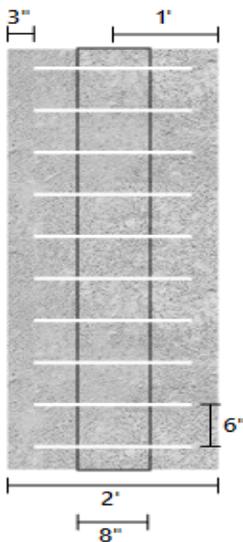
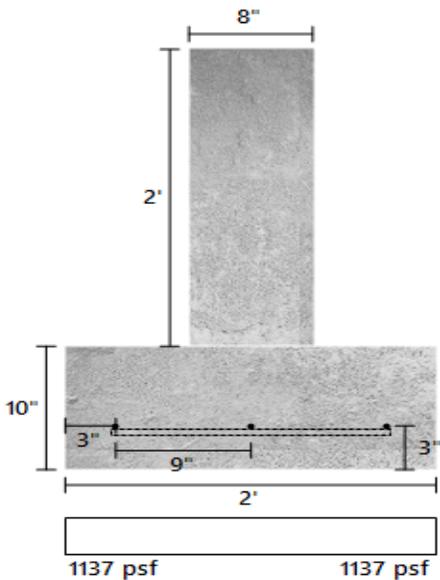
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	C	222.9812	222.9812	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #11	C	1573.985	1573.985	0	1	Snow	Z
Uniform (lbf/ft)	Joists #10	G	41.64506	41.64506	0	1	Dead	Z
Uniform (lbf/ft)	Joists #10	G	126.677	126.677	0	1	Live	Z

Footing #10 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #11	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(3) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
2	10	241.6667	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV##54.19 (,	1176.5	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV##<9.17 (,	573.2	15774.4	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV##<.14 (,	330.5	11245.8	1.2D+1.6S+L	LRFD

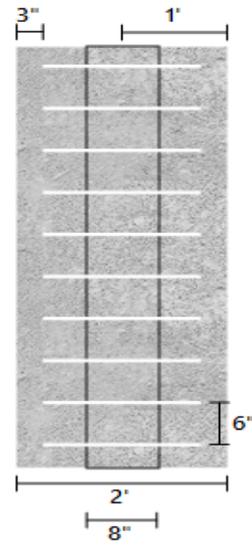
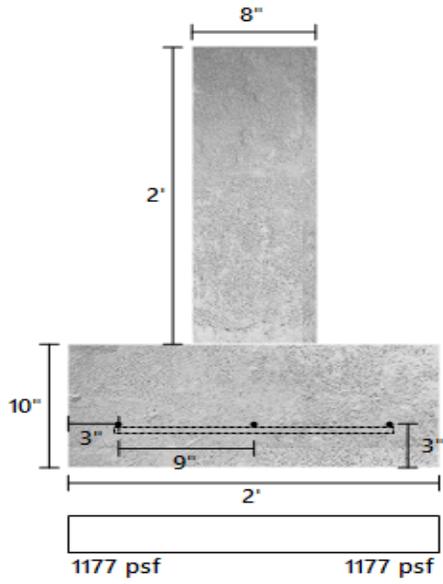
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #12	B	238.0005	238.0005	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #12	B	1680	1680	0	1	Snow	Z

Footing #11 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #12	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(3) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
2	10	241.6667	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV##54.19 (,	1176.5	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV##<9.17 (,	573.2	15774.4	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV##<.14 (,	330.5	11245.8	1.2D+1.6S+L	LRFD

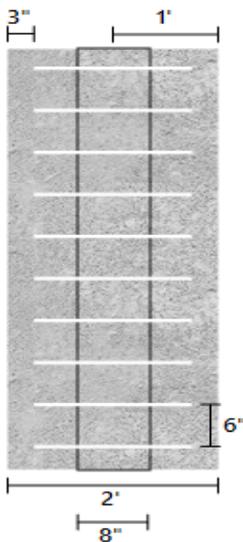
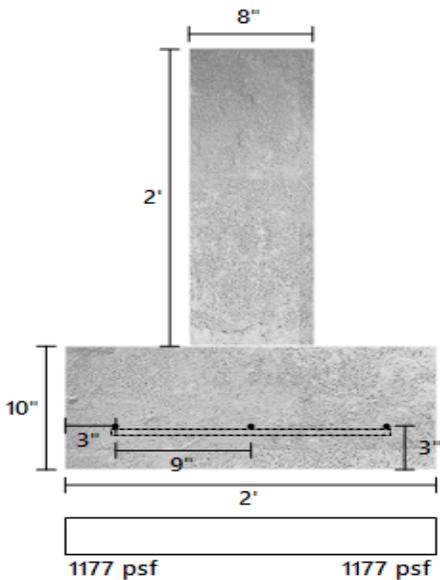
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #12	C	238	238	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #12	C	1680.002	1680.002	0	1	Snow	Z

Footing #12 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing #13	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.5 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(4) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
2.5	10	302.0833	193.3333

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
8	24	Concrete	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV##571: (,	1129.8	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV##<816 (,	918.0	19718.0	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV##<719 (,	607.0	11245.8	1.2D+1.6S+L	LRFD

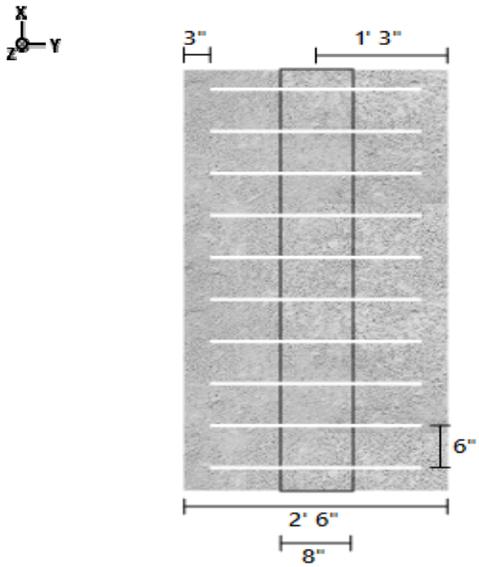
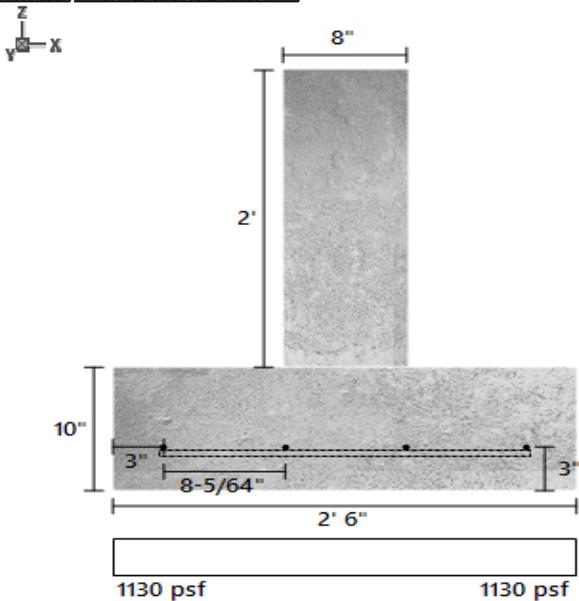
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #13	C	289.001	289.001	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #13	C	2040.016	2040.016	0	1	Snow	Z

Footing #13 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #1-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.00 (ft) X 2.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2	2	10	3.33	483.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV #; <13 (,	164.7	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV #<<1: (,	44.9	15774.4	1.4D	LRFD
One-Way Shear Y (lbf)	SDVV #<<1: (,	44.9	15774.4	1.4D	LRFD
Two-Way Shear (lbf-ft)	SDVV #<<1; (,	144.9	77557.5	1.4D	LRFD
Moment X (lbf-ft)	SDVV #<<1; (,	25.9	17124.7	1.4D	LRFD
Moment Y (lbf-ft)	SDVV #<<1; (,	25.9	17124.7	1.4D	LRFD
Crushing (psi)	SDVV #<<1k (,	232.8	212160.0	1.4D	LRFD

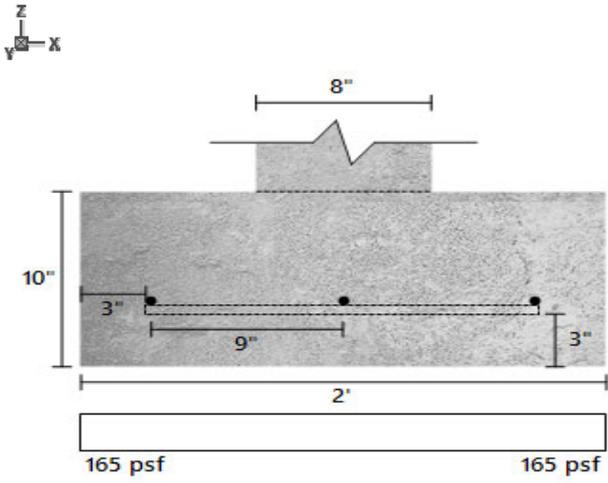
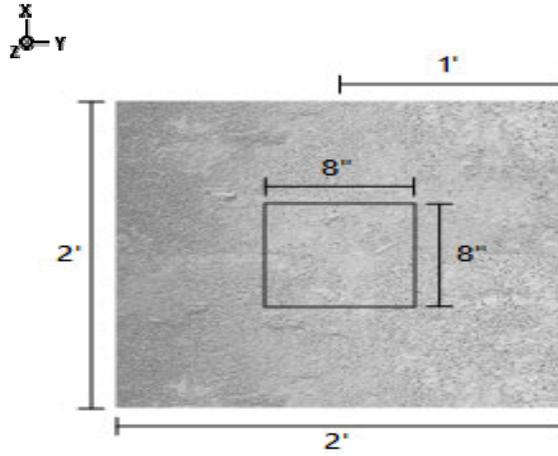
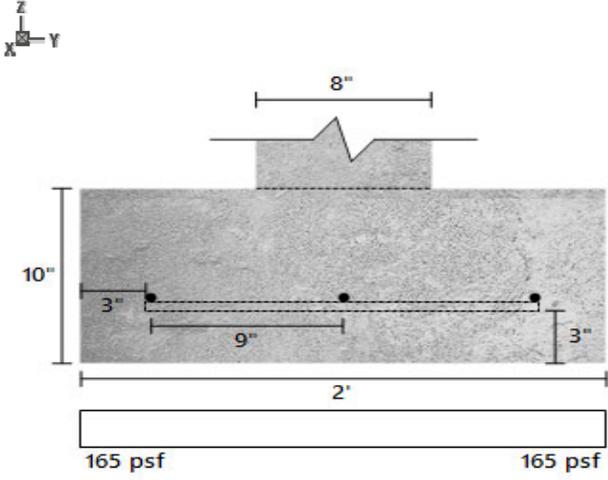
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #1	B	166.2631	-	0	-	Dead	Z
Point (lbf)	Beam #1	B	8.000059	-	0	-	Live	Z

SpotFtg Bm #1-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #1-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.00 (ft) X 2.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
2	2	10	3.33	483.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV #; <13 (,	164.7	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV #<<1: (,	44.9	15774.4	1.4D	LRFD
One-Way Shear Y (lbf)	SDVV #<<1: (,	44.9	15774.4	1.4D	LRFD
Two-Way Shear (lbf-ft)	SDVV #<<1; (,	144.9	77557.5	1.4D	LRFD
Moment X (lbf-ft)	SDVV #<<1; (,	25.9	17124.7	1.4D	LRFD
Moment Y (lbf-ft)	SDVV #<<1; (,	25.9	17124.7	1.4D	LRFD
Crushing (psi)	SDVV #<<1& (,	232.8	212160.0	1.4D	LRFD

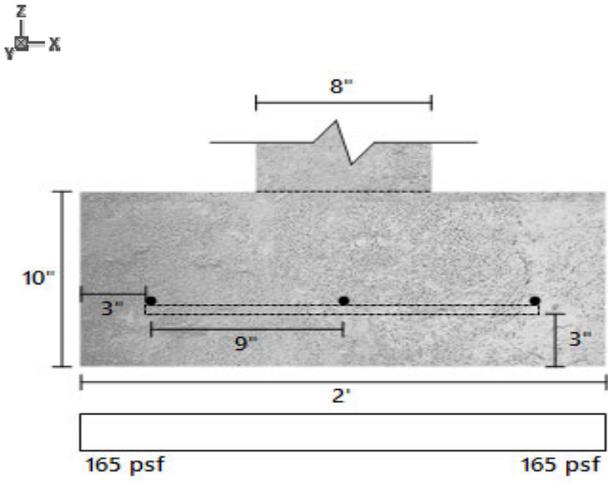
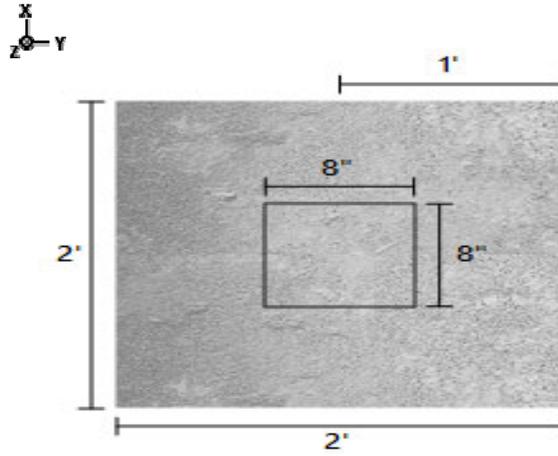
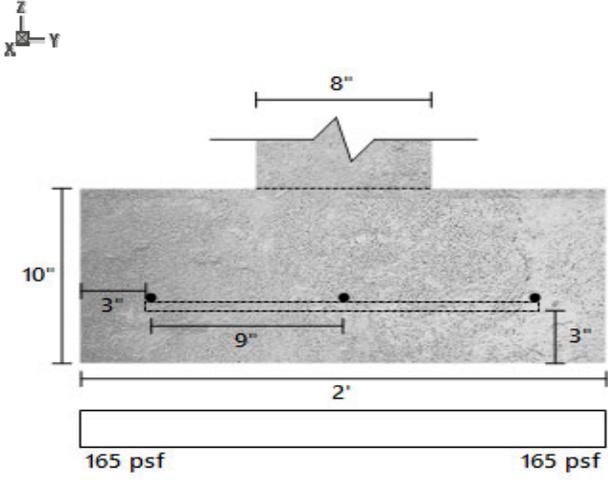
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #1	B	166.2631	-	0	-	Dead	Z
Point (lbf)	Beam #1	B	8.000059	-	0	-	Live	Z

SpotFtg Bm #1-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #2-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.50 (ft) X 2.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV #5 : 17 (,	1089.2	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV #7 ; 13 (,	2376.0	19718.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV #7 ; 13 (,	2376.0	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV #<3 1< (,	7088.5	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV #<3 1< (,	1571.0	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV #<3 1< (,	1571.0	17278.2	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV #<8 19 (,	9348.3	212160.0	1.2D+1.6S+L	LRFD

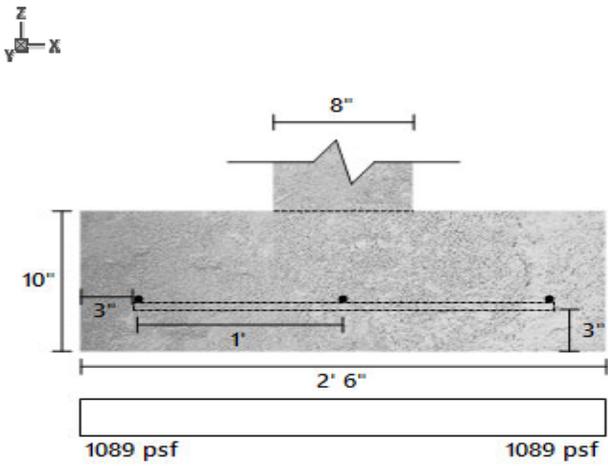
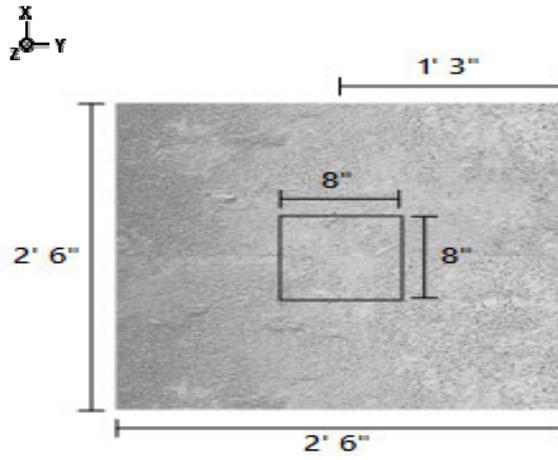
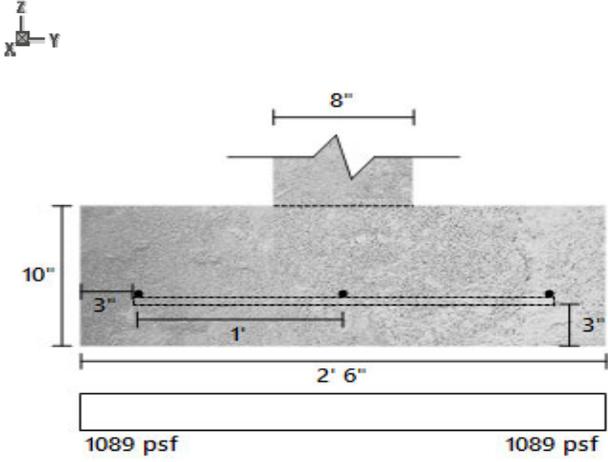
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #2	A	839.7277	-	0	-	Dead	Z
Point (lbf)	Beam #2	A	5212.253	-	0	-	Snow	Z

SpotFtg Bm #2-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #2-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#58.18 (,	1116.9	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#9; 14 (,	11322.3	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#9; 14 (,	11322.3	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#95.1; (,	28830.0	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#89.13 (,	12716.6	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#89.13 (,	12716.6	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 8.16 (,	31154.4	212160.0	1.2D+1.6S+L	LRFD

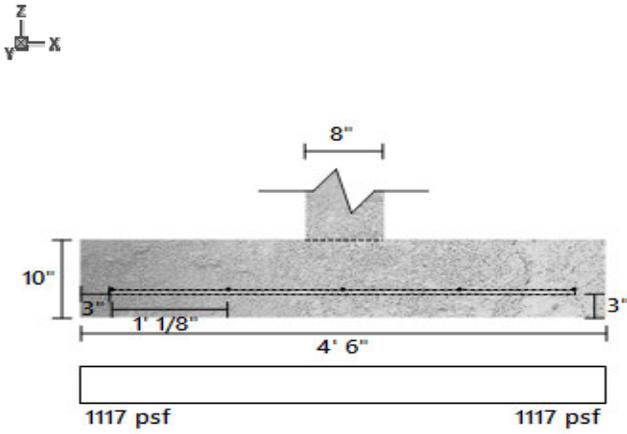
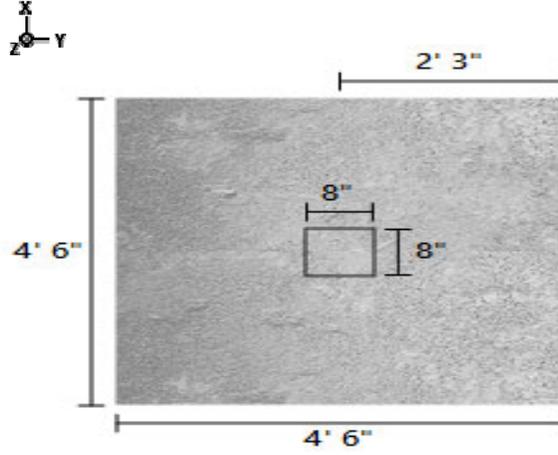
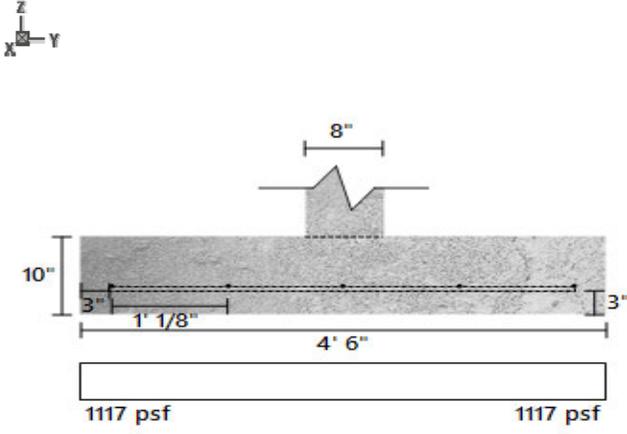
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #2	B	2798.719	-	0	-	Dead	Z
Point (lbf)	Beam #2	B	17371.86	-	0	-	Snow	Z

SpotFtg Bm #2-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #2-3	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.50 (ft) X 2.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

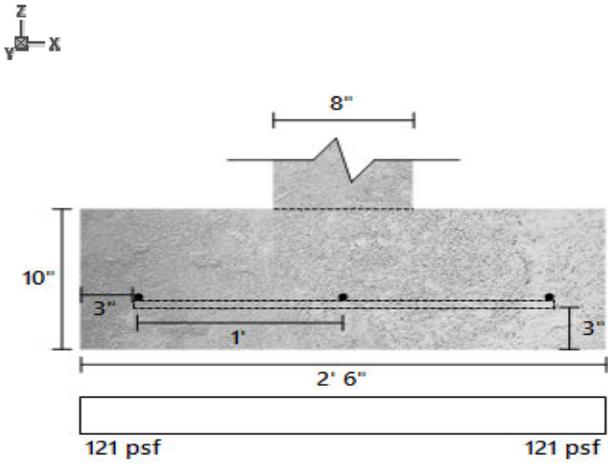
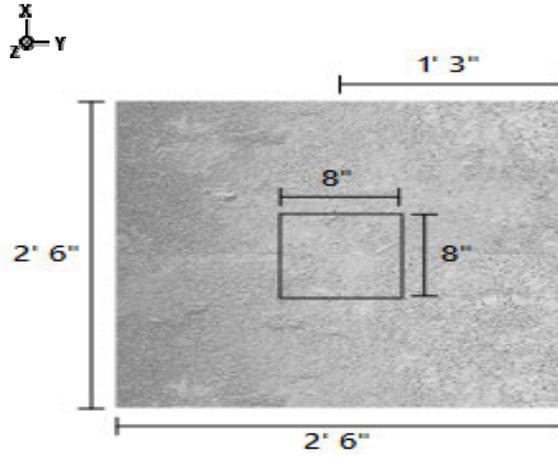
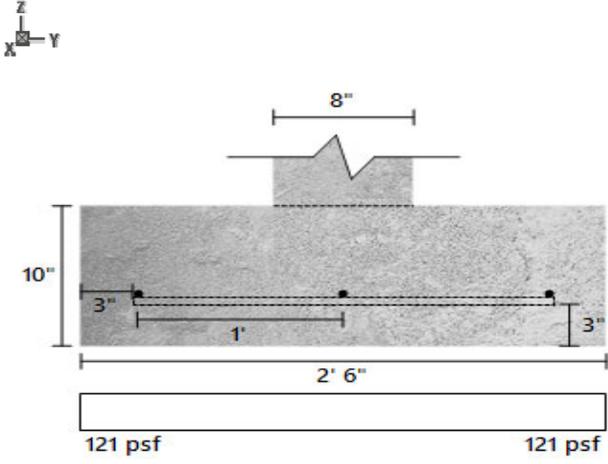
PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#<4 1< (,	121.0	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV#4 3 3 13 (,	0.4	19718.0	1.2D+1.6L+0.5Lr	LRFD
One-Way Shear Y (lbf)	SDVV#4 3 3 13 (,	0.4	19718.0	1.2D+1.6L+0.5Lr	LRFD
Two-Way Shear (lbf-ft)	SDVV#4 3 3 13 (,	1.2	77557.5	1.2D+1.6L+0.5Lr	LRFD
Moment X (lbf-ft)	SDVV#4 3 3 13 (,	0.3	17278.2	1.2D+1.6L+0.5Lr	LRFD
Moment Y (lbf-ft)	SDVV#4 3 3 13 (,	0.3	17278.2	1.2D+1.6L+0.5Lr	LRFD
Crushing (psi)	SDVV#4 3 3 13 (,	1.6	212160.0	1.2D+1.6L+0.5Lr	LRFD

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

SpotFtg Bm #2-3 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #5-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#4: 14 (,	1243.4	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#951: (,	13227.8	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#951: (,	13227.8	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#8919 (,	33682.0	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#7; 18 (,	14856.7	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#7; 18 (,	14856.7	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 51; (,	36397.6	212160.0	1.2D+1.6S+L	LRFD

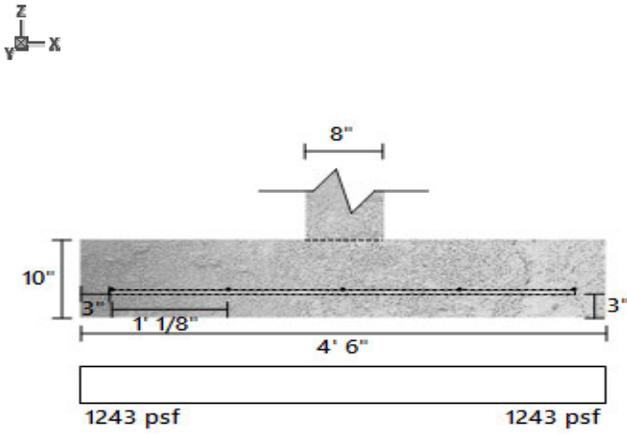
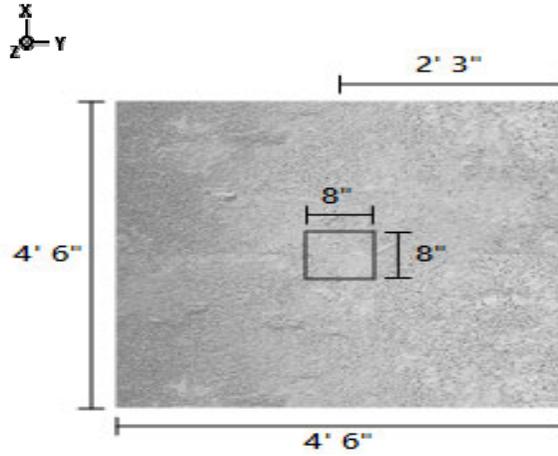
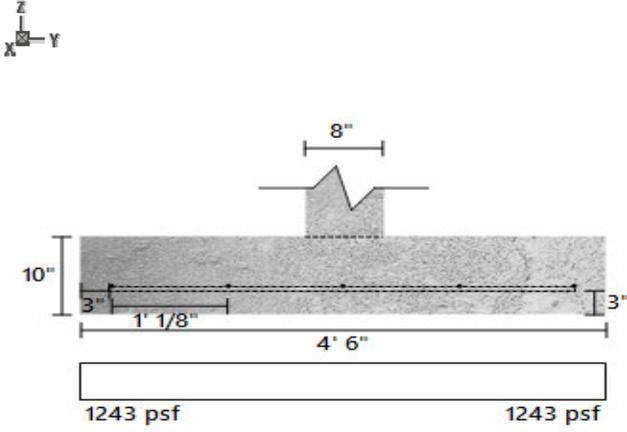
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #5	A	3369.573	-	0	-	Dead	Z
Point (lbf)	Header #5	A	1372.887	-	0	-	Live	Z
Point (lbf)	Header #5	A	19362.63	-	0	-	Snow	Z

SpotFtg Hdr #5-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #5-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#53.18 (,	1192.0	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#96.1 (,	12826.1	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#96.1 (,	12826.1	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#8.1 (,	32659.2	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#83.14 (,	14405.6	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#83.14 (,	14405.6	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 6.17 (,	35292.3	212160.0	1.2D+1.6S+L	LRFD

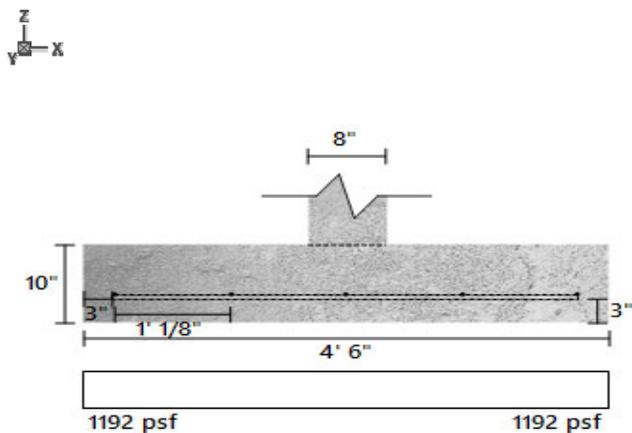
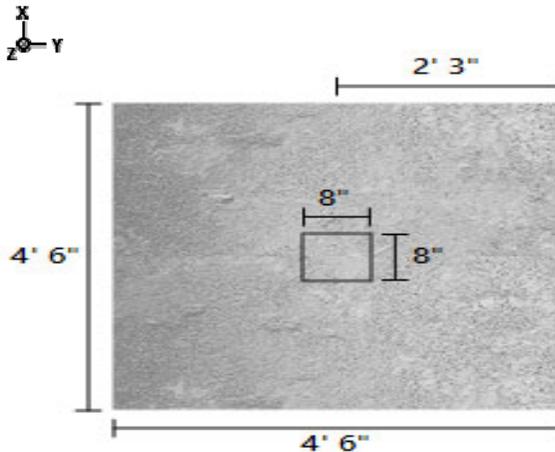
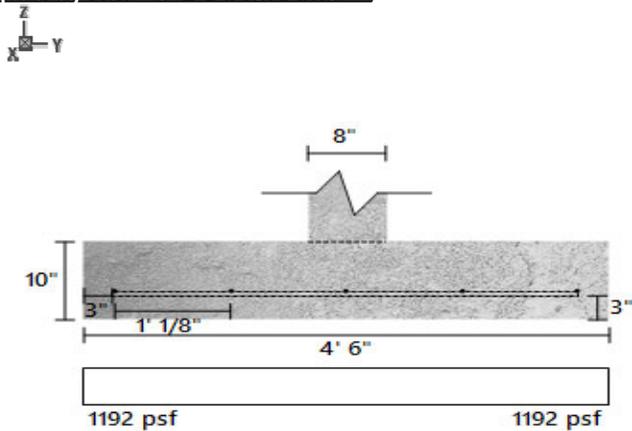
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #5	B	3060.802	-	0	-	Dead	Z
Point (lbf)	Header #5	B	1809.812	-	0	-	Live	Z
Point (lbf)	Header #5	B	18630.33	-	0	-	Snow	Z

SpotFtg Hdr #5-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #3-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV #4 < 16 (,	1211.0	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV #9 < 19 (,	12910.0	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV #9 < 19 (,	12910.0	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV #8 : 19 (,	32872.6	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV #7 < 1; (,	14499.7	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV #7 < 1; (,	14499.7	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV #; 6 < 16 (,	35523.0	212160.0	1.2D+1.6S+L	LRFD

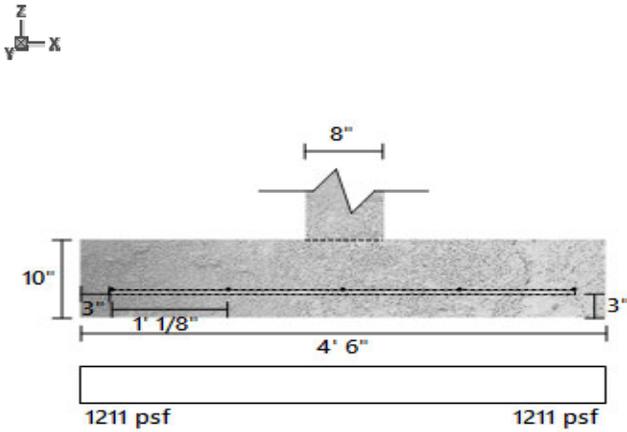
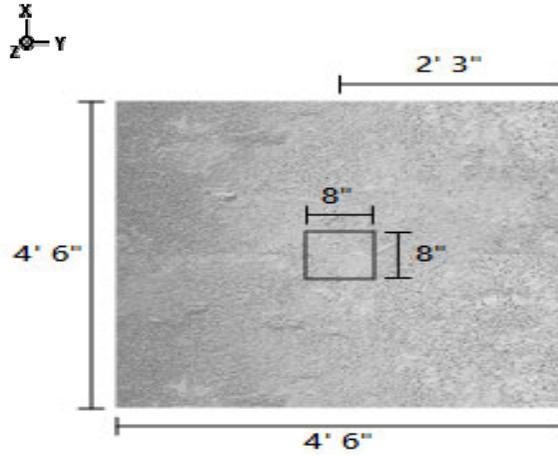
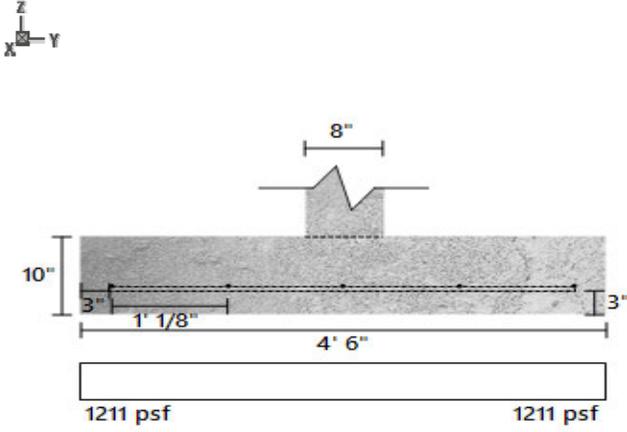
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #3	B	3537.422	-	0	-	Dead	Z
Point (lbf)	Beam #3	B	1614.953	-	0	-	Live	Z
Point (lbf)	Beam #3	B	18538.81	-	0	-	Snow	Z

SpotFtg Bm #3-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #3-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#461 (,	1294.4	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#9415 (,	13766.0	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#9415 (,	13766.0	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#871; (,	35052.4	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#7918 (,	15461.2	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#7918 (,	15461.2	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 514 (,	37878.5	212160.0	1.2D+1.6S+L	LRFD

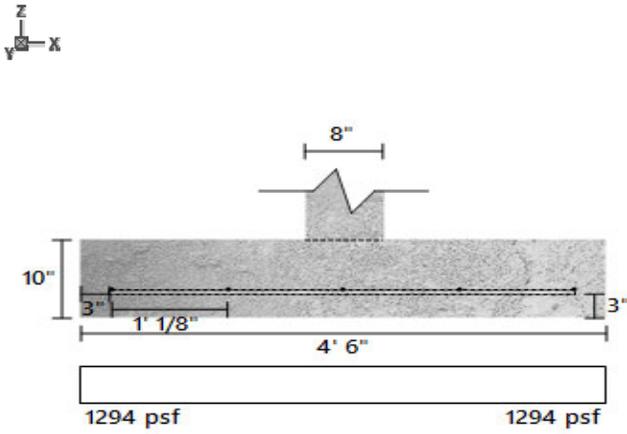
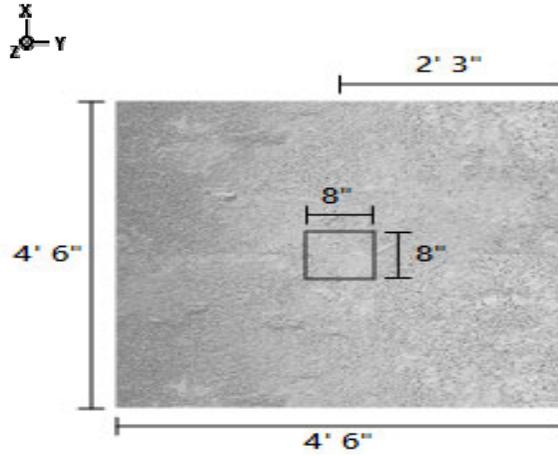
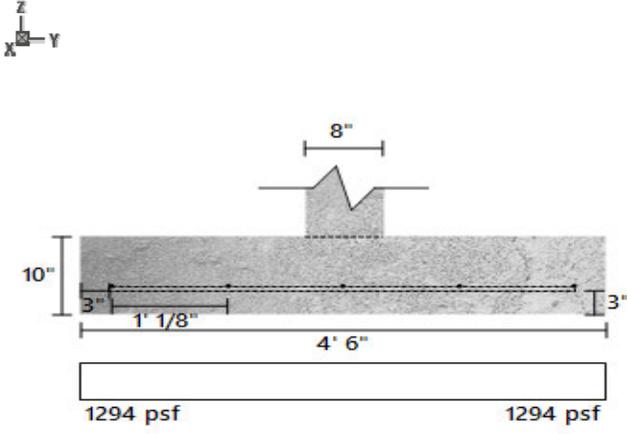
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #3	A	3538.824	-	0	-	Dead	Z
Point (lbf)	Beam #3	A	1268.395	-	0	-	Live	Z
Point (lbf)	Beam #3	A	20226.59	-	0	-	Snow	Z

SpotFtg Bm #3-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #23-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

1.33 (ft) X 1.33 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(2) #4 Long, (2) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
1.3334	1.3334	10	1.48	214.84

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#<:75.19 (,	860.5	1500.0	D+0.75L+0.75S	ASD
One-Way Shear X (lbf)	SDVV#<: 18 (,	260.0	10516.8	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#<: 18 (,	260.0	10516.8	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#<: 19 (,	917.9	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#<: 1; (,	253.5	11416.5	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#<: 1; (,	253.5	11416.5	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<: 1; (,	2217.9	100278.8	1.2D+1.6S+L	LRFD

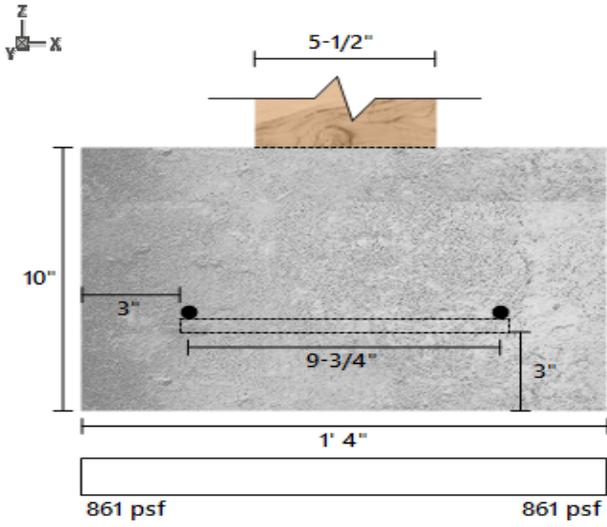
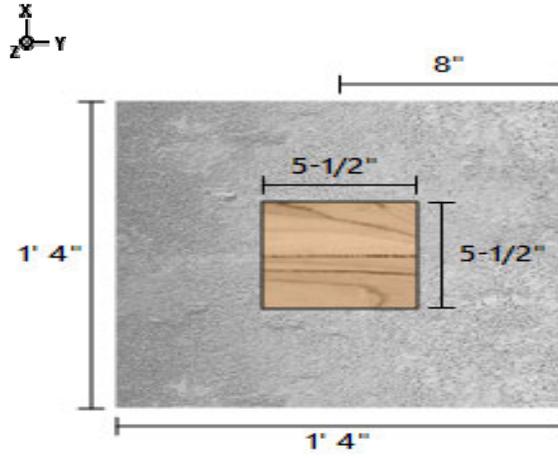
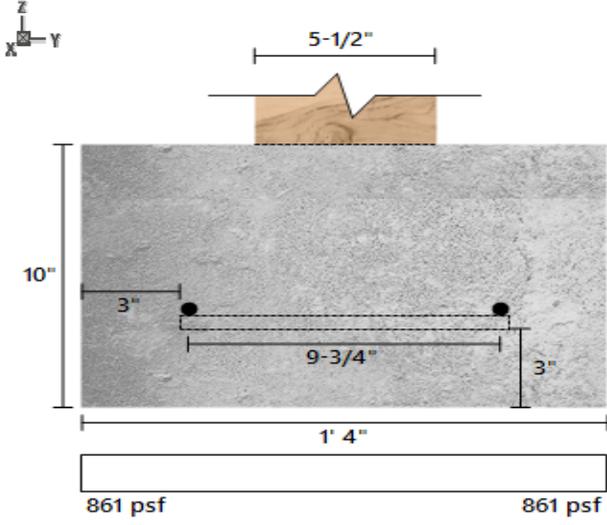
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #23	A	281.1077	-	0	-	Dead	Z
Point (lbf)	Header #23	A	541.1917	-	0	-	Live	Z
Point (lbf)	Header #23	A	836.4905	-	0	-	Snow	Z

SpotFtg Hdr #23-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #23-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.00 (ft) X 2.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
2	2	10	3.33	483.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

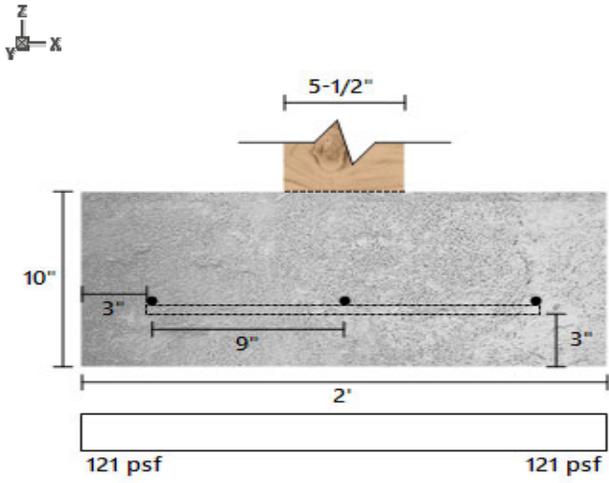
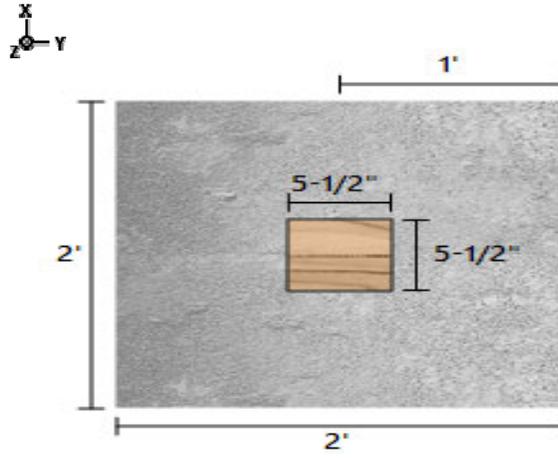
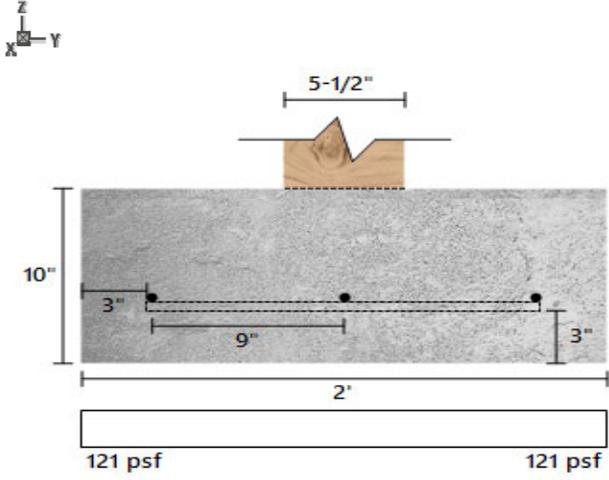
PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#<4 1< (,	121.1	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV#4 3 3 13 (,	0.4	15774.4	1.2D+1.6L+0.5Lr	LRFD
One-Way Shear Y (lbf)	SDVV#4 3 3 13 (,	0.4	15774.4	1.2D+1.6L+0.5Lr	LRFD
Two-Way Shear (lbf-ft)	SDVV#4 3 3 13 (,	1.2	64412.2	1.2D+1.6L+0.5Lr	LRFD
Moment X (lbf-ft)	SDVV#4 3 3 13 (,	0.3	17124.7	1.2D+1.6L+0.5Lr	LRFD
Moment Y (lbf-ft)	SDVV#4 3 3 13 (,	0.3	17124.7	1.2D+1.6L+0.5Lr	LRFD
Crushing (psi)	SDVV#4 3 3 13 (,	1.6	100278.8	1.2D+1.6L+0.5Lr	LRFD

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

SpotFtg Hdr #23-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #4-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.50 (ft) X 2.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#5; 19 (,	1070.6	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 9 15 (,	2719.9	19718.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 9 15 (,	2719.9	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; ; 14 (,	7661.1	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; 9 16 (,	2370.5	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; 9 16 (,	2370.5	17278.2	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<3 1; (,	9194.1	100278.8	1.2D+1.6S+L	LRFD

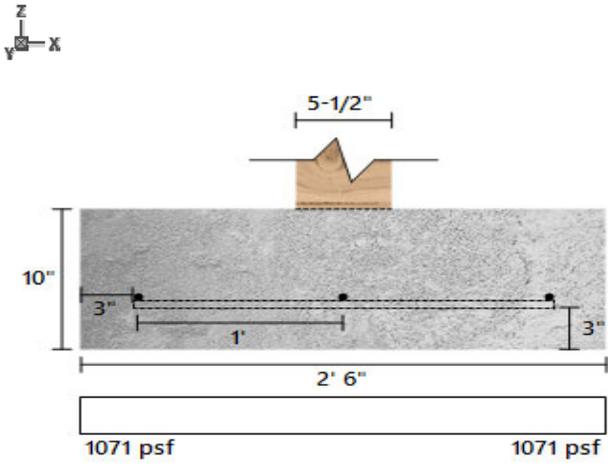
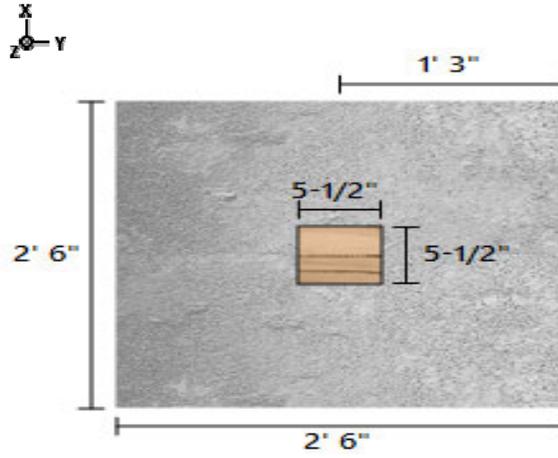
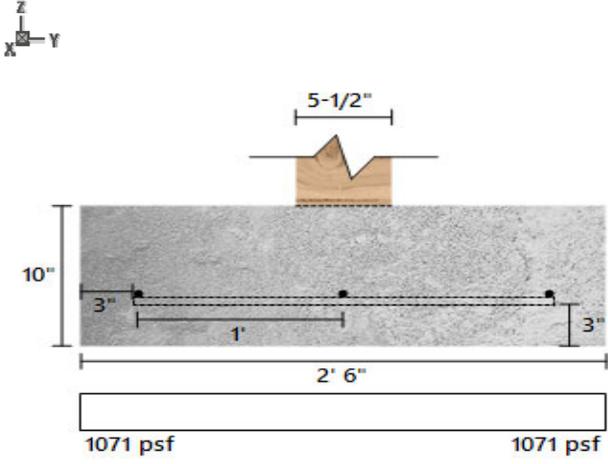
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #4	A	760.8787	-	0	-	Dead	Z
Point (lbf)	Beam #4	A	5174.995	-	0	-	Snow	Z

SpotFtg Bm #4-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #4-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

2.50 (ft) X 2.50 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#5; 19 (,	1070.6	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 9 15 (,	2719.9	19718.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 9 15 (,	2719.9	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; ; 14 (,	7661.1	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; 9 16 (,	2370.5	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; 9 16 (,	2370.5	17278.2	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<3 1; (,	9194.1	100278.8	1.2D+1.6S+L	LRFD

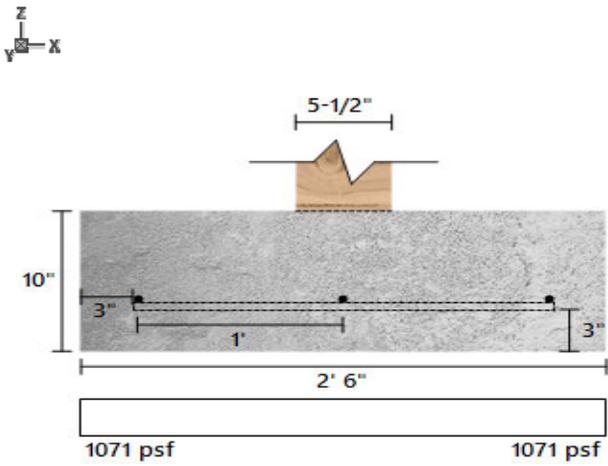
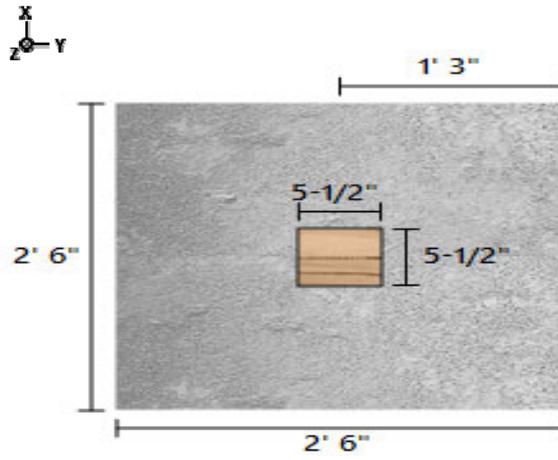
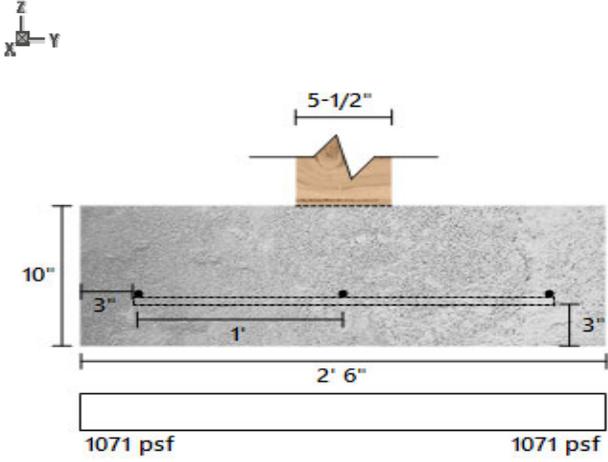
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #4	B	760.8787	-	0	-	Dead	Z
Point (lbf)	Beam #4	B	5174.995	-	0	-	Snow	Z

SpotFtg Bm #4-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #9-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

2.50 (ft) X 3.00 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (3) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2.5	3	10	6.25	906.25

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#5; 18 (,	1071.8	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#7; 915 (,	3267.1	23661.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#7; 617 (,	3267.1	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#7; 815 (,	9509.2	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#8; <19 (,	3532.8	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#7; : 19 (,	2847.4	22946.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#7; <13 (,	11043.7	100278.8	1.2D+1.6S+L	LRFD

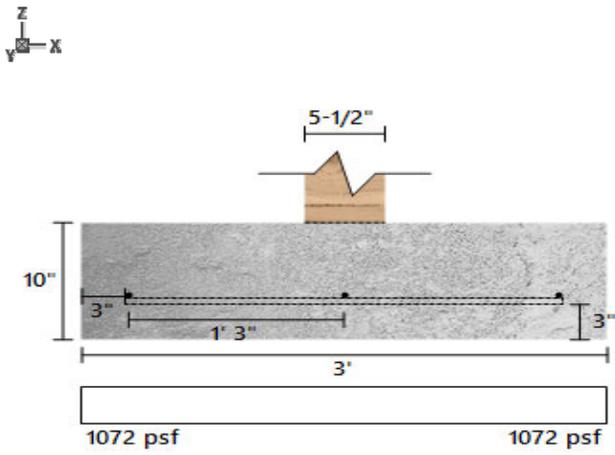
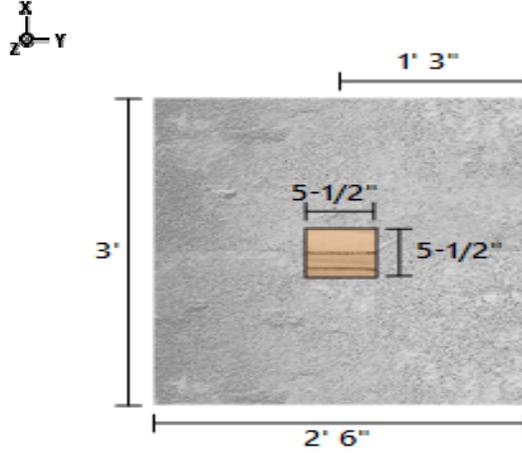
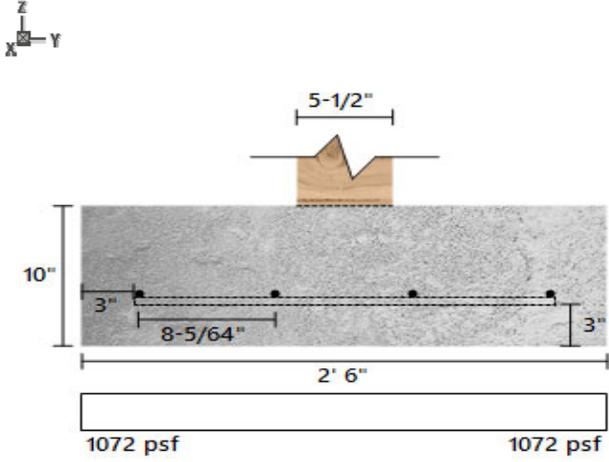
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #9	A	922.2419	-	0	-	Dead	Z
Point (lbf)	Header #9	A	6209.994	-	0	-	Snow	Z

SpotFtg Hdr #9-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #5-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3.00 (ft) X 3.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
3	3	10	7.5	1087.5

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#61 (,	1444.4	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV# : 15 (,	5397.3	23661.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV# : 15 (,	5397.3	23661.6	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; 317 (,	15217.4	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; 41 (,	4148.5	22946.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; 41 (,	4148.5	22946.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<417 (,	18287.3	212160.0	1.2D+1.6S+L	LRFD

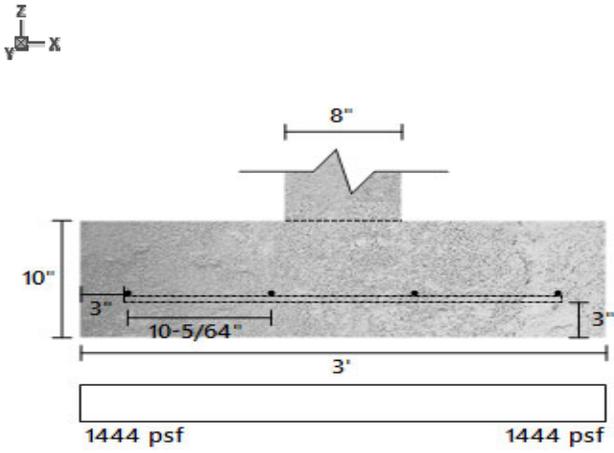
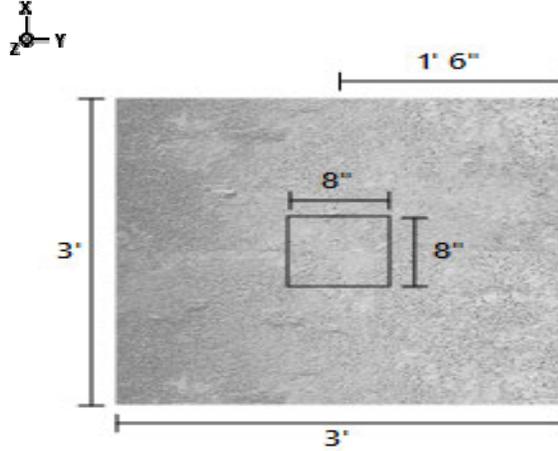
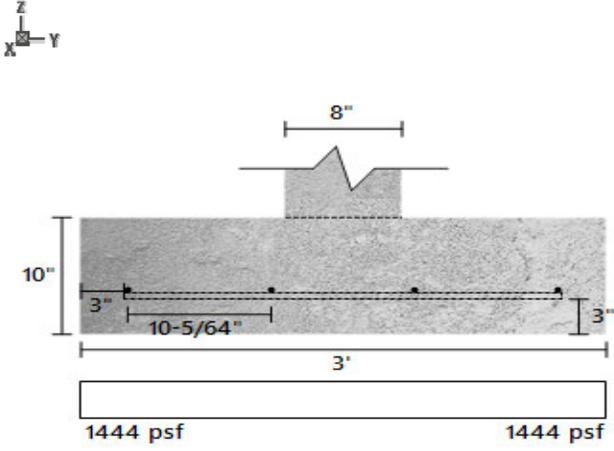
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #5	A	1933.261	-	0	-	Dead	Z
Point (lbf)	Beam #5	A	9979.006	-	0	-	Snow	Z

SpotFtg Bm #5-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #8-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
5.00 (ft) X 5.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(6) #4 Long, (6) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
5	5	10	20.83	3020.83

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#4613 (,	1305.2	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#891: (,	17067.5	39436.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#891: (,	17067.5	39436.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#7815 (,	42526.4	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#6;18 (,	21247.9	34556.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#6;18 (,	21247.9	34556.4	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#-;1: (,	45261.8	212160.0	1.2D+1.6S+L	LRFD

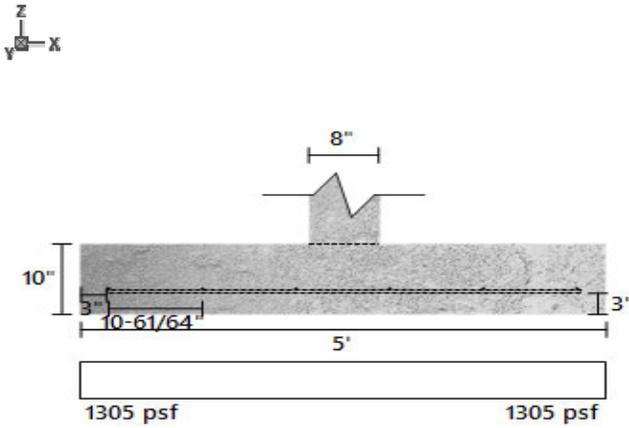
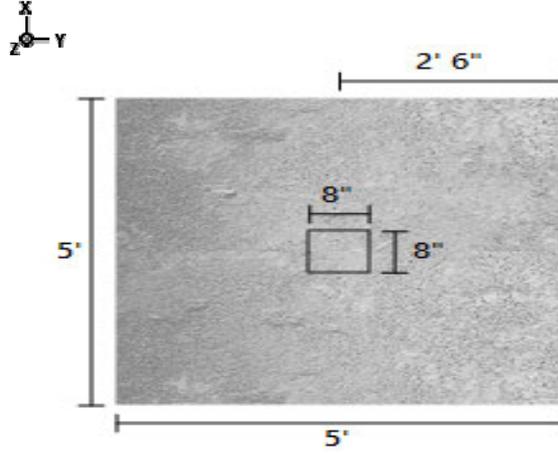
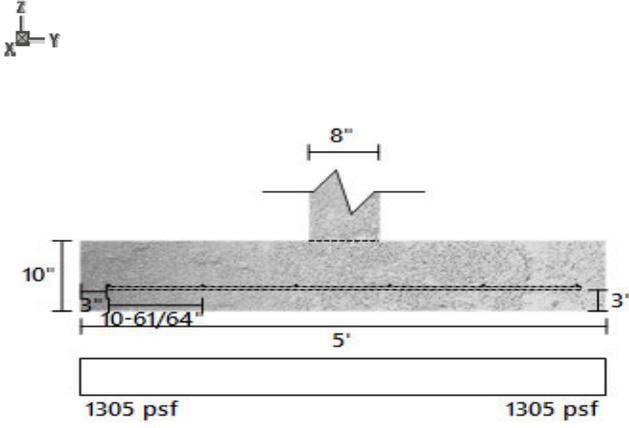
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #8	A	5279.987	-	0	-	Dead	Z
Point (lbf)	Beam #8	A	24328	-	0	-	Snow	Z

SpotFtg Bm #8-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #11-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.50 (ft) X 2.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#; 18 (,	1372.5	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 719 (,	3030.4	19718.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 719 (,	3030.4	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; ; 16 (,	9040.7	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; ; 17 (,	2003.7	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; ; 17 (,	2003.7	17278.2	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#;< 717 (,	11922.9	212160.0	1.2D+1.6S+L	LRFD

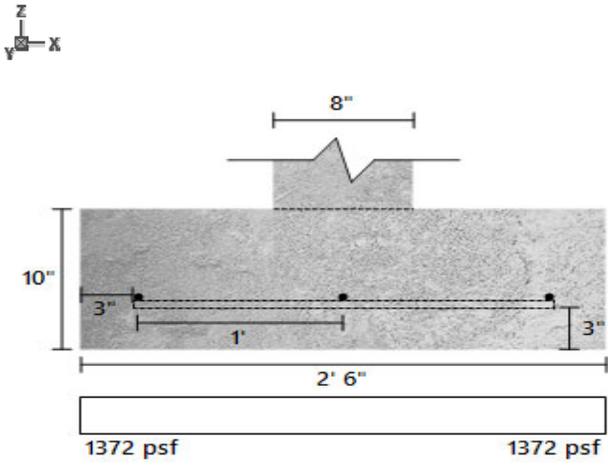
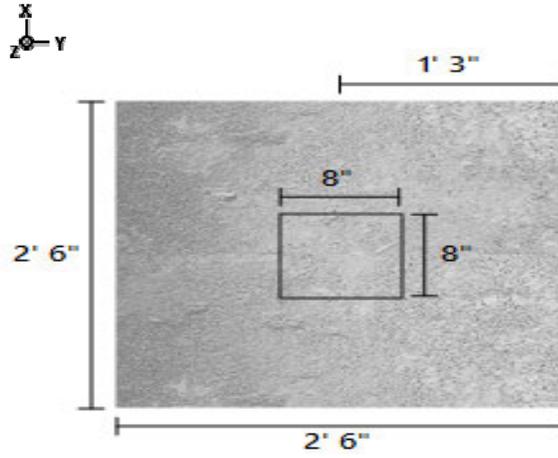
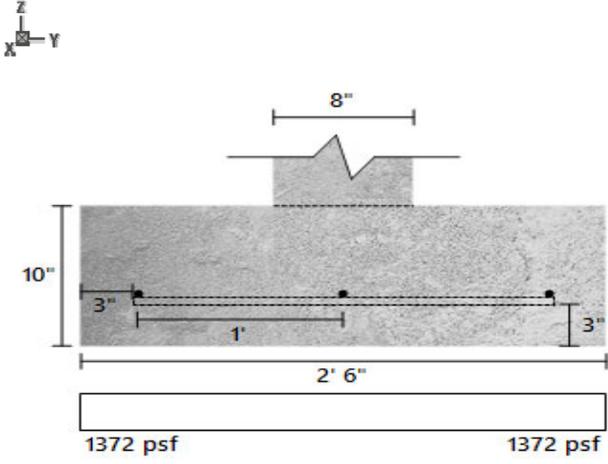
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #11	A	1485.908	-	0	-	Dead	Z
Point (lbf)	Header #11	A	6336.754	-	0	-	Snow	Z

SpotFtg Hdr #11-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #11-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.50 (ft) X 2.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#; 18 (,	1372.5	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 719 (,	3030.4	19718.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 719 (,	3030.4	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; ; 16 (,	9040.7	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; ; 17 (,	2003.7	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; ; 17 (,	2003.7	17278.2	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#;< 717 (,	11922.9	212160.0	1.2D+1.6S+L	LRFD

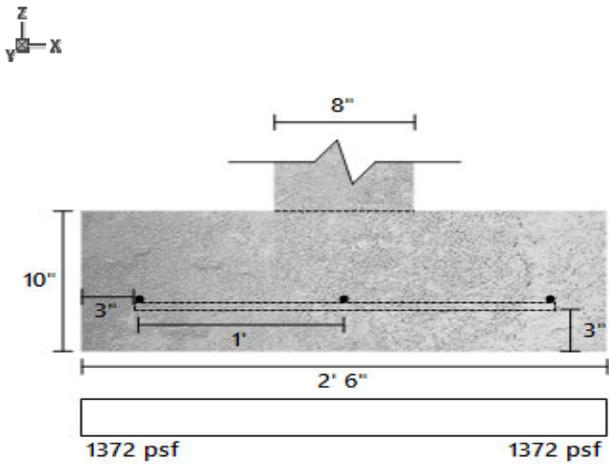
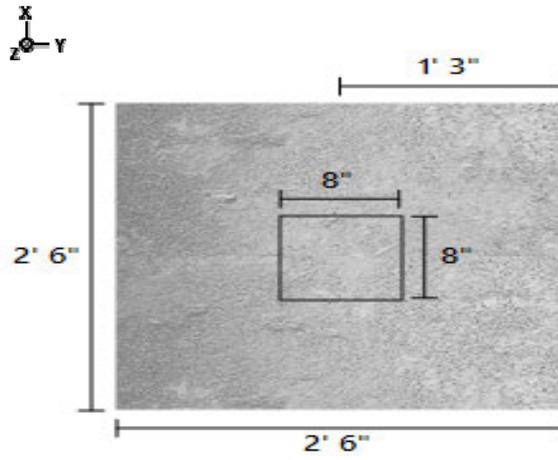
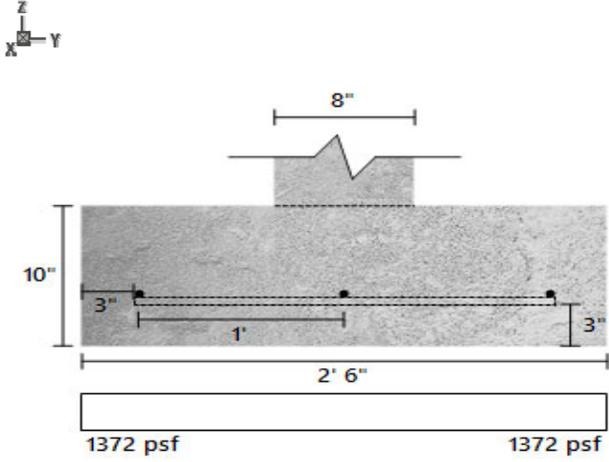
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #11	B	1485.906	-	0	-	Dead	Z
Point (lbf)	Header #11	B	6336.754	-	0	-	Snow	Z

SpotFtg Hdr #11-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #7-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
5.50 (ft) X 5.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(7) #4 Long, (7) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
5.5	5.5	10	25.21	3655.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#53 14 (,	1198.1	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#88 14 (,	19471.8	43379.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#88 14 (,	19471.8	43379.6	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#6 ; 19 (,	47646.9	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#6 6 1; (,	26627.3	40229.0	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#6 6 1; (,	26627.3	40229.0	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#: 9 17 (,	50151.8	212160.0	1.2D+1.6S+L	LRFD

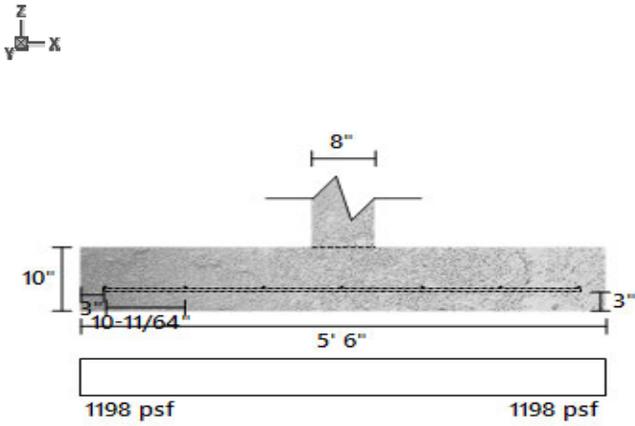
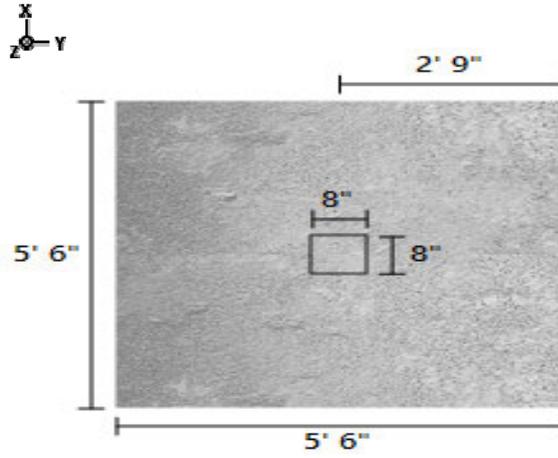
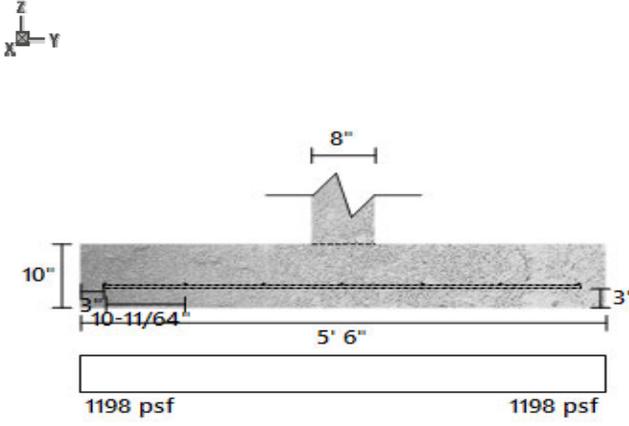
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #7	A	2002.987	-	0	-	Dead	Z
Point (lbf)	Beam #7	A	10338.91	-	0	-	Snow	Z
Point (lbf)	Beam #9	B	2994.54	-	0	-	Dead	Z
Point (lbf)	Beam #9	B	11.5	-	0	-	Live	Z
Point (lbf)	Beam #9	B	17250	-	0	-	Snow	Z

SpotFtg Bm #7-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #8-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
5.00 (ft) X 5.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(6) #4 Long, (6) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
5	5	10	20.83	3020.83

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#441< (,	1321.9	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#8914 (,	17309.7	39436.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#8914 (,	17309.7	39436.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#7717 (,	43130.0	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#6:19 (,	21549.5	34556.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#6:19 (,	21549.5	34556.4	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#-:17 (,	45904.2	212160.0	1.2D+1.6S+L	LRFD

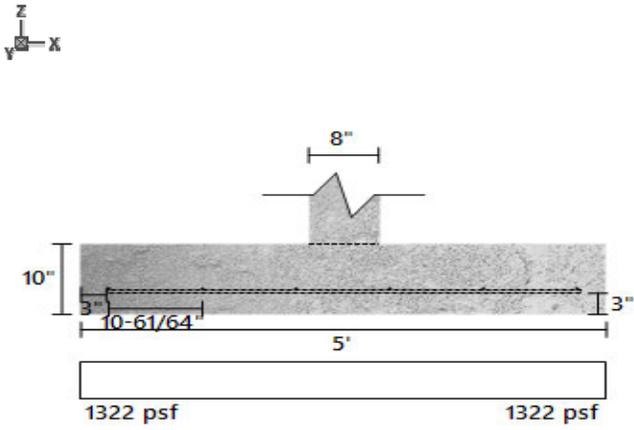
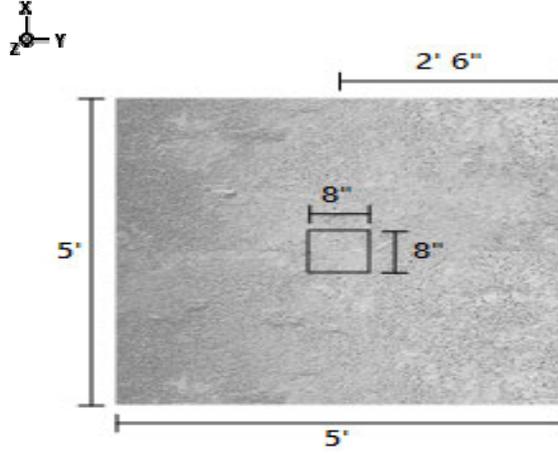
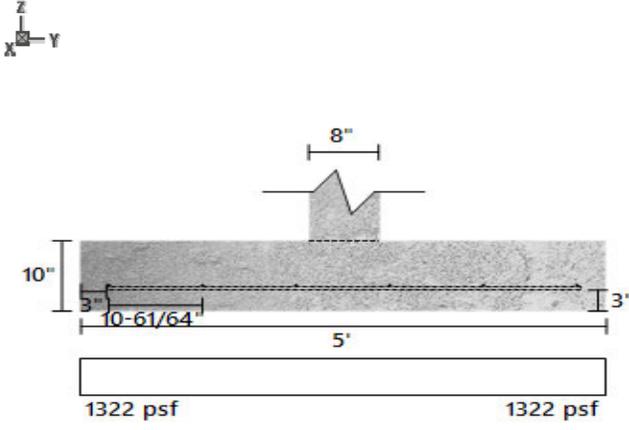
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #8	B	5345.987	-	0	-	Dead	Z
Point (lbf)	Beam #8	B	24680	-	0	-	Snow	Z

SpotFtg Bm #8-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #9-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
5.00 (ft) X 5.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(6) #4 Long, (6) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
5	5	10	20.83	3020.83

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#5915 (,	1106.7	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#941: (,	15115.7	39436.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#941: (,	15115.7	39436.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#7618 (,	36403.7	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#6: 17 (,	21615.5	34556.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#6: 17 (,	21615.5	34556.4	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#9514 (,	37987.1	100278.8	1.2D+1.6S+L	LRFD

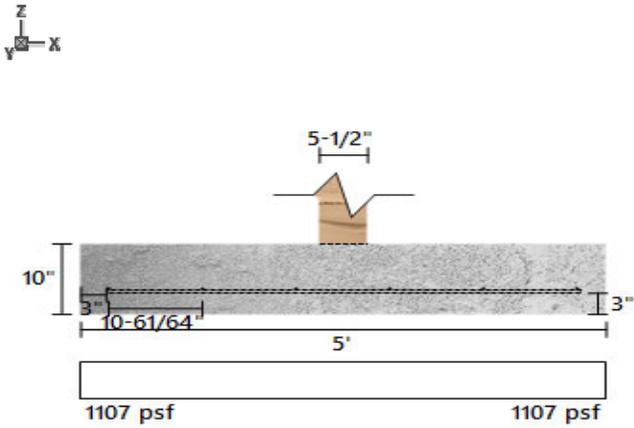
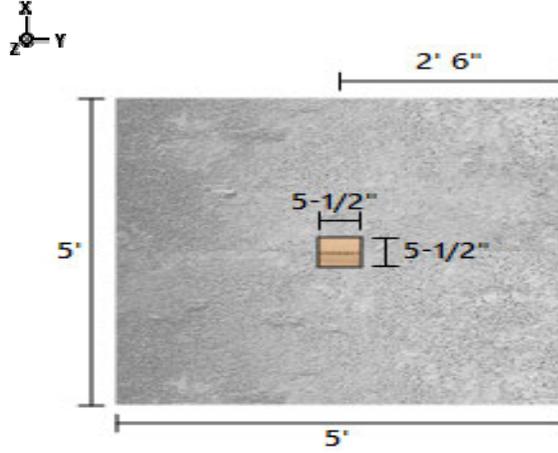
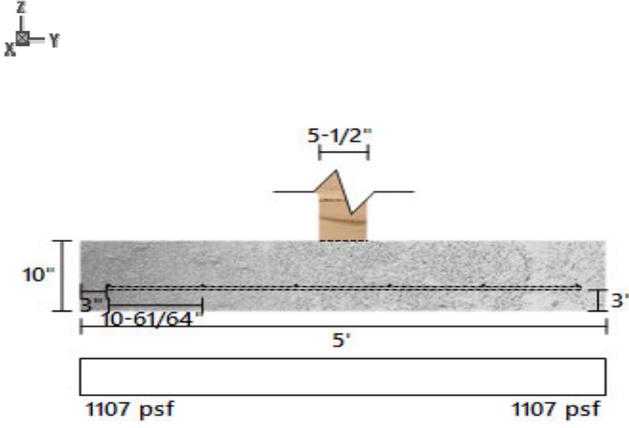
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #9	A	2994.54	-	0	-	Dead	Z
Point (lbf)	Beam #9	A	11.5	-	0	-	Live	Z
Point (lbf)	Beam #9	A	17250	-	0	-	Snow	Z
Point (lbf)	Beam #10	B	650.9868	-	0	-	Dead	Z
Point (lbf)	Beam #10	B	3750	-	0	-	Snow	Z

SpotFtg Bm #9-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #10-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.00 (ft) X 2.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2	2	10	3.33	483.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

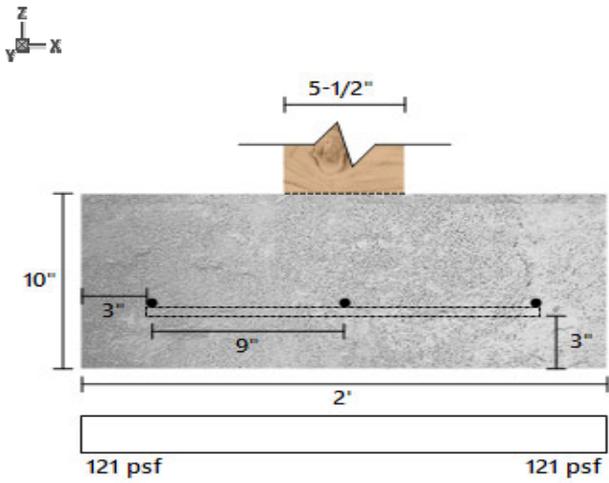
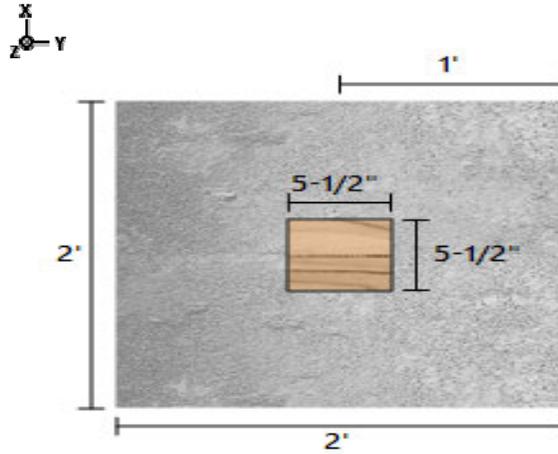
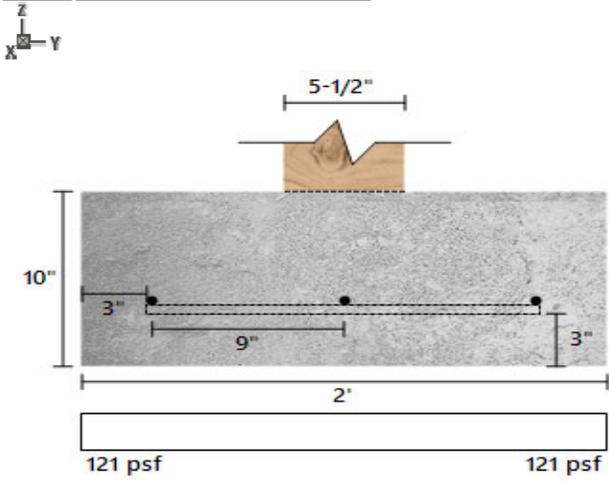
PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV #4 3 3 13 (,	121.1	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV #4 3 3 13 (,	0.4	15774.4	1.2D+1.6L+0.5Lr	LRFD
One-Way Shear Y (lbf)	SDVV #4 3 3 13 (,	0.4	15774.4	1.2D+1.6L+0.5Lr	LRFD
Two-Way Shear (lbf-ft)	SDVV #4 3 3 13 (,	1.2	64412.2	1.2D+1.6L+0.5Lr	LRFD
Moment X (lbf-ft)	SDVV #4 3 3 13 (,	0.3	17124.7	1.2D+1.6L+0.5Lr	LRFD
Moment Y (lbf-ft)	SDVV #4 3 3 13 (,	0.3	17124.7	1.2D+1.6L+0.5Lr	LRFD
Crushing (psi)	SDVV #4 3 3 13 (,	1.6	100278.8	1.2D+1.6L+0.5Lr	LRFD

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

SpotFtg Bm #10-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Gdr #3-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

4.50 (ft) X 4.50 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#4; 18 (,	1222.3	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#97 18 (,	12591.1	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#97 18 (,	12591.1	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#8; 1: (,	32060.7	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#8 4 13 (,	14141.6	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#8 4 13 (,	14141.6	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 6 1: (,	34645.6	212160.0	1.2D+1.6S+L	LRFD

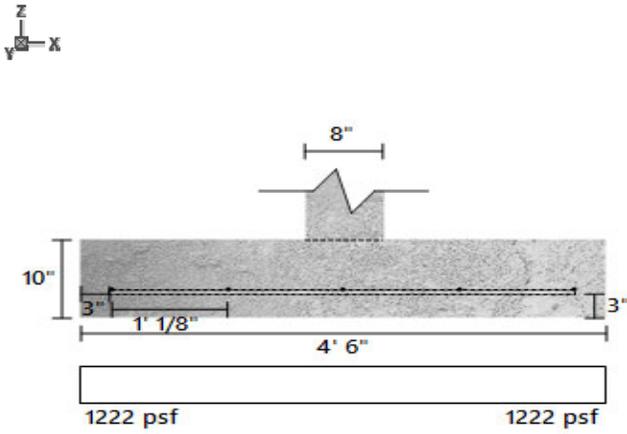
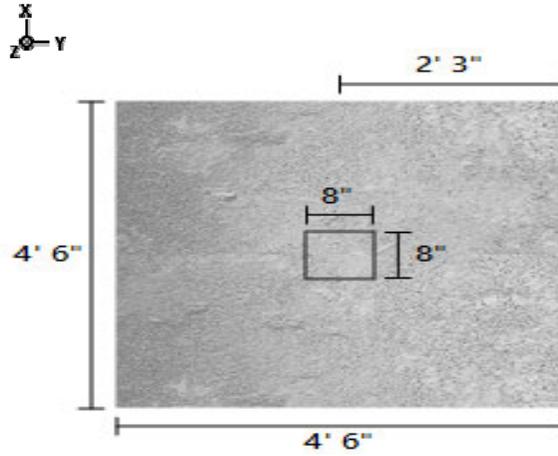
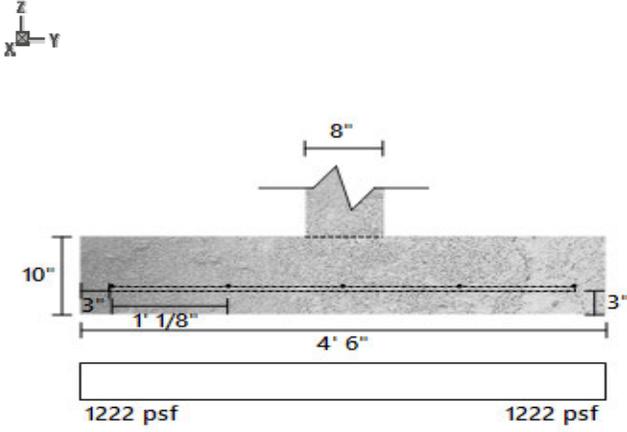
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Girder #3	A	2326.883	-	0	-	Dead	Z
Point (lbf)	Girder #3	A	16650.12	-	0	-	Snow	Z
Point (lbf)	Beam #11	B	280.9159	-	0	-	Dead	Z
Point (lbf)	Beam #11	B	3046.874	-	0	-	Snow	Z

SpotFtg Gdr #3-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:	--	REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Gdr #3-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#5 < 18 (,	1058.0	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#9 : 1< (,	11378.2	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#9 : 1< (,	11378.2	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#8 9 1: (,	27918.8	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#7 ; 1< (,	14913.0	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#7 ; 1< (,	14913.0	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#: 3 19 (,	29433.5	100278.8	1.2D+1.6S+L	LRFD

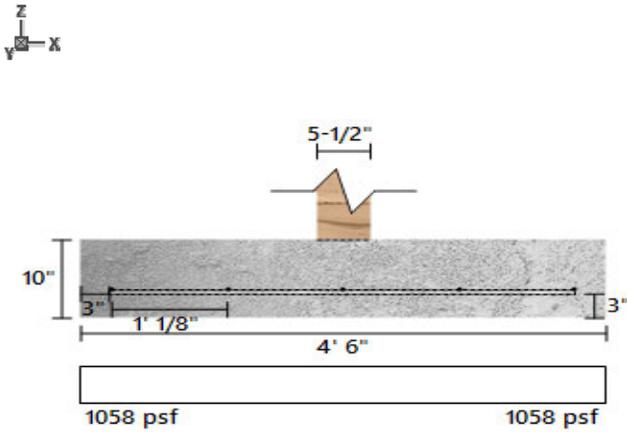
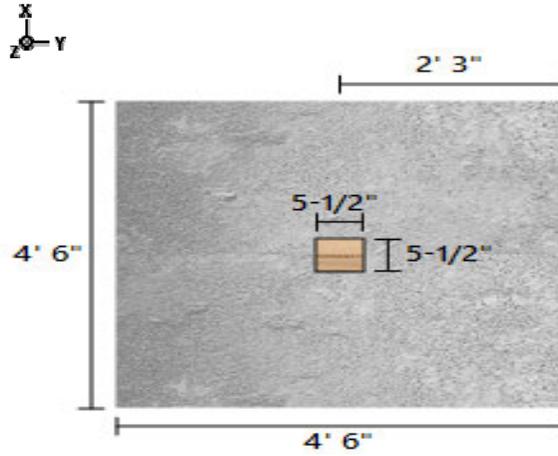
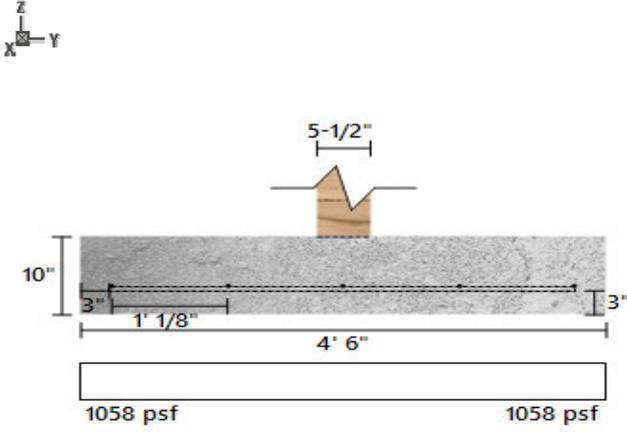
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Girder #3	B	2326.882	-	0	-	Dead	Z
Point (lbf)	Girder #3	B	16650.12	-	0	-	Snow	Z

SpotFtg Gdr #3-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #11-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

1.33 (ft) X 1.33 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(2) #4 Long, (2) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
1.3334	1.3334	10	1.48	214.84

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

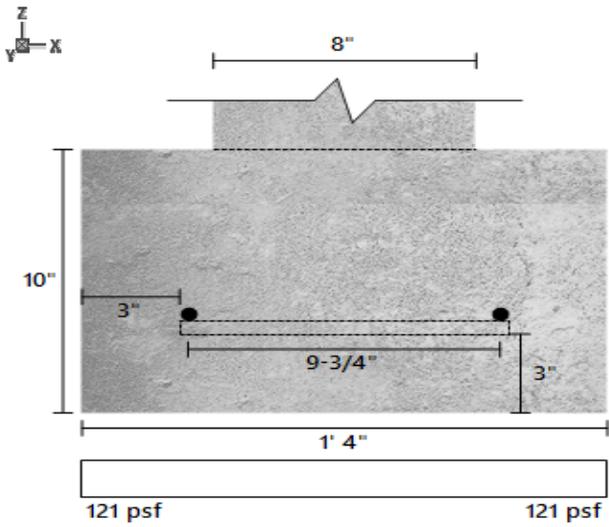
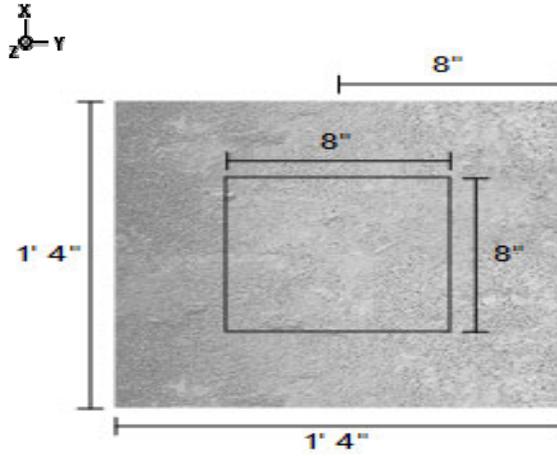
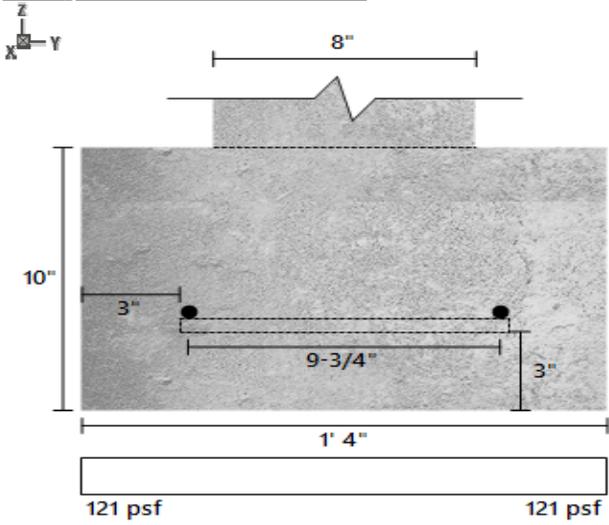
PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#<4 1< (,	121.4	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV#4 3 3 13 (,	0.1	10516.8	1.2D+1.6L+0.5Lr	LRFD
One-Way Shear Y (lbf)	SDVV#4 3 3 13 (,	0.1	10516.8	1.2D+1.6L+0.5Lr	LRFD
Two-Way Shear (lbf-ft)	SDVV#4 3 3 13 (,	0.2	77557.5	1.2D+1.6L+0.5Lr	LRFD
Moment X (lbf-ft)	SDVV#4 3 3 13 (,	0.1	11416.5	1.2D+1.6L+0.5Lr	LRFD
Moment Y (lbf-ft)	SDVV#4 3 3 13 (,	0.1	11416.5	1.2D+1.6L+0.5Lr	LRFD
Crushing (psi)	SDVV#4 3 3 13 (,	1.6	212160.0	1.2D+1.6L+0.5Lr	LRFD

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

SpotFtg Bm #11-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #12-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.50 (ft) X 2.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV #741: (,	874.2	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV #<31: (,	1843.0	19718.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV #<31: (,	1843.0	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV #<51< (,	5498.3	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV #<51< (,	1218.6	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV #<51< (,	1218.6	17278.2	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV #<919 (,	7251.2	212160.0	1.2D+1.6S+L	LRFD

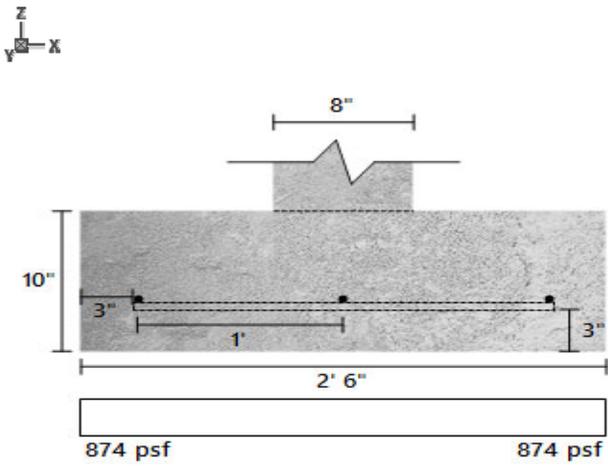
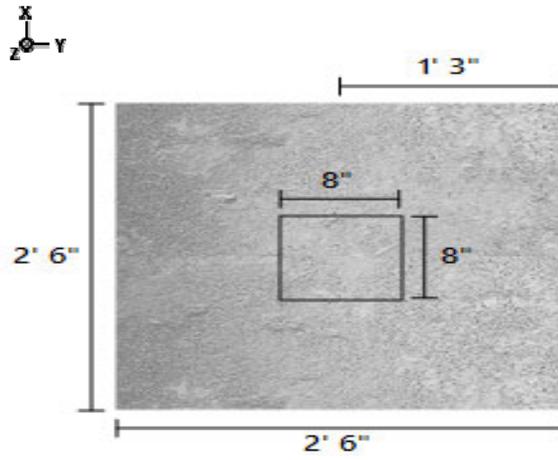
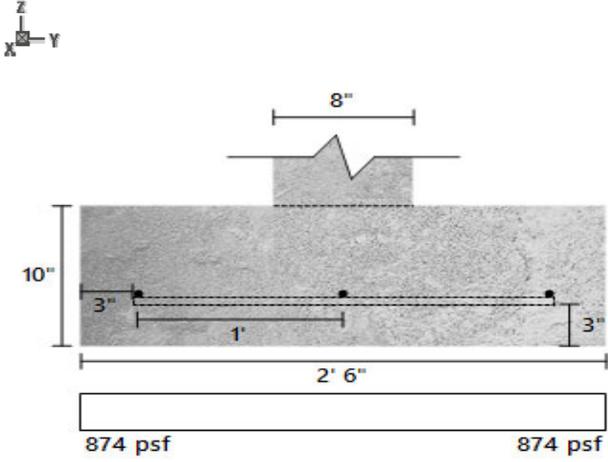
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #12	C	709.271	-	0	-	Dead	Z
Point (lbf)	Beam #12	C	3999.433	-	0	-	Snow	Z

SpotFtg Bm #12-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #15-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

3.50 (ft) X 3.50 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
3.5	3.5	10	10.21	1480.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#571< (,	1126.5	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV# : 1; (,	6131.3	27605.2	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV# : 1; (,	6131.3	27605.2	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV# : ; 19 (,	16569.0	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV# : 9 18 (,	5418.8	23076.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV# : 9 18 (,	5418.8	23076.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#< 4 14 (,	18900.1	212160.0	1.2D+1.6S+L	LRFD

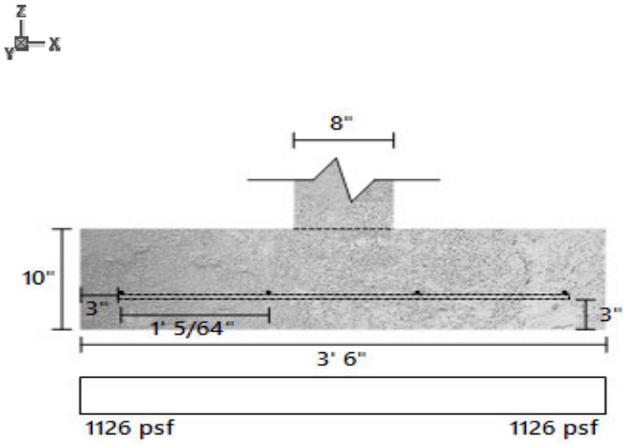
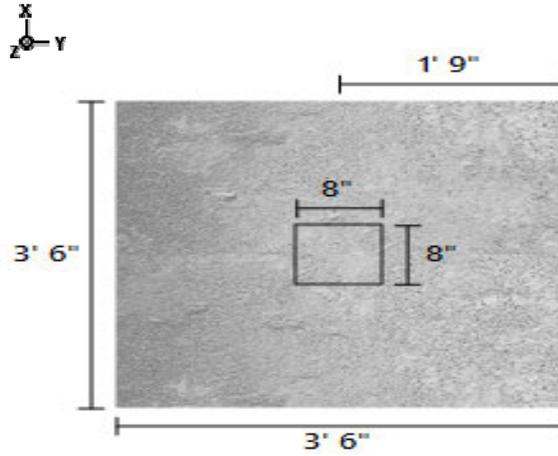
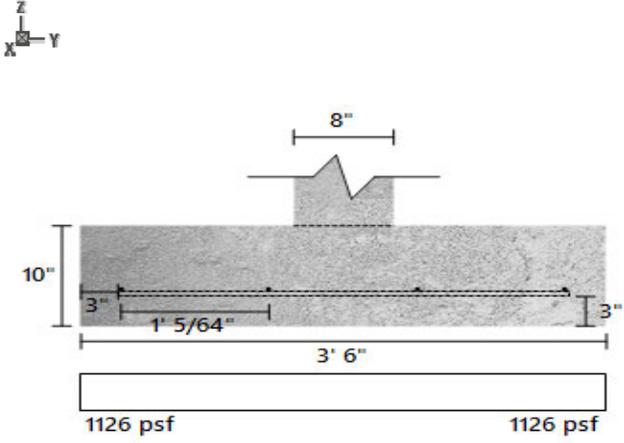
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #15	A	2054.993	-	0	-	Dead	Z
Point (lbf)	Beam #15	A	10.6748	-	0	-	Live	Z
Point (lbf)	Beam #15	A	10264	-	0	-	Snow	Z

SpotFtg Bm #15-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #15-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

3.50 (ft) X 3.50 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
3.5	3.5	10	10.21	1480.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#571< (,	1126.8	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV# : 1; (,	6133.5	27605.2	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV# : 1; (,	6133.5	27605.2	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV# : ; 19 (,	16575.0	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV# : 9 18 (,	5420.7	23076.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV# : 9 18 (,	5420.7	23076.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#< 4 14 (,	18906.9	212160.0	1.2D+1.6S+L	LRFD

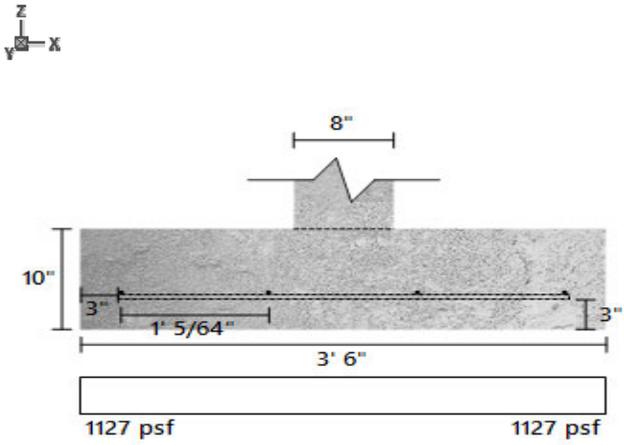
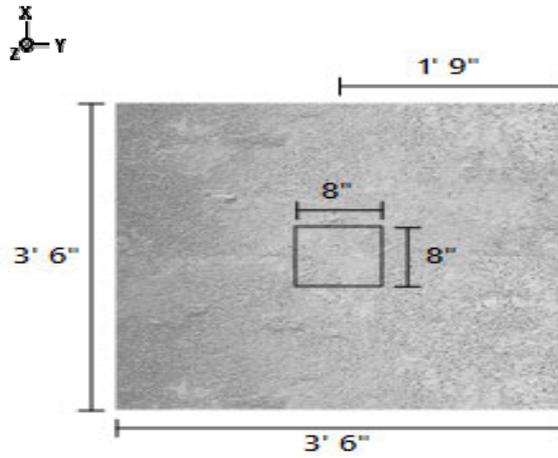
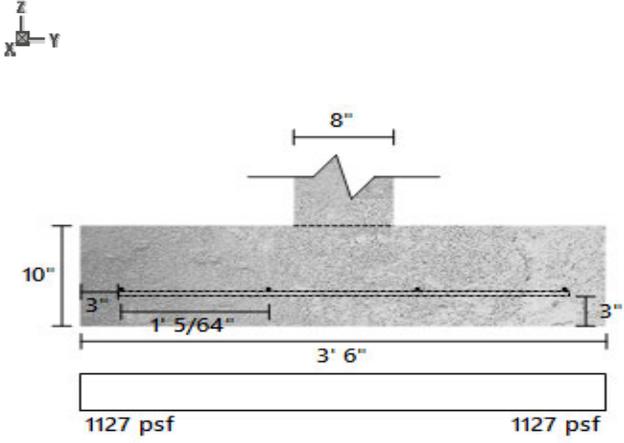
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #15	B	2055.368	-	0	-	Dead	Z
Point (lbf)	Beam #15	B	10.67676	-	0	-	Live	Z
Point (lbf)	Beam #15	B	10268	-	0	-	Snow	Z

SpotFtg Bm #15-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #13	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.00 (ft) X 1.33 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(2) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4	1.3334	10	4.44	644.48

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV #9 : 15 (,	491.9	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV #<3 14 (,	1044.7	10516.8	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV #<9 1: (,	1044.7	31548.8	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV #< : 15 (,	2161.8	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV #<< 19 (,	125.7	28754.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV #<3 1; (,	1047.3	11416.5	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV #<; 19 (,	3016.1	212160.0	1.2D+1.6S+L	LRFD

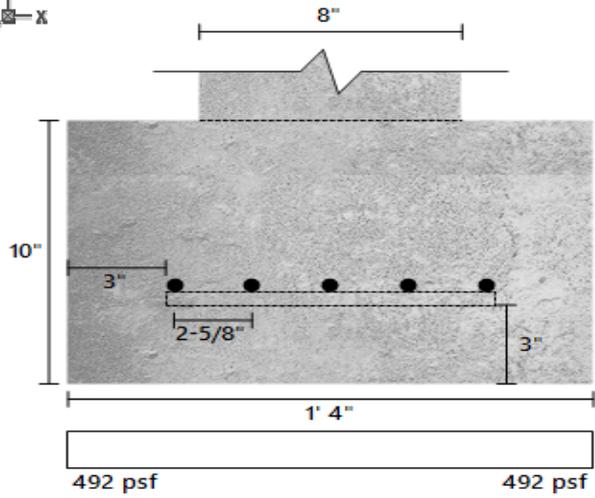
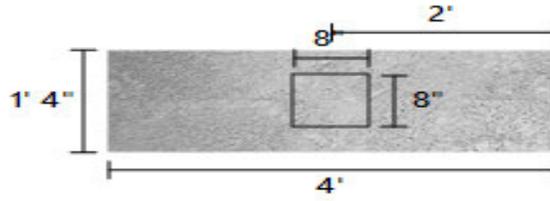
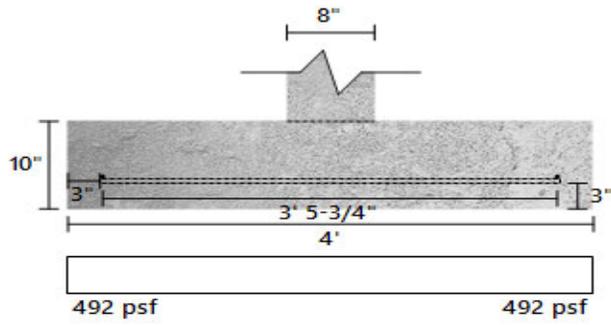
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #13	A	379.5861	-	0	-	Dead	Z
Point (lbf)	Header #13	A	1599.773	-	0	-	Snow	Z
Point (lbf)	Header #13	A	5.25	-	0	-	RoofLive	Z

SpotFtg Hdr #13 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #14-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.50 (ft) X 2.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
2.5	2.5	10	5.21	755.21

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV #741: (,	874.2	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV #<31: (,	1843.0	19718.0	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV #<31: (,	1843.0	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV #<51< (,	5498.3	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV #<51< (,	1218.6	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV #<51< (,	1218.6	17278.2	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV #<919 (,	7251.2	212160.0	1.2D+1.6S+L	LRFD

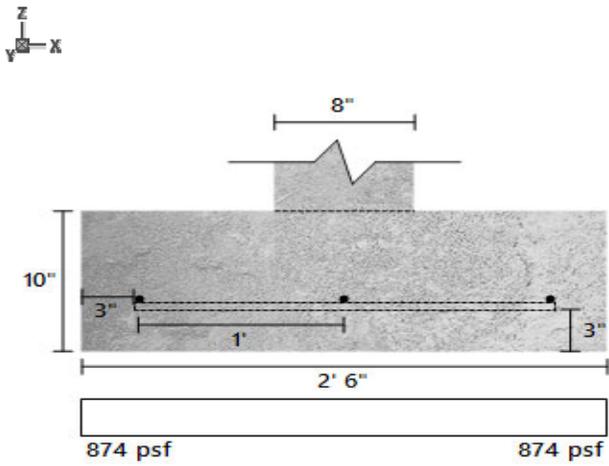
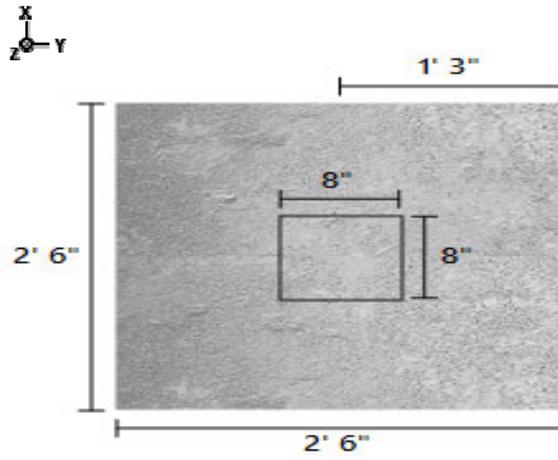
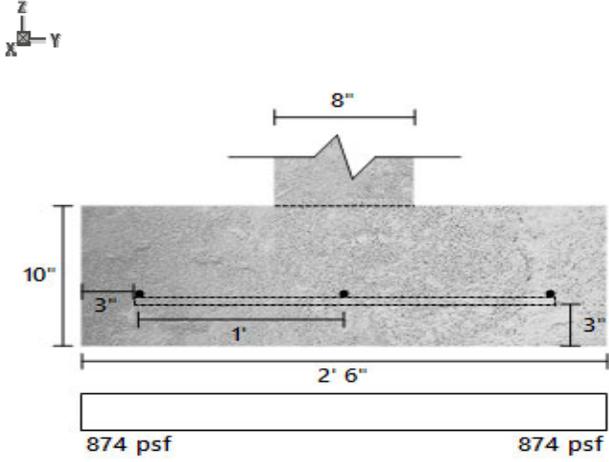
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #14	C	709.271	-	0	-	Dead	Z
Point (lbf)	Beam #14	C	3999.433	-	0	-	Snow	Z

SpotFtg Bm #14-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #16	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#; 87.15 (,	687.0	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 31: (,	6865.5	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 31: (,	6865.5	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; 61; (,	16845.9	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; 9; 1; (,	8998.3	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; 9; 1; (,	8998.3	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 516 (,	17759.9	100278.8	1.2D+1.6S+L	LRFD

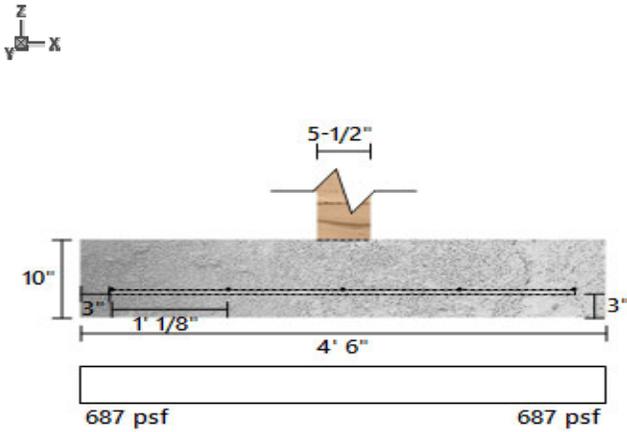
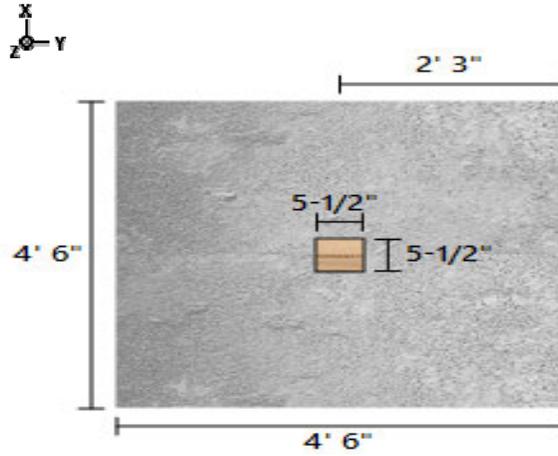
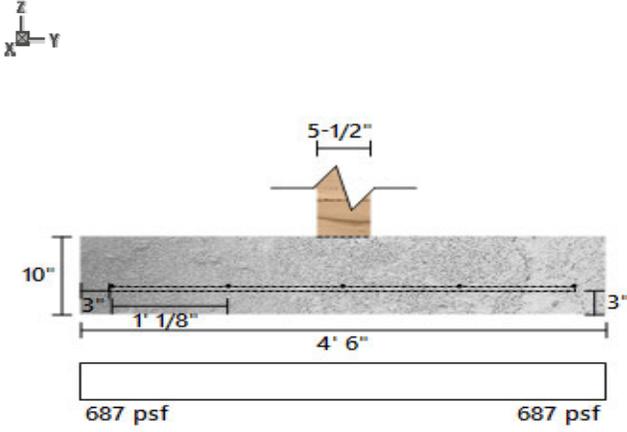
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #16	A	1463.899	-	0	-	Dead	Z
Point (lbf)	Beam #16	A	10001.36	-	0	-	Snow	Z

SpotFtg Bm #16 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hsdr #16-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.00 (ft) X 4.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4	4	10	13.33	1933.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#6619 (,	995.3	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#916 (,	7486.7	31548.8	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#916 (,	7486.7	31548.8	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#717 (,	19574.5	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#616 (,	7505.4	28754.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#616 (,	7505.4	28754.4	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#7<17 (,	21615.6	212160.0	1.2D+1.6S+L	LRFD

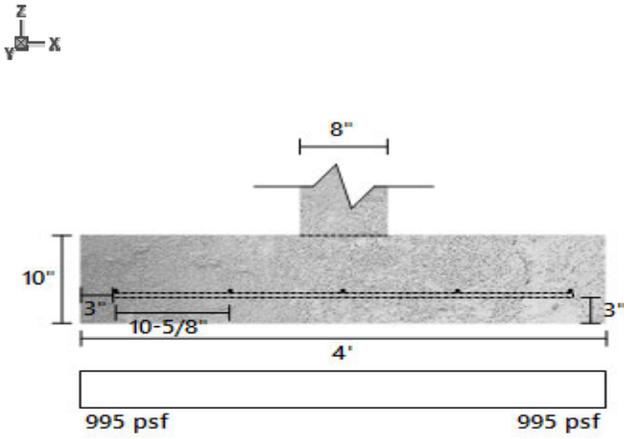
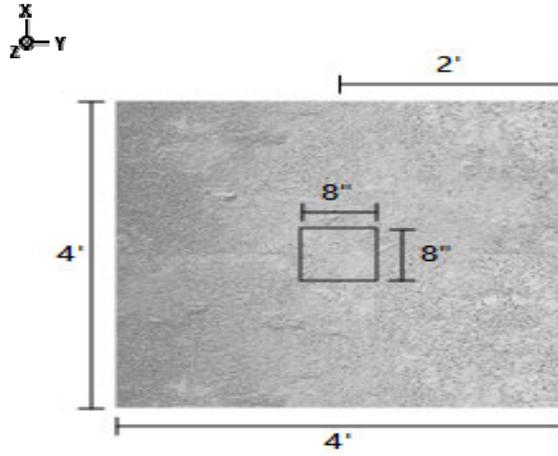
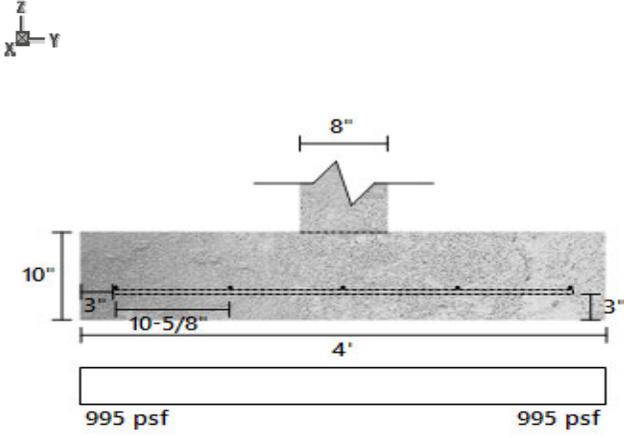
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #16	A	1926.723	-	0	-	Dead	Z
Point (lbf)	Header #16	A	12064.09	-	0	-	Snow	Z

SpotFtg Hsdr #16-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #16-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

4.00 (ft) X 4.00 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short
---------------------------------	-------------------------	-------------------------------

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4	4	10	13.33	1933.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#6619 (,	995.3	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#916 (,	7486.7	31548.8	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#916 (,	7486.7	31548.8	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#717 (,	19574.5	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#616 (,	7505.4	28754.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#616 (,	7505.4	28754.4	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#7<17 (,	21615.6	212160.0	1.2D+1.6S+L	LRFD

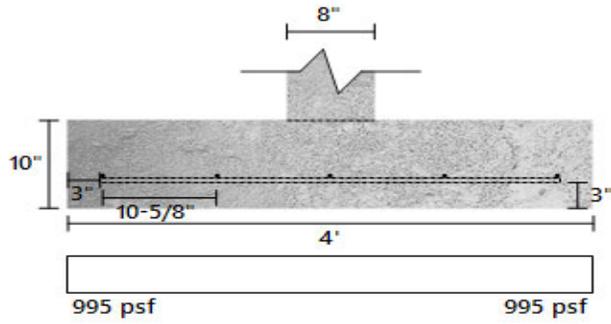
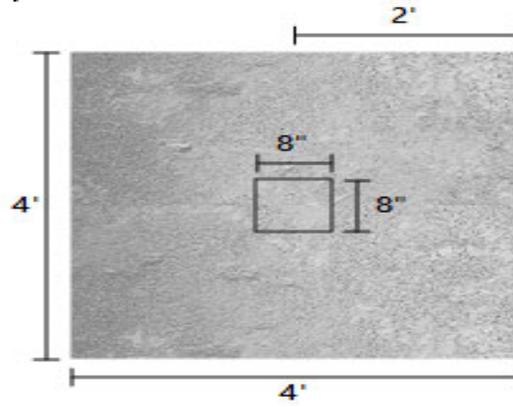
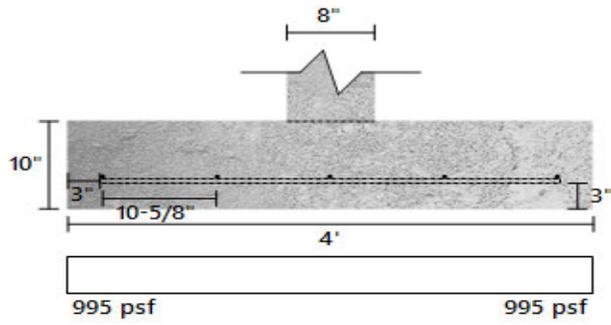
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #16	B	1926.723	-	0	-	Dead	Z
Point (lbf)	Header #16	B	12064.09	-	0	-	Snow	Z

SpotFtg Hdr #16-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #17-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.00 (ft) X 4.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
4	4	10	13.33	1933.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#6719 (,	981.4	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#91 (,	7358.6	31548.8	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#91 (,	7358.6	31548.8	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#815 (,	19239.7	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#716 (,	7377.0	28754.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#716 (,	7377.0	28754.4	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<313 (,	21245.9	212160.0	1.2D+1.6S+L	LRFD

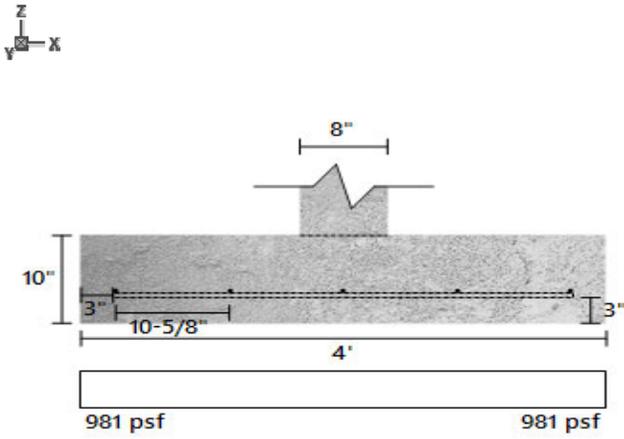
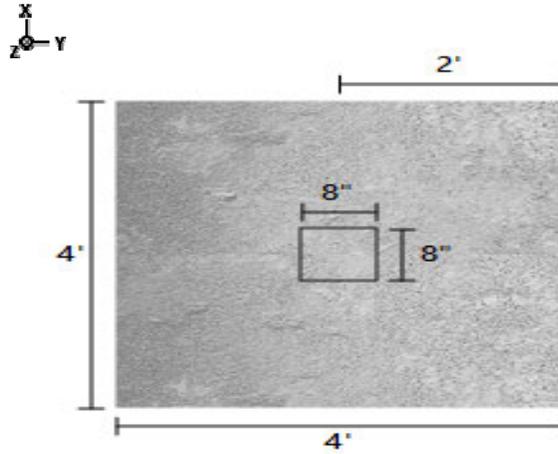
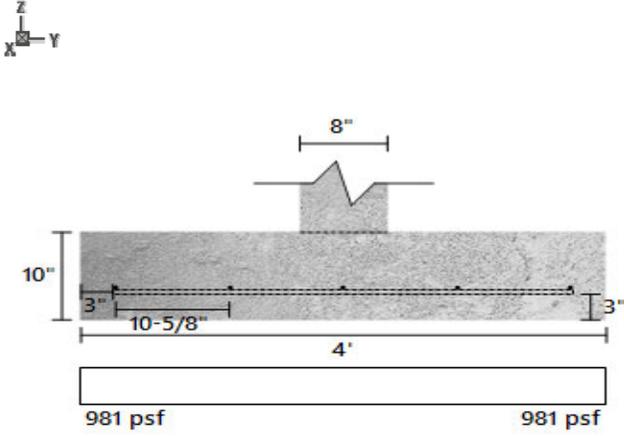
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #17	A	1964.218	-	0	-	Dead	Z
Point (lbf)	Header #17	A	11804.89	-	0	-	Snow	Z

SpotFtg Hdr #17-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #17-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.00 (ft) X 4.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4	4	10	13.33	1933.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#6719 (,	981.4	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#91 (,	7358.6	31548.8	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#91 (,	7358.6	31548.8	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#815 (,	19239.7	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#716 (,	7377.0	28754.4	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#716 (,	7377.0	28754.4	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<313 (,	21245.9	212160.0	1.2D+1.6S+L	LRFD

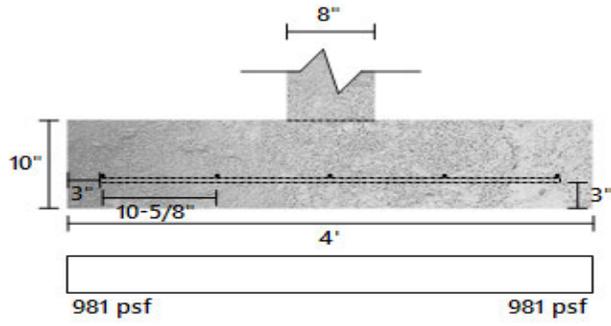
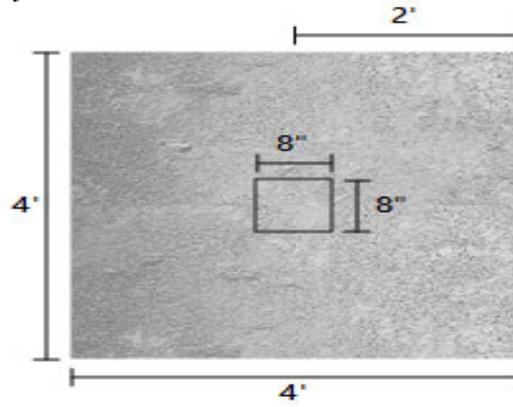
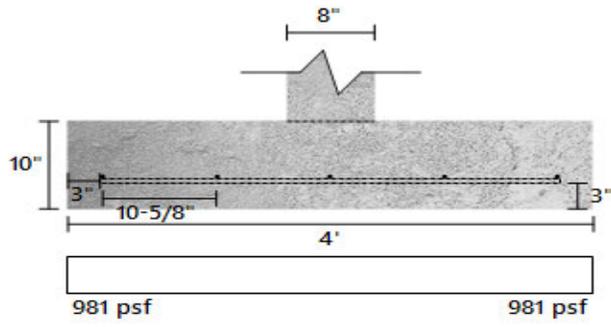
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #17	A	1964.218	-	0	-	Dead	Z
Point (lbf)	Header #17	A	11804.89	-	0	-	Snow	Z

SpotFtg Hdr #17-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #17-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3.00 (ft) X 3.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
3	3	10	7.5	1087.5

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#65.15 (,	1017.1	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#7.18 (,	3659.8	23661.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#7.18 (,	3659.8	23661.6	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#9.1: (,	10318.6	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; : 1: (,	2813.0	22946.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; : 1: (,	2813.0	22946.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<7.15 (,	12400.3	212160.0	1.2D+1.6S+L	LRFD

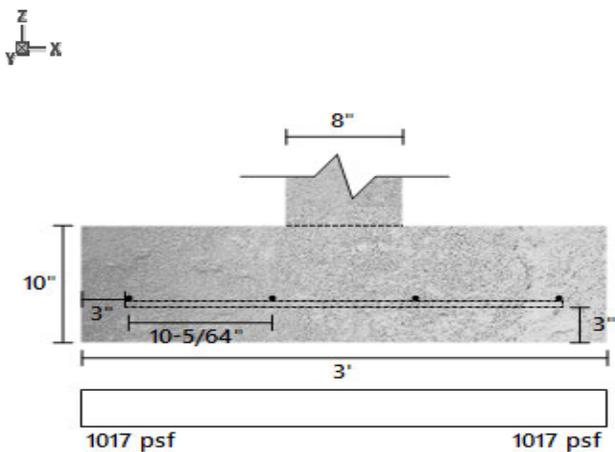
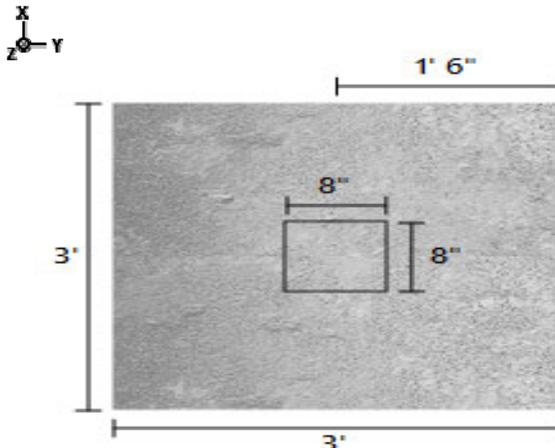
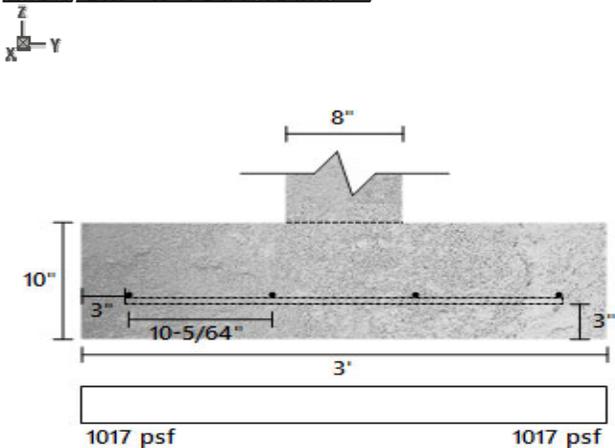
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #17	A	1267.737	-	0	-	Dead	Z
Point (lbf)	Beam #17	A	6798.75	-	0	-	Snow	Z

SpotFtg Bm #17-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #17-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
4.50 (ft) X 4.50 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(5) #4 Long, (5) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
4.5	4.5	10	16.88	2446.88

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#5917 (,	1104.7	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#9;19 (,	11149.9	35492.4	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#9;19 (,	11149.9	35492.4	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#9617 (,	28390.9	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#8919 (,	12522.9	28872.8	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#8919 (,	12522.9	28872.8	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 818 (,	30679.9	212160.0	1.2D+1.6S+L	LRFD

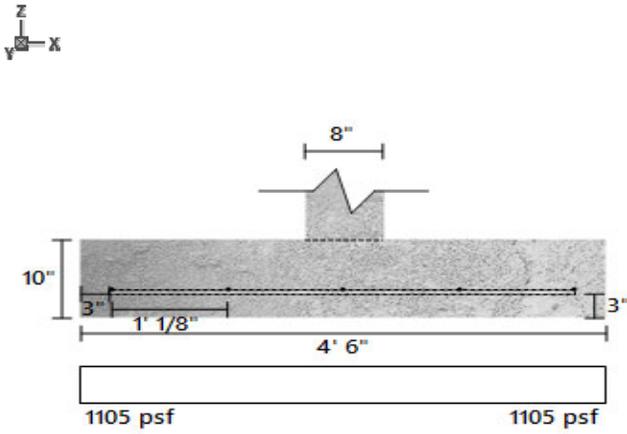
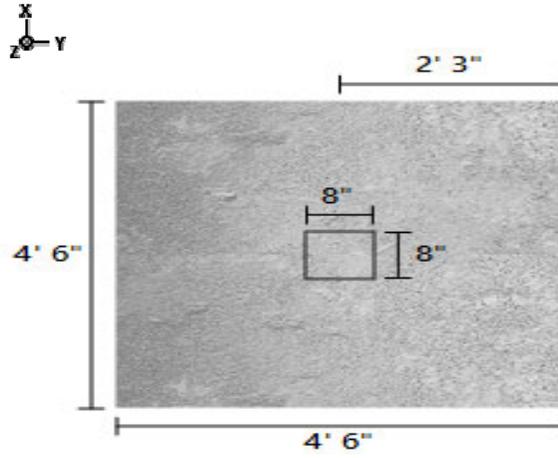
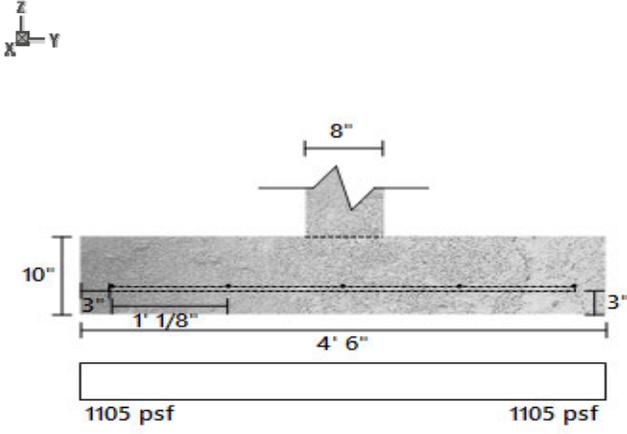
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #17	B	1267.737	-	0	-	Dead	Z
Point (lbf)	Beam #17	B	6798.75	-	0	-	Snow	Z
Point (lbf)	Beam #18	A	1730.945	-	0	-	Dead	Z
Point (lbf)	Beam #18	A	10126.57	-	0	-	Snow	Z

SpotFtg Bm #17-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #18-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.00 (ft) X 2.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2	2	10	3.33	483.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

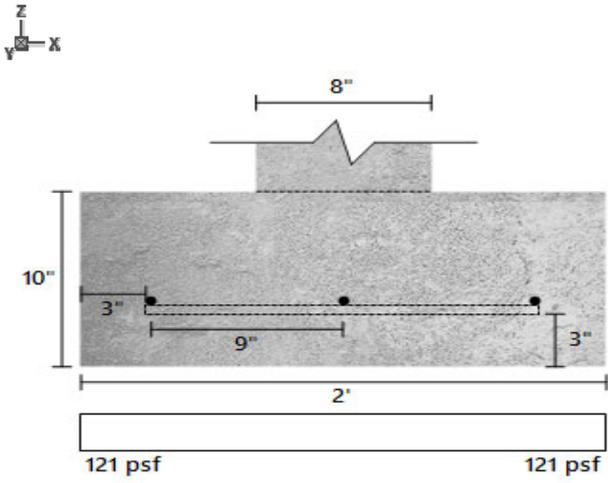
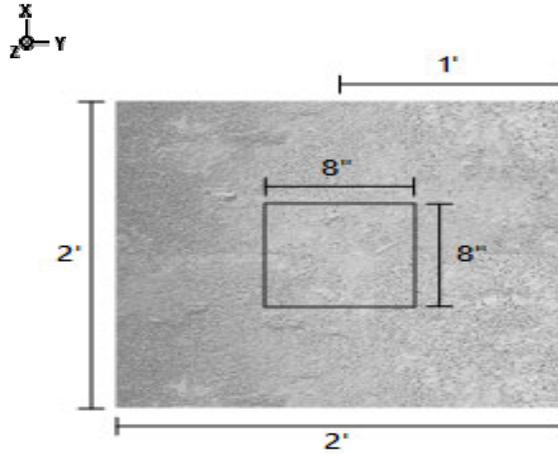
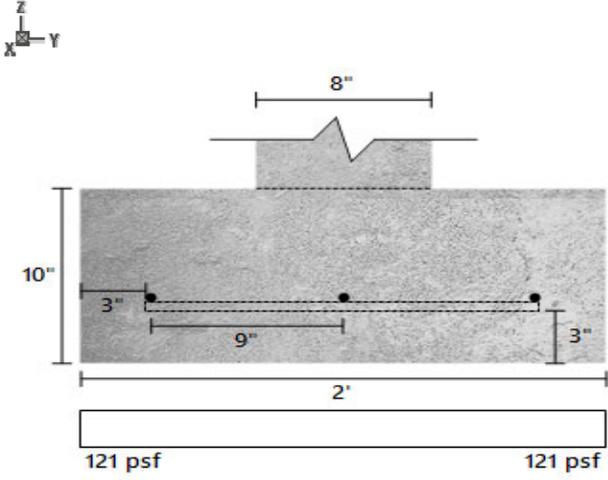
PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#<4 1< (,	121.1	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV#4 3 3 13 (,	0.3	15774.4	1.2D+1.6L+0.5Lr	LRFD
One-Way Shear Y (lbf)	SDVV#4 3 3 13 (,	0.3	15774.4	1.2D+1.6L+0.5Lr	LRFD
Two-Way Shear (lbf-ft)	SDVV#4 3 3 13 (,	1.0	77557.5	1.2D+1.6L+0.5Lr	LRFD
Moment X (lbf-ft)	SDVV#4 3 3 13 (,	0.2	17124.7	1.2D+1.6L+0.5Lr	LRFD
Moment Y (lbf-ft)	SDVV#4 3 3 13 (,	0.2	17124.7	1.2D+1.6L+0.5Lr	LRFD
Crushing (psi)	SDVV#4 3 3 13 (,	1.6	212160.0	1.2D+1.6L+0.5Lr	LRFD

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

SpotFtg Bm #18-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #18	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3.00 (ft) X 3.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
3	3	10	7.5	1087.5

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#5; 1< (,	1066.7	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 4 19 (,	4348.9	23661.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 4 19 (,	4348.9	23661.6	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; 4 1< (,	11657.5	64412.2	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; 4 19 (,	4217.6	22946.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; 4 19 (,	4217.6	22946.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#; 9 1< (,	13184.1	100278.8	1.2D+1.6S+L	LRFD

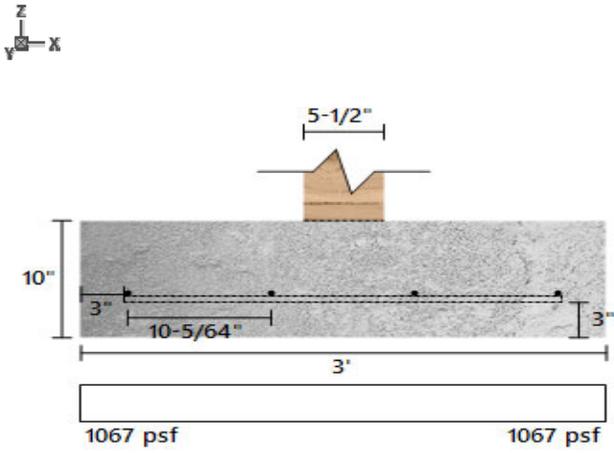
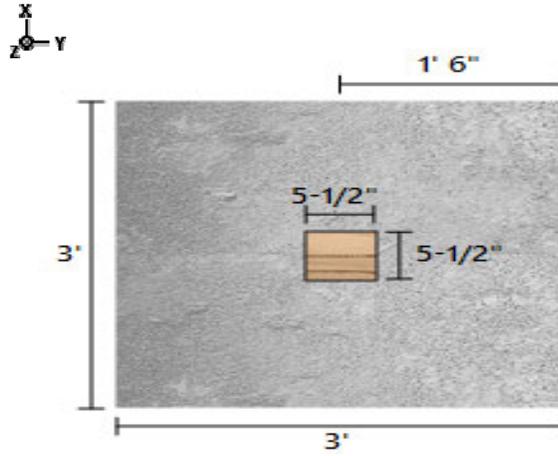
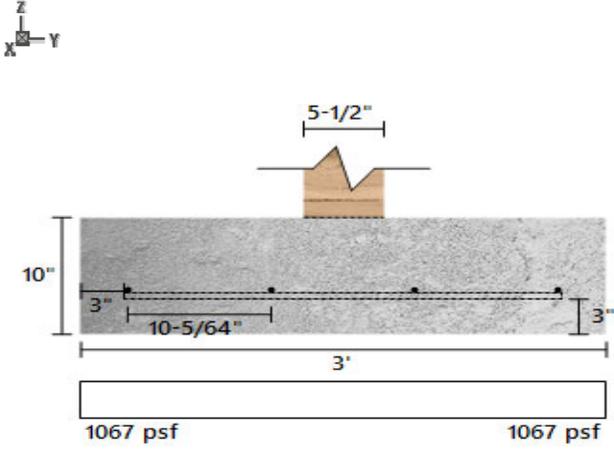
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #18	A	1094.074	-	0	-	Dead	Z
Point (lbf)	Header #18	A	7418.88	-	0	-	Snow	Z

SpotFtg Hdr #18 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	Footing - WD-#14	CODE:	2018 International Building Code
MEMBER TYPE:	CONTINUOUS FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3 (ft) Wide X 10 (in) Deep		Soil Depth TOF : 0 (ft)	Long.(4) #4 Bars, Transv:#4 @6(in) O.C.

MATERIAL PROPERTIES

FOOTING

Width (ft)	Depth (in)	Footing Weight (lbf/ft)	Stemwall Weight (lbf/ft)
3	10	362.5	84.58334

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia. (in)
3000	3122019	145	0.75

STEM WALL

Width (in)	Height (in)	Material	Stemwall Offset(in)
3.5	24	Wood	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	Bottom Bar Spacing(in)	fy (psi)	Es (psi)
4	6	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#471; (,	1278.4	1500.0	D+S	ASD
One-Way Shear (lbf)	SDVV#<514 (,	1878.9	23661.6	1.2D+1.6S+L	LRFD
Moment (lbf-ft)	SDVV#; 714 (,	1783.2	11245.8	1.2D+1.6S+L	LRFD

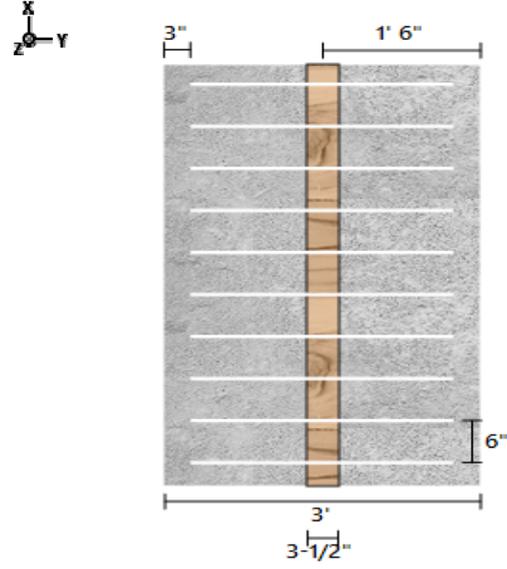
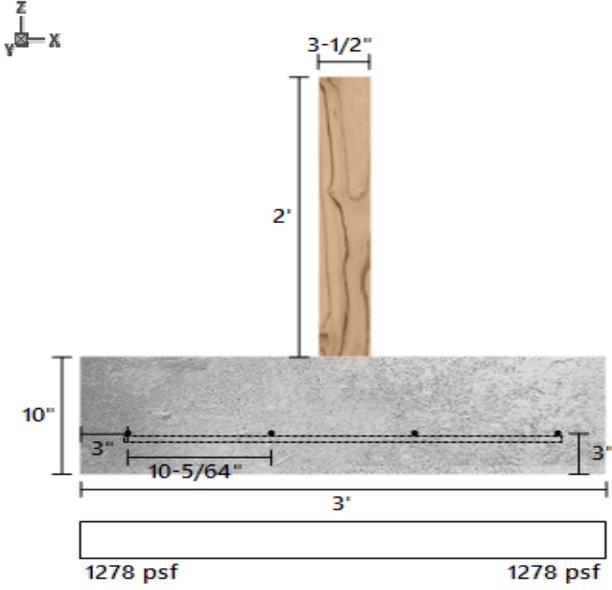
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Uniform	1	1	0	1	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Uniform (lbf/ft)	Trusses #11	B	420.4032	420.4032	0	1	Dead	Z
Uniform (lbf/ft)	Trusses #11	B	2967.552	2967.552	0	1	Snow	Z

Footing - WD-#14 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #19-1	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3.00 (ft) X 3.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
3	3	10	7.5	1087.5

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#59.18 (,	1101.8	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 6.13 (,	4027.6	23661.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 6.13 (,	4027.6	23661.6	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; 8.17 (,	11355.6	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; 9.18 (,	3095.7	22946.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; 9.18 (,	3095.7	22946.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<6.19 (,	13646.5	212160.0	1.2D+1.6S+L	LRFD

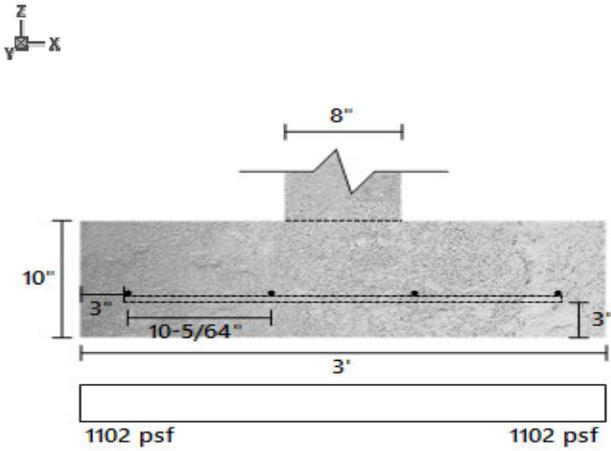
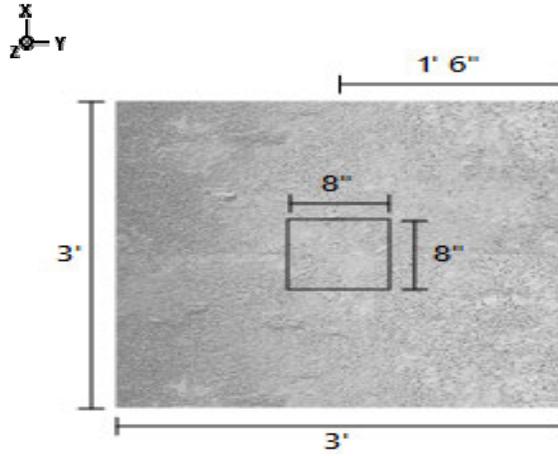
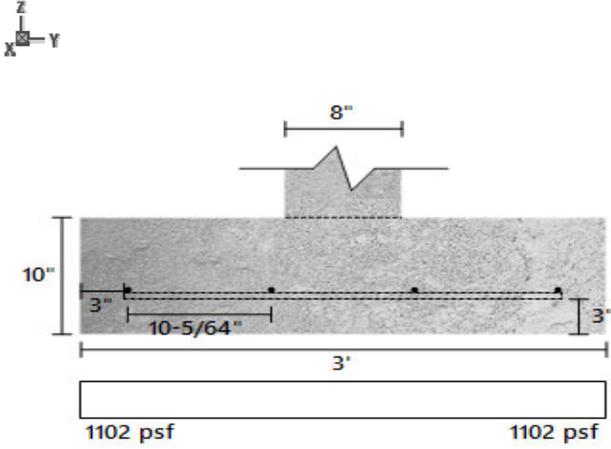
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #19	A	1202.707	-	0	-	Dead	Z
Point (lbf)	Beam #19	A	7626.385	-	0	-	Snow	Z

SpotFtg Bm #19-1 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #19-2	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
3.00 (ft) X 3.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
3	3	10	7.5	1087.5

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV#59.18 (,	1101.8	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; 6.13 (,	4027.6	23661.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#; 6.13 (,	4027.6	23661.6	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#; 8.17 (,	11355.6	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#; 9.18 (,	3095.7	22946.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#; 9.18 (,	3095.7	22946.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<6.19 (,	13646.5	212160.0	1.2D+1.6S+L	LRFD

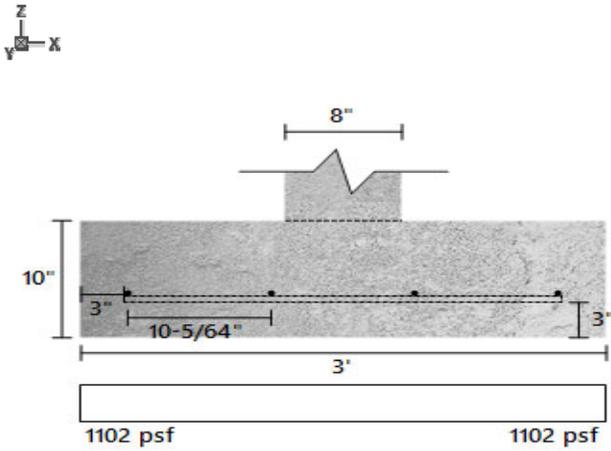
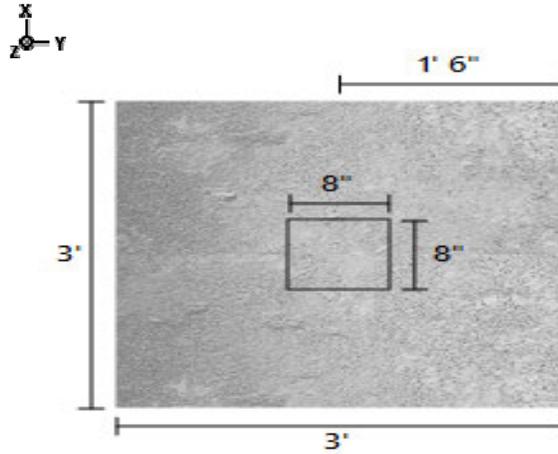
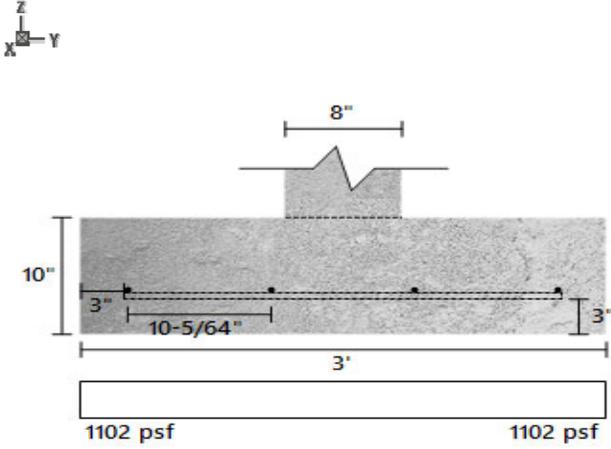
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #19	B	1202.707	-	0	-	Dead	Z
Point (lbf)	Beam #19	B	7626.386	-	0	-	Snow	Z

SpotFtg Bm #19-2 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Hdr #21	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

3.00 (ft) X 3.00 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(4) #4 Long, (4) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
3	3	10	7.5	1087.5

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#7 1< (,	1426.6	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV# : 16 (,	5366.7	23661.6	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV# : 16 (,	5366.7	23661.6	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV# ; 3 18 (,	15131.1	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV# ; 5 13 (,	4125.0	22946.6	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV# ; 5 13 (,	4125.0	22946.6	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#<4 17 (,	18183.6	212160.0	1.2D+1.6S+L	LRFD

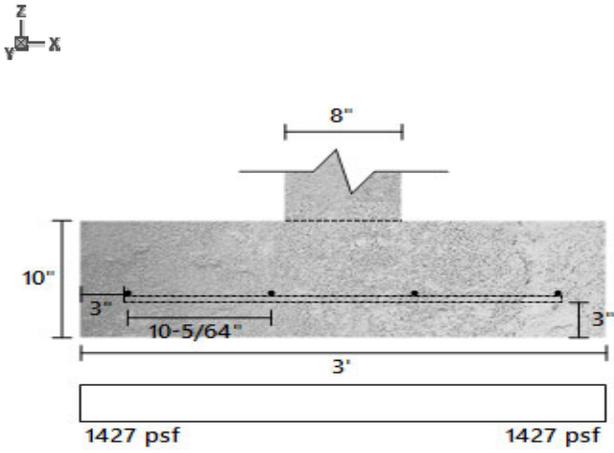
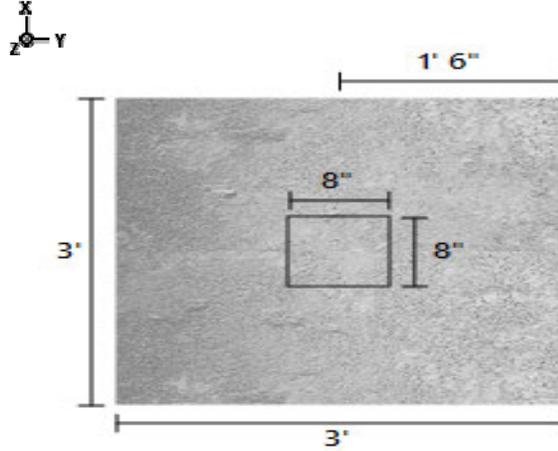
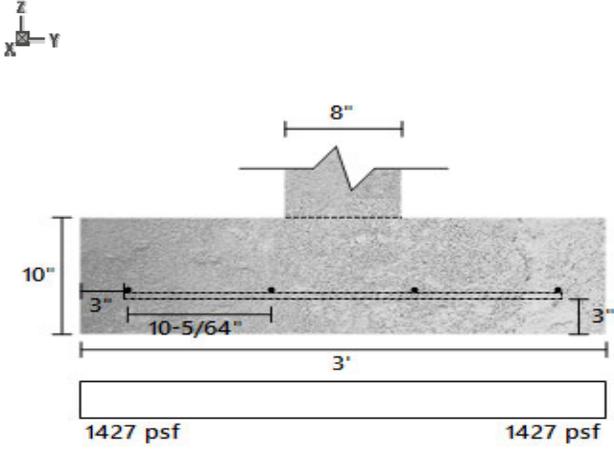
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Header #21	A	1552.183	-	0	-	Dead	Z
Point (lbf)	Header #21	A	10200	-	0	-	Snow	Z

SpotFtg Hdr #21 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		

LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #20	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		

2.50 (ft) X 1.33 (ft) X 10 (in)	Soil Depth TOF : 0 (ft)	Bot.(2) #4 Long, (3) #4 Short
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MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2.5	1.3334	10	2.78	402.8

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
8	8	Concrete	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#58.15 (,	1122.8	1500.0	D+S	ASD
One-Way Shear X (lbf)	SDVV#; : 19 (,	1302.9	10516.8	1.2D+1.6S+L	LRFD
One-Way Shear Y (lbf)	SDVV#< 6.17 (,	1302.9	19718.0	1.2D+1.6S+L	LRFD
Two-Way Shear (lbf-ft)	SDVV#< 9.17 (,	2802.7	77557.5	1.2D+1.6S+L	LRFD
Moment X (lbf-ft)	SDVV#< ; 1; (,	213.6	17278.2	1.2D+1.6S+L	LRFD
Moment Y (lbf-ft)	SDVV#< 5.18 (,	861.5	11416.5	1.2D+1.6S+L	LRFD
Crushing (psi)	SDVV#< : 19 (,	5126.0	212160.0	1.2D+1.6S+L	LRFD

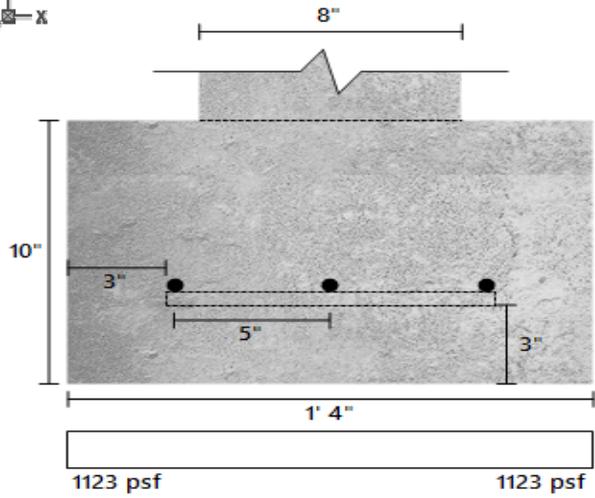
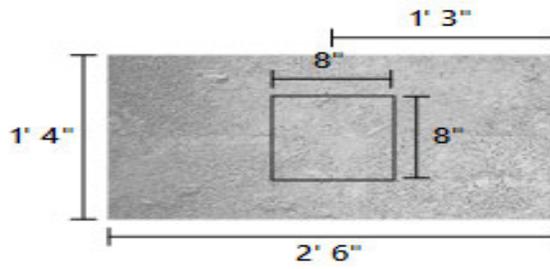
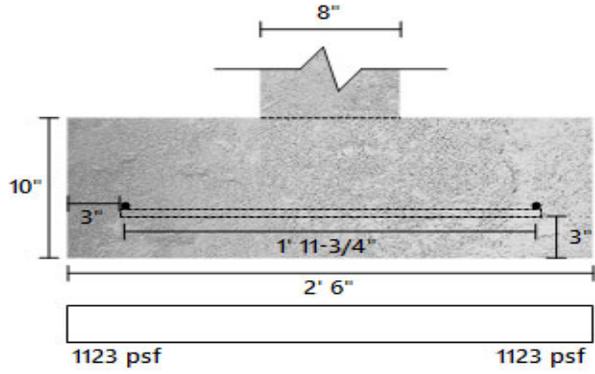
LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #20	B	547.1248	-	0	-	Dead	Z
Point (lbf)	Beam #20	B	2792.76	-	0	-	Snow	Z

SpotFtg Bm #20 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #21	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
2.00 (ft) X 2.00 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(3) #4 Long, (3) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft ³)	Footing Weight (lbf/ft)
2	2	10	3.33	483.33

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft ³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft ²)	Density (lbf/ft ³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

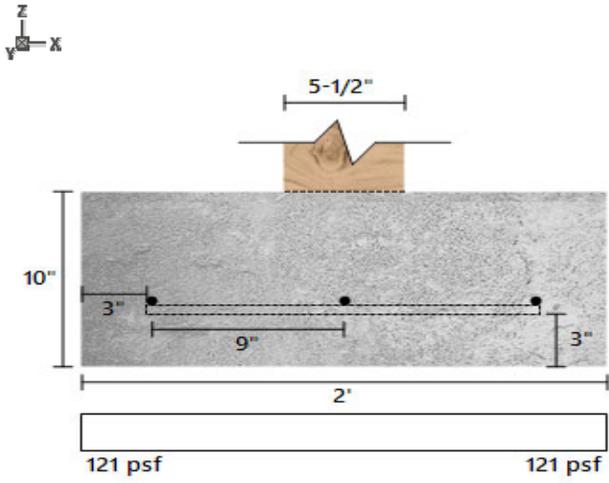
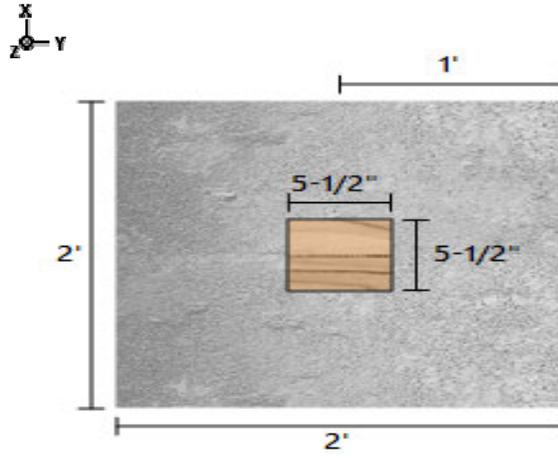
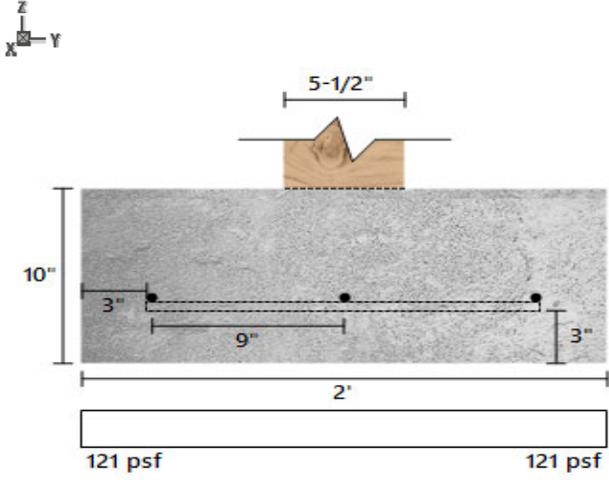
PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft ²)	SDVV#<4 1< (,	121.1	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV#4 3 3 13 (,	0.4	15774.4	1.2D+1.6L+0.5Lr	LRFD
One-Way Shear Y (lbf)	SDVV#4 3 3 13 (,	0.4	15774.4	1.2D+1.6L+0.5Lr	LRFD
Two-Way Shear (lbf-ft)	SDVV#4 3 3 13 (,	1.2	64412.2	1.2D+1.6L+0.5Lr	LRFD
Moment X (lbf-ft)	SDVV#4 3 3 13 (,	0.3	17124.7	1.2D+1.6L+0.5Lr	LRFD
Moment Y (lbf-ft)	SDVV#4 3 3 13 (,	0.3	17124.7	1.2D+1.6L+0.5Lr	LRFD
Crushing (psi)	SDVV#4 3 3 13 (,	1.6	100278.8	1.2D+1.6L+0.5Lr	LRFD

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

SpotFtg Bm #21 DIAGRAMS





PASS

DATE:	1/26/2026	COMPANY:	SMC Design
STRUCALC BUILD:	StruCalc Pro	DESIGNED BY:	Stephen Curtis
CUSTOMER:		REVIEWED BY:	Stephen Curtis
PROJ. ADDRESS:	--	PROJECT NAME:	25-024 Hubble
	--		
LEVEL:	Basement	LOADING:	ASD
MEMBER NAME:	SpotFtg Bm #22	CODE:	2018 International Building Code
MEMBER TYPE:	ISOLATED FOOTING	ACI:	ACI 318-14
MATERIAL:	Concrete		
1.33 (ft) X 1.33 (ft) X 10 (in)		Soil Depth TOF : 0 (ft)	Bot.(2) #4 Long, (2) #4 Short

MATERIAL PROPERTIES

FOOTING

Width (ft)	Length (ft)	Depth (in)	Volume (ft³)	Footing Weight (lbf/ft)
1.3334	1.3334	10	1.48	214.84

CONCRETE

fc' (psi)	Ec (psi)	Density (lbf/ft³)	Agg. Dia.(in)
3000	0	145	0.75

CALCULATION VARIABLES

Bo (in)	Rankine Coefficient(Kp)
0	3

COLUMN

Width (in)	length (in)	Material	Offset X (in)	Offset Y (in)
5.5	5.5	Wood	0	0

SOIL

Bearing Strength(lbf/ft²)	Density (lbf/ft³)	Cohesion	Friction Angle	Depth (ft)
1500	140	0	30	0

REBAR

Bottom Bar Size #	fy (psi)	Es (psi)
4	60000	2.9E+07

COVER

Top Cover (in)	Bottom Cover (in)	Side Cover (in)
3	3	3

PASS-FAIL

	PASS/FAIL	MAGNITUDE	STRENGTH	LOAD COMBO	CALCULATION TYPE
Soil Bearing Pressure (lbf/ft²)	SDVV #5 : 14 (,	1093.3	1500.0	D+L	ASD
One-Way Shear X (lbf)	SDVV #< : 14 (,	303.5	10516.8	1.2D+1.6L+0.5Lr	LRFD
One-Way Shear Y (lbf)	SDVV #< : 14 (,	303.5	10516.8	1.2D+1.6L+0.5Lr	LRFD
Two-Way Shear (lbf-ft)	SDVV #< ; 16 (,	1071.6	64412.2	1.2D+1.6L+0.5Lr	LRFD
Moment X (lbf-ft)	SDVV #< : 17 (,	296.0	11416.5	1.2D+1.6L+0.5Lr	LRFD
Moment Y (lbf-ft)	SDVV #< : 17 (,	296.0	11416.5	1.2D+1.6L+0.5Lr	LRFD
Crushing (psi)	SDVV #< : 17 (,	2589.2	100278.8	1.2D+1.6L+0.5Lr	LRFD

LOAD LIST

Type	Name	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Point	1	-	0	-	Live	Z

Linked Load List

Type	Member	Support	Left Magnitude	Right Magnitude	Load Start (ft)	Load End (ft)	Load Type	Direction
Point (lbf)	Beam #22	A	443.2314	-	0	-	Dead	Z
Point (lbf)	Beam #22	A	1284.831	-	0	-	Live	Z

SpotFtg Bm #22 DIAGRAMS

