




City of Puyallup Development & Permitting Services ISSUED PERMIT	
Building	Planning
Engineering	Public Works
Fire	Traffic

**City of Puyallup**  
**Building**  
**ACCEPTED**

JMontgomery  
05/03/2023  
3:15:52 PM



February 24,2023

## STRUCTURAL DESIGN ANALYSIS

For:

### Riley Sampson Foundation

1002 39<sup>th</sup> Ave. SW  
Suite # 104  
Puyallup, WA. 98373

THE APPROVED CONSTRUCTION PLANS, DOCUMENTS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION.

FULL SIZED LEDGIBLE COLOR PLANS ARE REQUIRED TO BE PROVIDED BY THE PERMITEE ON SITE FOR INSPECTION

SITE ADDRESS

**North Building**  
**4002 10th Street SE**  
**Puyallup, WA. 98374**



02.24.2023



*All information for construction is detailed on the prints. This engineering report summarizes the engineering calculations and assumptions made to develop the print information. Contractor must review engineering assumptions for validity. Engineering assumptions are listed below. If these conditions are not present at the site these calculations are void and Attili Design & Engineering Inc. must be contacted immediately.*

Scope of Services: The purpose of our services is engineering analysis and design to resist gravity loads in accordance with the 2018 IBC. Our services for garage design. Foundations are engineered to support the structure on a flat surface with 1500 psf soil bearing. Special foundations for lots not level or with poor soil bearing are not provided unless noted otherwise.

The enclosed documents are to be used in conjunction with the house plans referenced on the cover. It is essential that the contractor study the engineering requirements and required changes to the architectural plan prior to the start of work. Changes may include additional foundations or footings, beam size changes, siding changes, etc.



CODE CRITERIA

Building Codes '2018 IBC Code  
 Seismic Zone D  
 Period T (sec) 0.109645  
 Response Mod Factor 5.5  
 Soil Profile D  
 Seismic Source Type D  
 Distance To Source 0  
 Reliability Factor Rho 1  
 Wind Zone 110 mph Exposure B

SOILS CRITERIA

Soils Consultant None  
 Soils Report # None  
 Bearing Pressure Req'd 1500 psf uno  
 Bearing Depth 18"

MATERIALS CRITERIA

Concrete (28 day strength)  
 Foundations and Slab Fc= 2500 psi  
 Structural Slab Fc= 2500 psi  
 Walls Fc= 2500 psi  
 Reinforcing Steel ASTM A-615 Grade 60

PLYWOOD APA RATED

Roof: 15/32 cdx or osb PI = 24/0  
 Floor: ¾ T&G cdx or osb – PI = 48/24

LOADING CRITERIA FOR ROOF AND/OR CEILING

ITEM	MATERIAL	LOAD PSF
Roofing	Asphalt Shingles	3.0
Tile Roofing	Tile	20.0
Sheathing or Decking	15/32 CDX	1.5
Insulation	R38	3.0
Ceiling	5/8 GWB	2.8
Fixtures – Mech. Electrical Point loads		2.6
Framing	Truss	2.1



TOTAL DEAD LOAD= 15 PSF comp 20 PSF tile

LIVE LOADS

Snow – 25 PSF (Non reducible)

Ceiling Only – 10 PSF

Increase in Fb and Fv of 15% allowed for duration of load when noted.

LOADING CRITERIA FOR FLOOR

ITEM	MATERIAL	LOAD PSF
Floor Covering	Carpet and Pad	3.0
Floor Sheathing	3/4" T&G CDX	2.3
Ceiling	1/2" GWB	2.2
Fixtures – Mech. Electrical Point loads		1.02
Framing, Joists Beams	TJI or BCI	2.48 1.0

TOTAL DEAD LOAD FLOOR = 10 PSF

Floor Live Loads

Residential – 40 psf (reducible)

Office – 50 psf (reducible)

Assembly – 100 psf (non-reducible) Private Garage

Corridors and Exits – 100 psf (reducible)



## Structural Data

## STORY INFORMATION

	Story Elev [ft]	Floor/Ceiling Depth [in]	Wall Height [ft]
Ceiling	19.67	0.0	
Level 2	11.67	10.0	8.00
Level 1	2.83	10.0	8.00
Foundation	2.00		

## BLOCK and ROOF INFORMATION

	Block		Roof Panels			
	Dimensions [ft]		Face	Type	Slope	Overhang [ft]
<b>Block 1</b>	2 Story	E-W Ridge				
Location X,Y =	0.00	0.00	<b>North</b>	Side	30.0	1.00
Extent X,Y =	78.50	66.00	<b>South</b>	Side	30.0	1.00
Ridge Y Location, Offset	33.00	0.00	<b>East</b>	Gable	90.0	1.00
Ridge Elevation, Height	38.72	19.05	<b>West</b>	Gable	90.0	1.00
<b>Block 2</b>	2 Story	N-S Ridge				
Location X,Y =	27.00	66.00	<b>North</b>	Gable	90.0	1.00
Extent X,Y =	25.00	3.00	<b>South</b>	Joined	150.0	1.00
Ridge X Location, Offset	39.50	0.00	<b>East</b>	Side	30.0	1.00
Ridge Elevation, Height	26.88	7.22	<b>West</b>	Side	30.0	1.00
<b>Block 3</b>	2 Story	N-S Ridge				
Location X,Y =	27.00	-2.00	<b>North</b>	Joined	150.0	1.00
Extent X,Y =	22.50	2.00	<b>South</b>	Gable	90.0	1.00
Ridge X Location, Offset	38.25	0.00	<b>East</b>	Side	30.0	1.00
Ridge Elevation, Height	26.16	6.50	<b>West</b>	Side	30.0	1.00
<b>Block 4</b>	1 Story	E-W Ridge				
Location X,Y =	-17.00	0.00	<b>North</b>	Side	30.0	1.00
Extent X,Y =	17.00	39.50	<b>South</b>	Side	30.0	1.00
Ridge Y Location, Offset	19.75	0.00	<b>East</b>	Joined	90.0	1.00
Ridge Elevation, Height	23.07	11.40	<b>West</b>	Gable	90.0	1.00

## SHEATHING MATERIALS by WALL GROUP

Grp	Surf	Material	Ratng	Sheathing				Gvtv lbs/in	Size	Fasteners					Apply Notes
				Thick in	GU in	Ply	Or			Type	Df	Eg in	Fd in	Bk	
1	Ext	Struct Sh OSB	24/16	7/16	-	3	Horz	83500	8d	Nail	N	6	12	Y	1,3
	Int	Gyp WB 1-ply		1/2	-	-	Horz	40000	5d	Nail	N	7	7	Y	
2	Ext	Struct Sh OSB	24/16	7/16	-	3	Horz	83500	8d	Nail	N	3	12	Y	1,2,3
	Int	Struct Sh OSB	24/16	?	-	3	Horz	83500	?	Nail	N	6	12	Y	
3	Both	Struct Sh OSB	24/16	7/16	-	3	Horz	83500	8d	Nail	N	3	12	Y	1,2,3
4	Ext	Struct Sh OSB	24/16	7/16	-	3	Horz	83500	8d	Nail	N	4	12	Y	1,2,3
	Int	Structural sheath		?	-	3	Horz	0	?	Nail	N	6	12	Y	
5	Ext	Struct Sh OSB	24/16	7/16	-	3	Horz	83500	8d	Nail	N	4	12	Y	1,2,3
	Int	Gyp WB 1-ply		1/2	-	-	Horz	40000	5d	Nail	N	7	7	Y	
6	1	Struct Sh OSB	24/16	7/16	-	3	Horz	83500	8d	Nail	N	3	12	Y	1,2,3
	2	Gyp WB 1-ply		1/2	-	-	Horz	40000	5d	Nail	N	7	7	Y	

## Legend:

Grp – Wall Design Group number, used to reference wall in other tables

Surf – Exterior or interior surface when applied to exterior wall

Ratng – Span rating, see SDPWS Table C4.2.2.2C

Thick – Nominal panel thickness

GU - Gypsum underlay thickness

Ply – Number of plies (or layers) in construction of plywood sheets

Or – Orientation of longer dimension of sheathing panels

Gvtv – Shear stiffness in lb/in. of depth from SDPWS Tables C4.2.2A-B

Type – Fastener type from SDPWS Tables 4.3A-D: Nail – common wire nail for structural panels and lumber, cooler or gypsum wallboard nail for GWB, plasterboard nail for gypsum lath, galvanised nail for gypsum sheathing; Box - box nail; Casing – casing nail; Roof – roofing nail; Screw – drywall screw

Size - Common, box, and casing nails: refer to SDPWS Table A1 (casing sizes = box sizes).

Gauges: 11 ga = 0.120" x 1-3/4" (gypsum sheathing, 25/32" fiberboard), 1-1/2" (lath & plaster, 1/2" fiberboard); 13 ga plasterboard = 0.92" x 1-1/8".

Cooler or gypsum wallboard nail: 5d = .086" x 1-5/8"; 6d = .092" x 1-7/8"; 8d = .113" x 2-3/8"; 6/8d = 6d base ply, 8d face ply for 2-ply GWB.

Drywall screws: No. 6, 1-1/4" long.

5/8" gypsum sheathing can also use 6d cooler or GWB nail

Df – Deformed nails ( threaded or spiral), with increased withdrawal capacity

Eg – Panel edge fastener spacing

Fd – Field spacing interior to panels

Bk – Sheathing is nailed to blocking at all panel edges; Y(es) or N(o)

Apply Notes – Notes below table legend which apply to sheathing side

? – Design for unknown parameter not performed for reasons given in notes below.

## Notes:

1. Capacity has been reduced for framing specific gravity according to SDPWS T4.3A Note 3.

2. Framing at adjoining panel edges must be 3" nominal or wider with staggered nailing according to SDPWS 4.3.7.1.4

3. Shear capacity for current design has been increased to the value for 15/32" sheathing with same nailing because stud spacing is 16" max. or panel orientation is horizontal. See SDPWS T4.3A Note 2.

## FRAMING MATERIALS and STANDARD WALL by WALL GROUP

Wall Grp	Species	Grade	b in	d in	Spcg in	SG	E psi <sup>6</sup>	Standard Wall
1	Hem-Fir	Stud	1.50	5.50	16	0.43	1.20	
2	Hem-Fir	Stud	1.50	5.50	16	0.43	1.20	
3	Hem-Fir	Stud	1.50	5.50	16	0.43	1.20	
4	Hem-Fir	Stud	1.50	5.50	16	0.43	1.20	
5	Hem-Fir	Stud	1.50	5.50	16	0.43	1.20	
6	Hem-Fir	Stud	1.50	5.50	16	0.43	1.20	

## Legend:

Wall Grp – Wall Design Group

b – Stud breadth (thickness)

d – Stud depth (width)

Spcg – Maximum on-centre spacing of studs for design, actual spacing may be less.

SG – Specific gravity

E – Modulus of elasticity

Standard Wall - Standard wall designed as group.

## Notes:

Check manufacture requirements for stud size, grade and specific gravity (G) for all shearwall hold-downs.

## SHEARLINE, WALL and OPENING DIMENSIONS

North-south Shearlines	Type	Wall Group	Location X [ft]	Extent [ft]		Length [ft]	FHS [ft]	Aspect Ratio	Height [ft]
				Start	End				
<b>Line 1</b>									
<b>Level 1</b>									
Line 1		5	-17.00	0.00	39.50	39.50	13.00	-	8.00
Wall 1-1	Seg	5	-17.00	0.00	39.50	39.50	13.00	-	-
Segment 1		-	-	0.00	3.50	3.50	-	2.29	-
Opening 1		-	-	3.50	10.50	7.00	-	-	7.00
Segment 2		-	-	10.50	16.50	6.00	-	1.33	-
Opening 2		-	-	16.50	22.50	6.00	-	-	7.00
Segment 3		-	-	22.50	29.50	7.00	-	1.14	-
Opening 3		-	-	29.50	36.50	7.00	-	-	7.00
Segment 4		-	-	36.50	39.50	3.00	-	2.67	-
<b>Line 2</b>									
<b>Level 2</b>									
Line 2		1	0.00	0.00	66.00	66.00	52.50	-	8.00
Wall 2-1	Seg	1	0.00	0.00	39.50	39.50	29.50	-	-
Segment 1		-	-	0.00	7.00	7.00	-	1.14	-
Opening 1		-	-	7.00	11.50	4.50	-	-	5.00
Segment 2		-	-	11.50	22.00	10.50	-	0.76	-
Opening 2		-	-	22.00	27.50	5.50	-	-	5.00
Segment 3		-	-	27.50	39.50	12.00	-	0.67	-
Wall 2-2	Seg	1	0.00	39.50	66.00	26.50	23.00	-	-
Segment 1		-	-	39.50	55.50	16.00	-	0.50	-
Opening 1		-	-	55.50	59.00	3.50	-	-	5.00
Segment 2		-	-	59.00	66.00	7.00	-	1.14	-
<b>Level 1</b>									
Line 2		1	0.28	0.00	66.00	66.00	54.50	-	8.00
Wall 2-1	Seg	1	0.50	0.00	34.50	34.50	34.50	0.23	-
Wall 2-2	Seg	1	0.00	39.50	66.00	26.50	20.00	-	-
Segment 1		-	-	39.50	41.00	1.50	-	5.33	-
Opening 1		-	-	41.00	46.00	5.00	-	-	7.00
Segment 2		-	-	46.00	66.00	20.00	-	0.40	-
<b>Line 3</b>									
<b>Level 2</b>									
Line 3			26.50	-2.00	69.00	71.00	0.00	-	8.00
Wall 3-1	NSW		27.00	-2.00	0.00	2.00	0.00	1.00	-
Wall 3-2	NSW		27.00	66.00	69.00	3.00	0.00	1.00	-
<b>Level 1</b>									
Line 3	Seg	6	26.50	0.00	66.00	66.00	30.50	-	8.00
Wall 3-1	Seg	6	26.50	0.50	31.00	30.50	30.50	0.26	-
<b>Line 4</b>									
<b>Level 1</b>									
Line 4			28.00	-2.00	69.00	71.00	0.00	-	8.00
Wall 4-1	NSW		28.00	-2.00	0.00	2.00	0.00	1.00	-
Wall 4-2	NSW		28.00	66.00	69.00	3.00	0.00	1.00	-
<b>Line 5</b>									
<b>Level 2</b>									
Line 5	NSW		49.50	-2.00	0.00	2.00	0.00	-	8.00
Wall 5-1	NSW		49.50	-2.00	0.00	2.00	0.00	1.00	-
<b>Level 1</b>									
Line 5	NSW		49.50	-2.00	0.00	2.00	0.00	-	8.00
Wall 5-1	NSW		49.50	-2.00	0.00	2.00	0.00	1.00	-
<b>Line 6</b>									
<b>Level 1</b>									
Line 6	NSW		50.50	66.00	69.00	3.00	0.00	-	8.00
Wall 6-1	NSW		50.50	66.00	69.00	3.00	0.00	1.00	-
<b>Line 7</b>									
<b>Level 2</b>									
Line 7	NSW		52.00	0.00	69.00	69.00	0.00	-	8.00
Wall 7-1	NSW		52.00	66.00	69.00	3.00	0.00	1.00	-
<b>Level 1</b>									
Line 7	Seg	6	52.00	0.00	66.00	66.00	31.50	-	8.00
Wall 7-1	Seg	6	52.00	0.00	31.50	31.50	31.50	0.25	-
<b>Line 8</b>									
<b>Level 2</b>									
Line 8		1	78.50	0.00	66.00	66.00	48.00	-	8.00
Wall 8-1	Seg	1	78.50	0.00	66.00	66.00	48.00	-	-
Segment 1		-	-	0.00	6.50	6.50	-	1.23	-
Opening 1		-	-	6.50	10.00	3.50	-	-	5.00
Segment 2		-	-	10.00	22.00	12.00	-	0.67	-
Opening 2		-	-	22.00	27.00	5.00	-	-	5.00
Segment 3		-	-	27.00	38.00	11.00	-	0.73	-
Opening 3		-	-	38.00	44.00	6.00	-	-	5.00



## SHEARLINE, WALL and OPENING DIMENSIONS (continued)

East-west Shearlines	Type	Wall Group	Location Y [ft]	Extent [ft]		Length [ft]	FHS [ft]	Aspect Ratio	Height [ft]
				Start	End				
Segment 4	-	-	-	44.00	55.00	11.00	-	0.73	-
Opening 4	-	-	-	55.00	58.50	3.50	-	-	5.00
Segment 5	-	-	-	58.50	66.00	7.50	-	1.07	-
<b>Level 1</b>									
Line 8		1	78.50	0.00	66.00	66.00	55.00	-	8.00
Wall 8-1	Seg	1	78.50	0.00	66.00	66.00	55.00	-	-
Segment 1	-	-	-	0.00	22.00	22.00	-	0.36	-
Opening 1	-	-	-	22.00	27.50	5.50	-	-	5.00
Segment 2	-	-	-	27.50	38.50	11.00	-	0.73	-
Opening 2	-	-	-	38.50	44.00	5.50	-	-	5.00
Segment 3	-	-	-	44.00	66.00	22.00	-	0.36	-
<b>Line A</b>									
<b>Level 2</b>									
Line A	NSW		-2.00	27.00	49.50	22.50	0.00	-	8.00
Wall A-1	NSW		-2.00	27.00	49.50	22.50	0.00	1.00	-
<b>Level 1</b>									
Line A	NSW		-2.00	27.00	49.50	22.50	0.00	-	8.00
Wall A-1	NSW		-2.00	28.00	49.50	21.50	0.00	1.00	-
<b>Line B</b>									
<b>Level 2</b>									
Line B		5	0.00	0.00	78.50	78.50	30.50	-	8.00
Wall B-1	Seg	5	0.00	0.00	27.00	27.00	13.50	-	-
Segment 1	-	-	-	0.00	4.00	4.00	-	2.00	-
Opening 1	-	-	-	4.00	8.00	4.00	-	-	7.00
Segment 2	-	-	-	8.00	13.00	5.00	-	1.60	-
Opening 2	-	-	-	13.00	15.00	2.00	-	-	7.00
Segment 3	-	-	-	15.00	18.50	3.50	-	2.29	-
Opening 3	-	-	-	18.50	22.50	4.00	-	-	5.00
Segment 4	-	-	-	22.50	27.00	4.50	-	1.78	-
Wall B-2	Seg	5	0.00	49.50	78.50	29.00	17.00	-	-
Segment 1	-	-	-	49.50	54.00	4.50	-	1.78	-
Opening 1	-	-	-	54.00	59.00	5.00	-	-	5.00
Segment 2	-	-	-	59.00	63.00	4.00	-	2.00	-
Opening 2	-	-	-	63.00	65.00	2.00	-	-	5.00
Segment 3	-	-	-	65.00	69.50	4.50	-	1.78	-
Opening 3	-	-	-	69.50	74.50	5.00	-	-	5.00
Segment 4	-	-	-	74.50	78.50	4.00	-	2.00	-
<b>Level 1</b>									
Line B		2,3,4	0.00	-17.00	78.50	95.50	45.50	-	8.00
Wall B-1	Seg	4	0.00	-17.00	0.00	17.00	17.00	0.47	-
Wall B-2	Seg	2	0.00	0.00	28.00	28.00	10.00	-	-
Segment 1	-	-	-	0.00	3.00	3.00	-	2.67	-
Opening 1	-	-	-	3.00	10.50	7.50	-	-	7.00
Segment 2	-	-	-	10.50	16.00	5.50	-	1.45	-
Opening 2	-	-	-	16.00	23.50	7.50	-	-	7.00
Segment 3	-	-	-	23.50	28.00	4.50	-	1.78	-
Wall B-3	Seg	3	0.00	37.00	41.00	4.00	4.00	2.00	-
Wall B-4	Seg	2	0.00	49.50	78.50	29.00	14.50	-	-
Segment 1	-	-	-	49.50	54.50	5.00	-	1.60	-
Opening 1	-	-	-	54.50	62.00	7.50	-	-	7.00
Segment 2	-	-	-	62.00	67.50	5.50	-	1.45	-
Opening 2	-	-	-	67.50	74.50	7.00	-	-	7.00
Segment 3	-	-	-	74.50	78.50	4.00	-	2.00	-
<b>Line C</b>									
<b>Level 2</b>									
Line C		5,6	31.08	0.00	78.50	78.50	60.00	-	8.00
Wall C-1	Seg	5	31.00	0.00	20.50	20.50	20.50	0.39	-
Wall C-2	Seg	5	31.00	24.50	34.50	10.00	10.00	0.80	-
Wall C-3	Seg	6	31.50	44.00	54.00	10.00	10.00	0.80	-
Wall C-4	Seg	5	31.00	58.00	77.50	19.50	19.50	0.41	-
<b>Level 1</b>									
Line C		6	31.11	-17.00	78.50	95.50	47.50	-	8.00
Wall C-1	Seg	6	31.00	4.50	18.00	13.50	13.50	0.59	-
Wall C-2	Seg	6	31.00	24.50	34.50	10.00	10.00	0.80	-
Wall C-3	Seg	6	31.50	43.50	54.00	10.50	10.50	0.76	-
Wall C-4	Seg	6	31.00	60.00	73.50	13.50	13.50	0.59	-
<b>Line D</b>									
<b>Level 1</b>									
Line D	Seg	5	39.50	-17.00	78.50	95.50	17.00	-	8.00
Wall D-1	Seg	5	39.50	-17.00	0.00	17.00	17.00	0.47	-

## SHEARLINE, WALL and OPENING DIMENSIONS (continued)

<b>Line E</b>									
<b>Level 2</b>									
Line E		5	66.00	0.00	78.50	78.50	25.00	-	8.00
Wall E-1	Seg	5	66.00	0.00	27.00	27.00	12.00	-	-
Segment 1		-	-	0.00	4.00	4.00	-	2.00	-
Opening 1		-	-	4.00	8.50	4.50	-	-	5.00
Segment 2		-	-	8.50	12.50	4.00	-	2.00	-
Opening 2		-	-	12.50	15.00	2.50	-	-	5.00
Segment 3		-	-	15.00	19.00	4.00	-	2.00	-
Opening 3		-	-	19.00	24.50	5.50	-	-	5.00
Segment 4		-	-	24.50	27.00	2.50	-	3.20	-
Wall E-2	Seg	5	66.00	52.00	78.50	26.50	13.00	-	-
Segment 1		-	-	52.00	54.50	2.50	-	3.20	-
Opening 1		-	-	54.50	59.00	4.50	-	-	5.00
Segment 2		-	-	59.00	63.00	4.00	-	2.00	-
Opening 2		-	-	63.00	65.50	2.50	-	-	5.00
Segment 3		-	-	65.50	69.50	4.00	-	2.00	-
Opening 3		-	-	69.50	73.50	4.00	-	-	5.00
Segment 4		-	-	73.50	78.50	5.00	-	1.60	-
<b>Level 1</b>									
Line E		5	66.00	0.00	78.50	78.50	32.50	-	8.00
Wall E-1	Seg	5	66.00	0.00	28.00	28.00	16.50	-	-
Segment 1		-	-	0.00	4.00	4.00	-	2.00	-
Opening 1		-	-	4.00	8.50	4.50	-	-	5.00
Segment 2		-	-	8.50	12.50	4.00	-	2.00	-
Opening 2		-	-	12.50	15.00	2.50	-	-	5.00
Segment 3		-	-	15.00	19.50	4.50	-	1.78	-
Opening 3		-	-	19.50	24.00	4.50	-	-	5.00
Segment 4		-	-	24.00	28.00	4.00	-	2.00	-
Wall E-2	Seg	5	66.00	50.50	78.50	28.00	16.00	-	-
Segment 1		-	-	50.50	54.50	4.00	-	2.00	-
Opening 1		-	-	54.50	59.00	4.50	-	-	5.00
Segment 2		-	-	59.00	63.00	4.00	-	2.00	-
Opening 2		-	-	63.00	65.50	2.50	-	-	5.00
Segment 3		-	-	65.50	69.50	4.00	-	2.00	-
Opening 3		-	-	69.50	74.50	5.00	-	-	5.00
Segment 4		-	-	74.50	78.50	4.00	-	2.00	-
<b>Line F</b>									
<b>Level 2</b>									
Line F	NSW		69.00	27.00	52.00	25.00	0.00	-	8.00
Wall F-1	NSW		69.00	27.00	52.00	25.00	0.00	1.00	-
<b>Level 1</b>									
Line F	NSW		69.00	27.00	52.00	25.00	0.00	-	8.00
Wall F-1	NSW		69.00	28.00	50.50	22.50	0.00	1.00	-

## Legend:

Type - Seg = segmented, Prf = perforated, NSW = non-shearwall

Location - Dimension perpendicular to wall

FHS - Length of full-height sheathing used to resist shear force. For perforated walls, it is based on the factored segments  $L_i$  defined in SDPWS 4.3.4.3Aspect Ratio - Ratio of wall height to segment length ( $h/b_s$ )

Wall Group - Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall

## Loads

## WIND SHEAR LOADS (as entered or generated)

Level 2 Block	F	Element	Load Case	Wnd Dir	Surf Dir	Prof	Location [ft]		Magnitude [lbs,plf,psf]		Trib Ht [ft]
							Start	End	Start	End	
Block 1	W	L Gable	1	W->E	Wind	Line	0.00	33.00	0.0	228.8	
Block 1	W	Wall	1	W->E	Wind	Line	0.00	66.00	43.1		
Block 1	W	Wall	Min	W->E	Wind	Line	0.00	66.00	32.0		
Block 1	W	L Gable	Min	W->E	Wind	Line	0.00	33.00	0.0	152.4	
Block 1	W	R Gable	1	W->E	Wind	Line	33.00	66.00	228.8	0.0	
Block 1	W	R Gable	Min	W->E	Wind	Line	33.00	66.00	152.4	0.0	
Block 1	E	L Gable	1	W->E	Lee	Line	0.00	33.00	0.0	137.0	
Block 1	E	Wall	1	W->E	Lee	Line	0.00	66.00	28.8		
Block 1	E	Wall	Min	W->E	Lee	Line	0.00	66.00	32.0		
Block 1	E	L Gable	Min	W->E	Lee	Line	0.00	33.00	0.0	152.4	
Block 1	E	R Gable	Min	W->E	Lee	Line	33.00	66.00	152.4	0.0	
Block 1	E	R Gable	1	W->E	Lee	Line	33.00	66.00	137.0	0.0	
Block 1	W	Wall	1	E->W	Lee	Line	0.00	66.00	28.8		
Block 1	W	L Gable	1	E->W	Lee	Line	0.00	33.00	0.0	137.0	
Block 1	W	L Gable	Min	E->W	Lee	Line	0.00	33.00	0.0	152.4	
Block 1	W	Wall	Min	E->W	Lee	Line	0.00	66.00	32.0		
Block 1	W	R Gable	Min	E->W	Lee	Line	33.00	66.00	152.4	0.0	
Block 1	W	R Gable	1	E->W	Lee	Line	33.00	66.00	137.0	0.0	
Block 1	E	Wall	Min	E->W	Wind	Line	0.00	66.00	32.0		
Block 1	E	Wall	1	E->W	Wind	Line	0.00	66.00	43.1		
Block 1	E	L Gable	1	E->W	Wind	Line	0.00	33.00	0.0	228.8	
Block 1	E	L Gable	Min	E->W	Wind	Line	0.00	33.00	0.0	152.4	
Block 1	E	R Gable	1	E->W	Wind	Line	33.00	66.00	228.8	0.0	
Block 1	E	R Gable	Min	E->W	Wind	Line	33.00	66.00	152.4	0.0	
Block 1	S	Roof	1	S->N	Wind	Line	-1.00	79.50	67.9		
Block 1	S	Roof	Min	S->N	Wind	Line	-1.00	79.50	78.5		
Block 1	S	Wall	1	S->N	Wind	Line	0.00	27.00	43.1		
Block 1	S	Wall	Min	S->N	Wind	Line	0.00	27.00	32.0		
Block 1	S	Wall	1	S->N	Wind	Line	49.50	78.50	43.1		
Block 1	S	Wall	Min	S->N	Wind	Line	49.50	78.50	32.0		
Block 1	N	Roof	1	S->N	Lee	Line	-1.00	79.50	182.7		
Block 1	N	Roof	Min	S->N	Lee	Line	-1.00	79.50	78.5		
Block 1	N	Wall	Min	S->N	Lee	Line	0.00	27.00	32.0		
Block 1	N	Wall	1	S->N	Lee	Line	0.00	27.00	31.0		
Block 1	N	Wall	Min	S->N	Lee	Line	52.00	78.50	32.0		
Block 1	N	Wall	1	S->N	Lee	Line	52.00	78.50	31.0		
Block 1	S	Roof	Min	N->S	Lee	Line	-1.00	79.50	78.5		
Block 1	S	Roof	1	N->S	Lee	Line	-1.00	79.50	182.7		
Block 1	S	Wall	Min	N->S	Lee	Line	0.00	27.00	32.0		
Block 1	S	Wall	1	N->S	Lee	Line	0.00	27.00	31.0		
Block 1	S	Wall	Min	N->S	Lee	Line	49.50	78.50	31.0		
Block 1	S	Wall	1	N->S	Lee	Line	49.50	78.50	32.0		
Block 1	N	Roof	Min	N->S	Wind	Line	-1.00	79.50	78.5		
Block 1	N	Roof	1	N->S	Wind	Line	-1.00	79.50	67.9		
Block 1	N	Wall	1	N->S	Wind	Line	0.00	27.00	43.1		
Block 1	N	Wall	Min	N->S	Wind	Line	0.00	27.00	32.0		
Block 1	N	Wall	1	N->S	Wind	Line	52.00	78.50	43.1		
Block 1	N	Wall	Min	N->S	Wind	Line	52.00	78.50	32.0		
Block 2	W	L Roof	Min	W->E	Wind	Line	53.50	67.00	0.0	31.2	
Block 2	W	L Roof	1	W->E	Wind	Line	53.50	67.00	0.0	22.7	
Block 2	W	Wall	1	W->E	Wind	Line	66.00	69.00	43.1		
Block 2	W	Wall	Min	W->E	Wind	Line	66.00	69.00	32.0		
Block 2	W	Ctr Roof	Min	W->E	Wind	Line	67.00	70.00	31.2		
Block 2	W	Ctr Roof	1	W->E	Wind	Line	67.00	70.00	22.7		
Block 2	E	L Roof	1	W->E	Lee	Line	53.50	67.00	0.0	68.2	
Block 2	E	L Roof	Min	W->E	Lee	Line	53.50	67.00	0.0	31.2	
Block 2	E	Wall	1	W->E	Lee	Line	66.00	69.00	11.7		
Block 2	E	Wall	Min	W->E	Lee	Line	66.00	69.00	32.0		
Block 2	E	Ctr Roof	1	W->E	Lee	Line	67.00	70.00	68.2		
Block 2	E	Ctr Roof	Min	W->E	Lee	Line	67.00	70.00	31.2		
Block 2	W	L Roof	1	E->W	Lee	Line	53.50	67.00	0.0	68.2	
Block 2	W	L Roof	Min	E->W	Lee	Line	53.50	67.00	0.0	31.2	
Block 2	W	Wall	1	E->W	Lee	Line	66.00	69.00	11.7		
Block 2	W	Wall	Min	E->W	Lee	Line	66.00	69.00	32.0		
Block 2	W	Ctr Roof	Min	E->W	Lee	Line	67.00	70.00	31.2		
Block 2	W	Ctr Roof	1	E->W	Lee	Line	67.00	70.00	68.2		
Block 2	E	L Roof	Min	E->W	Wind	Line	53.50	67.00	0.0	31.2	
Block 2	E	L Roof	1	E->W	Wind	Line	53.50	67.00	0.0	22.7	
Block 2	E	Wall	1	E->W	Wind	Line	66.00	69.00	43.1		

WoodWorks® Shearwalls

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WIND SHEAR LOADS (as entered or generated) (continued)

Block 2	E	Wall	Min	E->W	Wind	Line	66.00	69.00	32.0		
Block 2	E	Ctr Roof	1	E->W	Wind	Line	67.00	70.00	22.7		
Block 2	E	Ctr Roof	Min	E->W	Wind	Line	67.00	70.00	31.2		
Block 2	N	Wall	1	S->N	Lee	Line	27.00	52.00	29.2		
Block 2	N	L Gable	Min	S->N	Lee	Line	27.00	39.50	0.0	57.7	
Block 2	N	Wall	Min	S->N	Lee	Line	27.00	52.00	32.0		
Block 2	N	L Gable	1	S->N	Lee	Line	27.00	39.50	0.0	52.6	
Block 2	N	R Gable	1	S->N	Lee	Line	39.50	52.00	52.6	0.0	
Block 2	N	R Gable	Min	S->N	Lee	Line	39.50	52.00	57.7	0.0	
Block 2	N	L Gable	Min	N->S	Wind	Line	27.00	39.50	0.0	57.7	
Block 2	N	Wall	Min	N->S	Wind	Line	27.00	52.00	32.0		
Block 2	N	Wall	1	N->S	Wind	Line	27.00	52.00	43.1		
Block 2	N	L Gable	1	N->S	Wind	Line	27.00	39.50	0.0	82.9	
Block 2	N	R Gable	1	N->S	Wind	Line	39.50	52.00	82.9	0.0	
Block 2	N	R Gable	Min	N->S	Wind	Line	39.50	52.00	57.7	0.0	
Block 3	W	Ctr Roof	1	W->E	Wind	Line	-3.00	-1.00	20.5		
Block 3	W	Ctr Roof	Min	W->E	Wind	Line	-3.00	-1.00	28.3		
Block 3	W	Wall	Min	W->E	Wind	Line	-2.00	0.00	32.0		
Block 3	W	Wall	1	W->E	Wind	Line	-2.00	0.00	43.1		
Block 3	W	R Roof	1	W->E	Wind	Line	-1.00	11.25	20.5	0.0	
Block 3	W	R Roof	Min	W->E	Wind	Line	-1.00	11.25	28.3	0.0	
Block 3	E	Ctr Roof	Min	W->E	Lee	Line	-3.00	-1.00	28.3		
Block 3	E	Ctr Roof	1	W->E	Lee	Line	-3.00	-1.00	61.6		
Block 3	E	Wall	1	W->E	Lee	Line	-2.00	0.00	11.6		
Block 3	E	Wall	Min	W->E	Lee	Line	-2.00	0.00	32.0		
Block 3	E	R Roof	Min	W->E	Lee	Line	-1.00	11.25	28.3	0.0	
Block 3	E	R Roof	1	W->E	Lee	Line	-1.00	11.25	61.6	0.0	
Block 3	W	Ctr Roof	Min	E->W	Lee	Line	-3.00	-1.00	28.3		
Block 3	W	Ctr Roof	1	E->W	Lee	Line	-3.00	-1.00	61.6		
Block 3	W	Wall	1	E->W	Lee	Line	-2.00	0.00	11.6		
Block 3	W	Wall	Min	E->W	Lee	Line	-2.00	0.00	32.0		
Block 3	W	R Roof	Min	E->W	Lee	Line	-1.00	11.25	28.3	0.0	
Block 3	W	R Roof	1	E->W	Lee	Line	-1.00	11.25	61.6	0.0	
Block 3	E	Ctr Roof	Min	E->W	Wind	Line	-3.00	-1.00	28.3		
Block 3	E	Ctr Roof	1	E->W	Wind	Line	-3.00	-1.00	20.5		
Block 3	E	Wall	1	E->W	Wind	Line	-2.00	0.00	43.1		
Block 3	E	Wall	Min	E->W	Wind	Line	-2.00	0.00	32.0		
Block 3	E	R Roof	Min	E->W	Wind	Line	-1.00	11.25	28.3	0.0	
Block 3	E	R Roof	1	E->W	Wind	Line	-1.00	11.25	20.5	0.0	
Block 3	S	Wall	Min	S->N	Wind	Line	27.00	49.50	32.0		
Block 3	S	L Gable	1	S->N	Wind	Line	27.00	38.25	0.0	74.4	
Block 3	S	Wall	1	S->N	Wind	Line	27.00	49.50	43.1		
Block 3	S	L Gable	Min	S->N	Wind	Line	27.00	38.25	0.0	52.0	
Block 3	S	R Gable	1	S->N	Wind	Line	38.25	49.50	74.4	0.0	
Block 3	S	R Gable	Min	S->N	Wind	Line	38.25	49.50	52.0	0.0	
Block 3	S	L Gable	1	N->S	Lee	Line	27.00	38.25	0.0	47.1	
Block 3	S	Wall	1	N->S	Lee	Line	27.00	49.50	29.0		
Block 3	S	L Gable	Min	N->S	Lee	Line	27.00	38.25	0.0	52.0	
Block 3	S	Wall	Min	N->S	Lee	Line	27.00	49.50	32.0		
Block 3	S	R Gable	Min	N->S	Lee	Line	38.25	49.50	52.0	0.0	
Block 3	S	R Gable	1	N->S	Lee	Line	38.25	49.50	47.1	0.0	
<b>Level 1</b>	<b>F</b>	<b>Element</b>	<b>Load Case</b>	<b>Wnd Dir</b>	<b>Surf Dir</b>	<b>Prof</b>	<b>Location [ft]</b>		<b>Magnitude [lbs,plf,psf]</b>		<b>Trib Ht [ft]</b>
<b>Block</b>							<b>Start</b>	<b>End</b>	<b>Start</b>	<b>End</b>	
Block 1	W	Wall	Min	W->E	Wind	Line	0.00	66.00	32.0		
Block 1	W	Wall	1	W->E	Wind	Line	0.00	66.00	41.2		
Block 1	W	Wall	1	W->E	Wind	Line	39.50	66.00	49.7		
Block 1	W	Wall	Min	W->E	Wind	Line	39.50	66.00	38.7		
Block 1	E	Wall	Min	W->E	Lee	Line	0.00	66.00	32.0		
Block 1	E	Wall	1	W->E	Lee	Line	0.00	66.00	34.7		
Block 1	E	Wall	1	W->E	Lee	Line	0.00	66.00	28.8		
Block 1	E	Wall	Min	W->E	Lee	Line	0.00	66.00	38.7		
Block 1	W	Wall	1	E->W	Lee	Line	0.00	66.00	28.8		
Block 1	W	Wall	Min	E->W	Lee	Line	0.00	66.00	32.0		
Block 1	W	Wall	1	E->W	Lee	Line	39.50	66.00	38.7		
Block 1	W	Wall	Min	E->W	Lee	Line	39.50	66.00	34.7		
Block 1	E	Wall	Min	E->W	Wind	Line	0.00	66.00	38.7		
Block 1	E	Wall	1	E->W	Wind	Line	0.00	66.00	49.7		
Block 1	E	Wall	1	E->W	Wind	Line	0.00	66.00	41.2		
Block 1	E	Wall	Min	E->W	Wind	Line	0.00	66.00	32.0		
Block 1	S	Wall	1	S->N	Wind	Line	0.00	27.00	41.2		
Block 1	S	Wall	Min	S->N	Wind	Line	0.00	27.00	32.0		
Block 1	S	Wall	1	S->N	Wind	Line	0.00	28.00	49.7		

## WIND SHEAR LOADS (as entered or generated) (continued)

Block 1	S	Wall	Min	S->N	Wind	Line	0.00	28.00	38.7
Block 1	S	Wall	1	S->N	Wind	Line	49.50	78.50	49.7
Block 1	S	Wall	1	S->N	Wind	Line	49.50	78.50	41.2
Block 1	S	Wall	Min	S->N	Wind	Line	49.50	78.50	32.0
Block 1	S	Wall	Min	S->N	Wind	Line	49.50	78.50	38.7
Block 1	N	Wall	Min	S->N	Lee	Line	0.00	27.00	32.0
Block 1	N	Wall	1	S->N	Lee	Line	0.00	28.00	37.5
Block 1	N	Wall	1	S->N	Lee	Line	0.00	27.00	31.0
Block 1	N	Wall	Min	S->N	Lee	Line	0.00	28.00	38.7
Block 1	N	Wall	1	S->N	Lee	Line	50.50	78.50	37.5
Block 1	N	Wall	Min	S->N	Lee	Line	50.50	78.50	38.7
Block 1	N	Wall	Min	S->N	Lee	Line	52.00	78.50	32.0
Block 1	N	Wall	1	S->N	Lee	Line	52.00	78.50	31.0
Block 1	S	Wall	Min	N->S	Lee	Line	0.00	28.00	38.7
Block 1	S	Wall	Min	N->S	Lee	Line	0.00	27.00	32.0
Block 1	S	Wall	1	N->S	Lee	Line	0.00	28.00	37.5
Block 1	S	Wall	1	N->S	Lee	Line	0.00	27.00	31.0
Block 1	S	Wall	Min	N->S	Lee	Line	49.50	78.50	32.0
Block 1	S	Wall	1	N->S	Lee	Line	49.50	78.50	31.0
Block 1	S	Wall	Min	N->S	Lee	Line	49.50	78.50	38.7
Block 1	S	Wall	1	N->S	Lee	Line	49.50	78.50	37.5
Block 1	N	Wall	Min	N->S	Wind	Line	0.00	27.00	32.0
Block 1	N	Wall	1	N->S	Wind	Line	0.00	28.00	49.7
Block 1	N	Wall	1	N->S	Wind	Line	0.00	27.00	41.2
Block 1	N	Wall	Min	N->S	Wind	Line	0.00	28.00	38.7
Block 1	N	Wall	Min	N->S	Wind	Line	50.50	78.50	38.7
Block 1	N	Wall	1	N->S	Wind	Line	50.50	78.50	49.7
Block 1	N	Wall	1	N->S	Wind	Line	52.00	78.50	41.2
Block 1	N	Wall	Min	N->S	Wind	Line	52.00	78.50	32.0
Block 2	W	Wall	1	W->E	Wind	Line	66.00	69.00	49.7
Block 2	W	Wall	Min	W->E	Wind	Line	66.00	69.00	32.0
Block 2	W	Wall	Min	W->E	Wind	Line	66.00	69.00	38.7
Block 2	W	Wall	1	W->E	Wind	Line	66.00	69.00	41.2
Block 2	E	Wall	Min	W->E	Lee	Line	66.00	69.00	32.0
Block 2	E	Wall	Min	W->E	Lee	Line	66.00	69.00	38.7
Block 2	E	Wall	1	W->E	Lee	Line	66.00	69.00	11.7
Block 2	E	Wall	1	W->E	Lee	Line	66.00	69.00	14.1
Block 2	W	Wall	Min	E->W	Lee	Line	66.00	69.00	32.0
Block 2	W	Wall	1	E->W	Lee	Line	66.00	69.00	14.1
Block 2	W	Wall	Min	E->W	Lee	Line	66.00	69.00	38.7
Block 2	W	Wall	1	E->W	Lee	Line	66.00	69.00	11.7
Block 2	E	Wall	Min	E->W	Wind	Line	66.00	69.00	32.0
Block 2	E	Wall	1	E->W	Wind	Line	66.00	69.00	49.7
Block 2	E	Wall	1	E->W	Wind	Line	66.00	69.00	41.2
Block 2	E	Wall	Min	E->W	Wind	Line	66.00	69.00	38.7
Block 2	N	Wall	Min	S->N	Lee	Line	27.00	52.00	32.0
Block 2	N	Wall	1	S->N	Lee	Line	27.00	52.00	29.2
Block 2	N	Wall	Min	S->N	Lee	Line	28.00	50.50	38.7
Block 2	N	Wall	1	S->N	Lee	Line	28.00	50.50	35.2
Block 2	N	Wall	Min	N->S	Wind	Line	27.00	52.00	32.0
Block 2	N	Wall	1	N->S	Wind	Line	27.00	52.00	41.2
Block 2	N	Wall	Min	N->S	Wind	Line	28.00	50.50	38.7
Block 2	N	Wall	1	N->S	Wind	Line	28.00	50.50	49.7
Block 3	W	Wall	Min	W->E	Wind	Line	-2.00	0.00	32.0
Block 3	W	Wall	Min	W->E	Wind	Line	-2.00	0.00	38.7
Block 3	W	Wall	1	W->E	Wind	Line	-2.00	0.00	49.7
Block 3	W	Wall	1	W->E	Wind	Line	-2.00	0.00	41.2
Block 3	E	Wall	Min	W->E	Lee	Line	-2.00	0.00	38.7
Block 3	E	Wall	Min	W->E	Lee	Line	-2.00	0.00	32.0
Block 3	E	Wall	1	W->E	Lee	Line	-2.00	0.00	14.0
Block 3	E	Wall	1	W->E	Lee	Line	-2.00	0.00	11.6
Block 3	W	Wall	Min	E->W	Lee	Line	-2.00	0.00	38.7
Block 3	W	Wall	1	E->W	Lee	Line	-2.00	0.00	14.0
Block 3	W	Wall	1	E->W	Lee	Line	-2.00	0.00	11.6
Block 3	W	Wall	Min	E->W	Lee	Line	-2.00	0.00	32.0
Block 3	E	Wall	Min	E->W	Wind	Line	-2.00	0.00	32.0
Block 3	E	Wall	Min	E->W	Wind	Line	-2.00	0.00	38.7
Block 3	E	Wall	1	E->W	Wind	Line	-2.00	0.00	49.7
Block 3	E	Wall	1	E->W	Wind	Line	-2.00	0.00	41.2
Block 3	S	Wall	1	S->N	Wind	Line	27.00	49.50	41.2
Block 3	S	Wall	Min	S->N	Wind	Line	27.00	49.50	32.0
Block 3	S	Wall	1	S->N	Wind	Line	28.00	49.50	49.7

## WIND SHEAR LOADS (as entered or generated) (continued)

Block 3	S	Wall	Min	S->N	Wind	Line	28.00	49.50	38.7	
Block 3	S	Wall	Min	N->S	Lee	Line	27.00	49.50	32.0	
Block 3	S	Wall	1	N->S	Lee	Line	27.00	49.50	29.0	
Block 3	S	Wall	Min	N->S	Lee	Line	28.00	49.50	38.7	
Block 3	S	Wall	1	N->S	Lee	Line	28.00	49.50	35.1	
Block 4	W	Wall	Min	W->E	Wind	Line	0.00	39.50	38.7	
Block 4	W	L Gable	Min	W->E	Wind	Line	0.00	19.75	0.0	91.2
Block 4	W	Wall	1	W->E	Wind	Line	0.00	39.50	49.7	
Block 4	W	L Gable	1	W->E	Wind	Line	0.00	19.75	0.0	120.1
Block 4	W	R Gable	1	W->E	Wind	Line	19.75	39.50	120.1	0.0
Block 4	W	R Gable	Min	W->E	Wind	Line	19.75	39.50	91.2	0.0
Block 4	W	Wall	Min	E->W	Lee	Line	0.00	39.50	38.7	
Block 4	W	L Gable	Min	E->W	Lee	Line	0.00	19.75	0.0	91.2
Block 4	W	Wall	1	E->W	Lee	Line	0.00	39.50	32.4	
Block 4	W	L Gable	1	E->W	Lee	Line	0.00	19.75	0.0	76.5
Block 4	W	R Gable	1	E->W	Lee	Line	19.75	39.50	76.5	0.0
Block 4	W	R Gable	Min	E->W	Lee	Line	19.75	39.50	91.2	0.0
Block 4	S	Roof	Min	S->N	Wind	Line	-18.00	0.00	47.9	
Block 4	S	Roof	1	S->N	Wind	Line	-18.00	0.00	36.0	
Block 4	S	Wall	1	S->N	Wind	Line	-17.00	0.00	49.7	
Block 4	S	Wall	Min	S->N	Wind	Line	-17.00	0.00	38.7	
Block 4	N	Roof	1	S->N	Lee	Line	-18.00	0.00	96.4	
Block 4	N	Roof	Min	S->N	Lee	Line	-18.00	0.00	47.9	
Block 4	N	Wall	1	S->N	Lee	Line	-17.00	0.00	18.4	
Block 4	N	Wall	Min	S->N	Lee	Line	-17.00	0.00	38.7	
Block 4	S	Roof	Min	N->S	Lee	Line	-18.00	0.00	47.9	
Block 4	S	Roof	1	N->S	Lee	Line	-18.00	0.00	96.4	
Block 4	S	Wall	1	N->S	Lee	Line	-17.00	0.00	18.4	
Block 4	S	Wall	Min	N->S	Lee	Line	-17.00	0.00	38.7	
Block 4	N	Roof	Min	N->S	Wind	Line	-18.00	0.00	47.9	
Block 4	N	Roof	1	N->S	Wind	Line	-18.00	0.00	36.0	
Block 4	N	Wall	1	N->S	Wind	Line	-17.00	0.00	49.7	
Block 4	N	Wall	Min	N->S	Wind	Line	-17.00	0.00	38.7	

## Legend:

Block - Block used in load generation

Accum. = loads from one block combined with another

Manual = user-entered loads (so no block)

F - Building face (north, south, east or west)

Element - Building surface on which loads generated or entered

Load Case - One of the following:

ASCE 7 All Heights: Case 1 or 2 from Fig 27.4-8 or minimum loads from 27.1.5

ASCE 7 Low-rise: Reference corner and Case A or B from Fig 28.4-1 or minimum loads from 28.4.4

Wind Dir - Direction of wind for loads with positive magnitude, also direction of MWFRS.

Surf Dir - Windward or leeward side of the building for loads in given direction

Prof - Profile (distribution)

Location - Start and end points on building element

Magnitude - Start = intensity of uniform and point loads or leftmost intensity of trapezoidal load, End = right intensity of trap load

Trib Ht - Tributary height of area loads only

## Notes:

All loads entered by the user or generated by program are specified (unfactored) loads. The program applies a load factor of 0.60 to wind loads before distributing them to the shearlines.

## WIND C&amp;C LOADS

Block	Building Face	Wind Direction	Level	Magnitude [psf]	
				Interior	End Zone
Block 1	West	Windward	2	23.6	29.1
Block 1	East	Leeward	2	23.6	29.1
Block 1	West	Leeward	2	23.6	29.1
Block 1	East	Windward	2	23.6	29.1
Block 1	South	Windward	2	23.6	29.1
Block 1	North	Leeward	2	23.6	29.1
Block 1	South	Leeward	2	23.6	29.1
Block 1	North	Windward	2	23.6	29.1
Block 2	West	Windward	2	23.6	29.1
Block 2	East	Leeward	2	23.6	29.1
Block 2	West	Leeward	2	23.6	29.1
Block 2	East	Windward	2	23.6	29.1
Block 2	North	Leeward	2	23.6	29.1
Block 2	North	Windward	2	23.6	29.1
Block 3	West	Windward	2	23.6	29.1
Block 3	East	Leeward	2	23.6	29.1
Block 3	West	Leeward	2	23.6	29.1
Block 3	East	Windward	2	23.6	29.1
Block 3	South	Windward	2	23.6	29.1
Block 3	South	Leeward	2	23.6	29.1
Block 1	West	Windward	1	23.6	29.1
Block 1	East	Leeward	1	23.6	29.1
Block 1	West	Leeward	1	23.6	29.1
Block 1	East	Windward	1	23.6	29.1
Block 1	South	Windward	1	23.6	29.1
Block 1	North	Leeward	1	23.6	29.1
Block 1	South	Leeward	1	23.6	29.1
Block 1	North	Windward	1	23.6	29.1
Block 2	West	Windward	1	23.6	29.1
Block 2	East	Leeward	1	23.6	29.1
Block 2	West	Leeward	1	23.6	29.1
Block 2	East	Windward	1	23.6	29.1
Block 2	North	Leeward	1	23.6	29.1
Block 2	North	Windward	1	23.6	29.1
Block 3	West	Windward	1	23.6	29.1
Block 3	East	Leeward	1	23.6	29.1
Block 3	West	Leeward	1	23.6	29.1
Block 3	East	Windward	1	23.6	29.1
Block 3	South	Windward	1	23.6	29.1
Block 3	South	Leeward	1	23.6	29.1
Block 4	West	Windward	1	23.6	29.1
Block 4	West	Leeward	1	23.6	29.1
Block 4	South	Windward	1	23.6	29.1
Block 4	North	Leeward	1	23.6	29.1
Block 4	South	Leeward	1	23.6	29.1
Block 4	North	Windward	1	23.6	29.1

## BUILDING MASSES

Level 2		Block	Wall Line	Profile	Location [ft]		Magnitude [lbs,plf,psf]		Trib Width [ft]
Force Dir	Building Element				Start	End	Start	End	
E-W	Roof	Block 1	2	Line	-1.00	67.00	402.5	402.5	
E-W	Roof	Block 1	8	Line	-1.00	67.00	402.5	402.5	
E-W	Roof	Block 2		Line	66.00	70.00	135.0	135.0	
E-W	Roof	Block 2	7	Line	66.00	70.00	135.0	135.0	
E-W	Roof	Block 3		Line	-3.00	0.00	122.5	122.5	
E-W	Roof	Block 3	5	Line	-3.00	0.00	122.5	122.5	
E-W	R Gable	Block 1	2	Line	0.00	33.00	190.5	0.0	
E-W	L Gable	Block 1	2	Line	33.00	66.00	0.0	190.5	
E-W	L Gable	Block 1	8	Line	0.00	33.00	190.5	0.0	
E-W	R Gable	Block 1	8	Line	33.00	66.00	0.0	190.5	
N-S	Roof	Block 1	B	Line	-1.00	79.50	340.0	340.0	
N-S	Roof	Block 1	E	Line	-1.00	79.50	340.0	340.0	
N-S	Roof	Block 2	E	Line	26.00	53.00	15.0	15.0	
N-S	Roof	Block 2	F	Line	26.00	53.00	25.0	25.0	
N-S	Roof	Block 3	A	Line	26.00	50.50	20.0	20.0	
N-S	Roof	Block 3	B	Line	26.00	50.50	10.0	10.0	
N-S	R Gable	Block 2	F	Line	27.00	39.50	72.2	0.0	
N-S	L Gable	Block 2	F	Line	39.50	52.00	0.0	72.2	
N-S	L Gable	Block 3	A	Line	27.00	38.25	65.0	0.0	
N-S	R Gable	Block 3	A	Line	38.25	49.50	0.0	65.0	
Both	Wall 2-1	n/a	2	Line	0.00	39.50	40.0	40.0	
Both	Wall 2-2	n/a	2	Line	39.50	66.00	40.0	40.0	
Both	Wall 3-1	n/a		Line	-2.00	0.00	40.0	40.0	
Both	Wall 3-2	n/a		Line	66.00	69.00	40.0	40.0	
Both	Wall 5-1	n/a	5	Line	-2.00	0.00	40.0	40.0	
Both	Wall 7-1	n/a	7	Line	66.00	69.00	40.0	40.0	
Both	Wall 8-1	n/a	8	Line	0.00	66.00	40.0	40.0	
Both	Wall A-1	n/a	A	Line	27.00	49.50	40.0	40.0	
Both	Wall B-1	n/a	B	Line	0.00	27.00	40.0	40.0	
Both	Wall B-2	n/a	B	Line	49.50	78.50	40.0	40.0	
Both	Wall C-1	n/a	C	Line	0.00	20.50	24.0	24.0	
Both	Wall C-2	n/a	C	Line	24.50	34.50	24.0	24.0	
Both	Wall C-4	n/a	C	Line	58.00	77.50	24.0	24.0	
Both	Wall C-3	n/a		Line	44.00	54.00	24.0	24.0	
Both	Wall E-1	n/a	E	Line	0.00	27.00	40.0	40.0	
Both	Wall E-2	n/a	E	Line	52.00	78.50	40.0	40.0	
Both	Wall F-1	n/a	F	Line	27.00	52.00	40.0	40.0	
Level 1		Block	Wall Line	Profile	Location [ft]		Magnitude [lbs,plf,psf]		Trib Width [ft]
Force Dir	Building Element				Start	End	Start	End	
E-W	Roof	Block 4	1	Line	-1.00	40.50	95.0	95.0	
E-W	Roof	Block 4	2	Line	-1.00	40.50	85.0	85.0	
E-W	R Gable	Block 4	1	Line	0.00	19.75	114.0	0.0	
E-W	L Gable	Block 4	1	Line	19.75	39.50	0.0	114.0	
E-W	Floor F2	n/a	1	Line	0.00	39.50	477.5	477.5	
Both	Wall 2-1	n/a	2	Line	0.00	39.50	40.0	40.0	
Both	Wall 2-2	n/a	2	Line	39.50	66.00	40.0	40.0	
E-W	Floor F3	n/a	2	Line	39.50	66.00	392.5	392.5	
Both	Wall 3-1	n/a		Line	-2.00	0.00	40.0	40.0	
Both	Wall 3-2	n/a		Line	66.00	69.00	40.0	40.0	
E-W	Floor F1	n/a	4	Line	-2.00	0.00	107.5	107.5	
E-W	Floor F4	n/a	4	Line	66.00	69.00	112.5	112.5	
Both	Wall 5-1	n/a	5	Line	-2.00	0.00	40.0	40.0	
E-W	Floor F1	n/a	5	Line	-2.00	0.00	107.5	107.5	
E-W	Floor F4	n/a	6	Line	66.00	69.00	112.5	112.5	
Both	Wall 7-1	n/a	7	Line	66.00	69.00	40.0	40.0	
E-W	Floor F2	n/a	8	Line	0.00	39.50	477.5	477.5	



## WoodWorks® Shearwalls

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## BUILDING MASSES (continued)

Both	Wall 8-1	n/a	8	Line	0.00	66.00	40.0	40.0
E-W	Floor F3	n/a	8	Line	39.50	66.00	392.5	392.5
N-S	Roof	Block 4	B	Line	-18.00	0.00	207.5	207.5
N-S	Roof	Block 4	D	Line	-18.00	0.00	207.5	207.5
Both	Wall A-1	n/a	A	Line	27.00	49.50	40.0	40.0
N-S	Floor F3	n/a	A	Line	28.00	49.50	355.0	355.0
N-S	Floor F1	n/a	B	Line	-17.00	0.00	197.5	197.5
N-S	Floor F2	n/a	B	Line	0.00	28.00	330.0	330.0
Both	Wall B-1	n/a	B	Line	0.00	27.00	40.0	40.0
Both	Wall B-2	n/a	B	Line	49.50	78.50	40.0	40.0
N-S	Floor F4	n/a	B	Line	49.50	50.50	345.0	345.0
N-S	Floor F5	n/a	B	Line	50.50	78.50	330.0	330.0
Both	Wall C-1	n/a	C	Line	0.00	20.50	24.0	24.0
Both	Wall C-2	n/a	C	Line	24.50	34.50	24.0	24.0
Both	Wall C-4	n/a	C	Line	58.00	77.50	24.0	24.0
Both	Wall C-3	n/a		Line	44.00	54.00	24.0	24.0
N-S	Floor F1	n/a	D	Line	-17.00	0.00	197.5	197.5
Both	Wall E-1	n/a	E	Line	0.00	27.00	40.0	40.0
N-S	Floor F2	n/a	E	Line	0.00	28.00	330.0	330.0
N-S	Floor F5	n/a	E	Line	50.50	78.50	330.0	330.0
Both	Wall E-2	n/a	E	Line	52.00	78.50	40.0	40.0
Both	Wall F-1	n/a	F	Line	27.00	52.00	40.0	40.0
N-S	Floor F3	n/a	F	Line	28.00	49.50	355.0	355.0
N-S	Floor F4	n/a	F	Line	49.50	50.50	345.0	345.0
Both	Wall 1-1	n/a	1	Line	0.00	39.50	40.0	40.0
Both	Wall 2-2	n/a	2	Line	39.50	66.00	40.0	40.0
Both	Wall 2-1	n/a		Line	0.00	34.50	24.0	24.0
Both	Wall 3-1	n/a	3	Line	0.50	31.00	24.0	24.0
Both	Wall 4-1	n/a	4	Line	-2.00	0.00	40.0	40.0
Both	Wall 4-2	n/a	4	Line	66.00	69.00	40.0	40.0
Both	Wall 5-1	n/a	5	Line	-2.00	0.00	40.0	40.0
Both	Wall 6-1	n/a	6	Line	66.00	69.00	40.0	40.0
Both	Wall 7-1	n/a	7	Line	0.00	31.50	24.0	24.0
Both	Wall 8-1	n/a	8	Line	0.00	66.00	40.0	40.0
Both	Wall A-1	n/a	A	Line	28.00	49.50	40.0	40.0
Both	Wall B-1	n/a	B	Line	-17.00	0.00	40.0	40.0
Both	Wall B-2	n/a	B	Line	0.00	28.00	40.0	40.0
Both	Wall B-3	n/a	B	Line	37.00	41.00	24.0	24.0
Both	Wall B-4	n/a	B	Line	49.50	78.50	40.0	40.0
Both	Wall C-1	n/a	C	Line	4.50	18.00	24.0	24.0
Both	Wall C-2	n/a	C	Line	24.50	34.50	24.0	24.0
Both	Wall C-4	n/a	C	Line	60.00	73.50	24.0	24.0
Both	Wall C-3	n/a		Line	43.50	54.00	24.0	24.0
Both	Wall D-1	n/a	D	Line	-17.00	0.00	40.0	40.0
Both	Wall E-1	n/a	E	Line	0.00	28.00	40.0	40.0
Both	Wall E-2	n/a	E	Line	50.50	78.50	40.0	40.0
Both	Wall F-1	n/a	F	Line	28.00	50.50	40.0	40.0

## Legend:

Force Dir - Direction in which the mass is used for seismic load generation, E-W, N-S, or Both

Building element - Roof, gable end, wall or floor area used to generate mass, wall line for user-applied masses, Floor F# - refer to Plan View for floor area number

Wall line - Shearline that equivalent line load is assigned to

Location - Start and end points of equivalent line load on wall line

Trib Width. - Tributary width; for user applied area loads only

## SEISMIC LOADS

Level 2					
Force Dir	Profile	Location [ft]		Mag [lbs,plf,psf]	
		Start	End	Start	End
E-W	Line	-3.00	-2.00	99.0	99.0
E-W	Point	-2.00	-2.00	659	659
E-W	Line	-2.00	-1.00	131.3	131.3
E-W	Line	-1.00	0.00	456.6	456.6
E-W	Point	0.00	0.00	905	905
E-W	Line	0.00	33.00	357.6	511.6
E-W	Point	31.00	31.00	485	485
E-W	Point	31.50	31.50	97	97
E-W	Line	33.00	39.50	511.6	481.3
E-W	Line	39.50	66.00	481.3	357.6
E-W	Point	66.00	66.00	865	865
E-W	Line	66.00	67.00	466.7	466.7
E-W	Line	67.00	69.00	141.4	141.4
E-W	Point	69.00	69.00	769	769
E-W	Line	69.00	70.00	109.1	109.1
N-S	Line	-1.00	0.00	274.8	274.8
N-S	Point	0.00	0.00	3608	3608
N-S	Line	0.00	20.50	316.8	316.8
N-S	Line	20.50	24.50	307.1	307.1
N-S	Line	24.50	26.00	316.8	316.8
N-S	Line	26.00	27.00	345.1	345.1
N-S	Point	27.00	27.00	81	81
N-S	Line	27.00	34.50	345.1	380.1
N-S	Line	34.50	38.25	370.4	387.9
N-S	Line	38.25	39.50	387.9	387.9
N-S	Line	39.50	44.00	387.9	366.9
N-S	Line	44.00	49.50	376.6	350.9
N-S	Point	49.50	49.50	32	32
N-S	Line	49.50	50.50	350.9	348.6
N-S	Line	50.50	52.00	336.5	333.0
N-S	Point	52.00	52.00	48	48
N-S	Line	52.00	53.00	333.0	333.0
N-S	Line	53.00	54.00	316.8	316.8
N-S	Line	54.00	58.00	307.1	307.1
N-S	Line	58.00	77.50	316.8	316.8
N-S	Line	77.50	78.50	307.1	307.1
N-S	Point	78.50	78.50	3608	3608
N-S	Line	78.50	79.50	274.8	274.8
Level 1					
Force Dir	Profile	Location [ft]		Mag [lbs,plf,psf]	
		Start	End	Start	End
E-W	Point	-2.00	-2.00	373	373
E-W	Line	-2.00	-1.00	79.5	79.5
E-W	Line	-1.00	0.00	117.7	117.7
E-W	Point	0.00	0.00	1123	1123
E-W	Line	0.00	0.50	284.8	285.4
E-W	Line	0.50	19.75	290.5	314.1
E-W	Line	19.75	31.00	314.1	300.3
E-W	Point	31.00	31.00	443	443
E-W	Line	31.00	31.50	295.2	294.6
E-W	Point	31.50	31.50	104	104
E-W	Line	31.50	34.50	289.5	285.8
E-W	Line	34.50	39.50	280.7	274.6
E-W	Point	39.50	39.50	144	144
E-W	Line	39.50	40.50	238.6	238.6
E-W	Line	40.50	66.00	200.4	200.4
E-W	Point	66.00	66.00	929	929
E-W	Line	66.00	69.00	81.6	81.6
E-W	Point	69.00	69.00	403	403
N-S	Line	-18.00	-17.00	88.0	88.0
N-S	Point	-17.00	-17.00	813	813
N-S	Line	-17.00	0.00	188.7	188.7
N-S	Point	0.00	0.00	785	785
N-S	Line	0.00	4.50	179.0	179.0
N-S	Point	0.50	0.50	176	176
N-S	Line	4.50	18.00	184.1	184.1

**SEISMIC LOADS (continued)**

N-S	Line	18.00	20.50	179.0	179.0
N-S	Line	20.50	24.50	173.9	173.9
N-S	Line	24.50	27.00	184.1	184.1
N-S	Point	26.50	26.50	155	155
N-S	Point	27.00	27.00	42	42
N-S	Line	27.00	28.00	184.1	184.1
N-S	Point	28.00	28.00	42	42
N-S	Line	28.00	34.50	194.7	194.7
N-S	Line	34.50	37.00	184.5	184.5
N-S	Line	37.00	41.00	189.6	189.6
N-S	Line	41.00	43.50	184.5	184.5
N-S	Line	43.50	44.00	189.6	189.6
N-S	Line	44.00	49.50	194.7	194.7
N-S	Point	49.50	49.50	34	34
N-S	Line	49.50	50.50	190.4	190.4
N-S	Point	50.50	50.50	25	25
N-S	Line	50.50	52.00	184.1	184.1
N-S	Point	52.00	52.00	186	186
N-S	Line	52.00	54.00	184.1	184.1
N-S	Line	54.00	58.00	173.9	173.9
N-S	Line	58.00	60.00	179.0	179.0
N-S	Line	60.00	73.50	184.1	184.1
N-S	Line	73.50	77.50	179.0	179.0
N-S	Line	77.50	78.50	173.9	173.9
N-S	Point	78.50	78.50	1120	1120

**Legend:**

*Loads in table can be accumulation of loads from several building masses, so they do not correspond with a particular building element.*

*Location - Start and end of load in direction perpendicular to seismic force direction*

**Notes:**

All loads entered by the user or generated by program are specified (unfactored) loads. The program applies a load factor of 0.70 and redundancy factor to seismic loads before distributing them to the shearlines.

## Design Summary

### SHEARWALL DESIGN

**Wind Shear Loads, Flexible Diaphragm**

All shearwalls have sufficient design capacity.

**Wind Shear Loads, Rigid Diaphragm**

All shearwalls have sufficient design capacity.

**Components and Cladding Wind Loads, Out-of-plane Sheathing**

All shearwalls have sufficient design capacity.

**Components and Cladding Wind Loads, Nail Withdrawal**

All shearwalls have sufficient design capacity.

**Seismic Loads, Flexible Diaphragm**

The following under-capacity shearlines were found:

Level 1: 2-2, B-3, 2-1, 8-1

**Seismic Loads, Rigid Diaphragm**

The following under-capacity shearlines were found:

Level 1: B-3

Level 2: 8-1

### HOLDDOWN DESIGN

**Wind Loads, Flexible Diaphragm**

Under-capacity hold-downs were found on the following walls:

Level 1: B-3, 8-1

Level 2: 2-1, 8-1

**Wind Loads, Rigid Diaphragm**

Under-capacity hold-downs were found on the following walls:

Level 1: 8-1

Level 2: 2-1, 8-1

**Seismic Loads, Flexible Diaphragm**

Under-capacity hold-downs were found on the following walls:

Level 1: B-3, 8-1

Level 2: 2-1, 2-2, 8-1

**Seismic Loads, Rigid Diaphragm**

Under-capacity hold-downs were found on the following walls:

Level 1: B-3, C-2, C-3, 8-1

Level 2: 2-1, 2-2, 8-1

*This Design Summary does not include failures that occur due to excessive story drift from ASCE 7 CC1.2 (wind) or 12.12 (seismic).*

*Refer to Story Drift table in this report to verify this design criterion.*

*Refer to the Deflection table for possible issues regarding fastener slippage (SDPWS Table C4.2.2D).*

**Flexible Diaphragm Wind Design**  
**ASCE 7 Directional (All Heights) Loads**

**SHEAR RESULTS**

N-S Shearlines	W Gp	For Dir	ASD Shear Force [plf]			Asp-Cub		Allowable Shear [plf]				V [lbs]	Resp. Ratio	
			v	vmax	V [lbs]	Int	Ext	Int	Ext	Co	C			Cmb
<b>Line 1</b>														
<b>Level 1</b>														
Ln1, Lev1	-	Both	-	-	1119	-	-	-	-	-	-	-	8057	-
Wall 1-1	5	Both	-	-	1119	1.0	1.0	125	495	-	A	-	8057	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Seg. 2	-	Both	86.1	-	517	1.0	1.0	125	495	-	-	620	3719	0.14
Seg. 3	-	Both	86.1	-	603	1.0	1.0	125	495	-	-	620	4338	0.14
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
<b>Line 2</b>														
<b>Level 2</b>														
Ln2, Lev2	-	S->N	-	-	8240	-	-	-	-	-	-	-	24335	-
	-	N->S	-	-	8258	-	-	-	-	-	-	-	24335	-
Wall 2-1	1	S->N	-	-	4630	1.0	1.0	125	339	-	A	-	13674	-
	1	N->S	-	-	4640	1.0	1.0	125	339	-	A	-	13674	-
Seg. 1	-	S->N	156.9	-	1099	1.0	1.0	125	339	-	-	464	3245	0.34
	-	N->S	157.3	-	1101	1.0	1.0	125	339	-	-	464	3245	0.34
Seg. 2	-	S->N	156.9	-	1648	1.0	1.0	125	339	-	-	464	4867	0.34
	-	N->S	157.3	-	1652	1.0	1.0	125	339	-	-	464	4867	0.34
Seg. 3	-	S->N	156.9	-	1883	1.0	1.0	125	339	-	-	464	5562	0.34
	-	N->S	157.3	-	1888	1.0	1.0	125	339	-	-	464	5562	0.34
Wall 2-2	1	S->N	-	-	3610	1.0	1.0	125	339	-	A	-	10661	-
	1	N->S	-	-	3618	1.0	1.0	125	339	-	A	-	10661	-
Seg. 1	-	S->N	156.9	-	2511	1.0	1.0	125	339	-	-	464	7416	0.34
	-	N->S	157.3	-	2517	1.0	1.0	125	339	-	-	464	7416	0.34
Seg. 2	-	S->N	156.9	-	1099	1.0	1.0	125	339	-	-	464	3245	0.34
	-	N->S	157.3	-	1101	1.0	1.0	125	339	-	-	464	3245	0.34
<b>Level 1</b>														
Ln2, Lev1	-	S->N	-	-	10527	-	-	-	-	-	-	-	25262	-
	-	N->S	-	-	10545	-	-	-	-	-	-	-	25262	-
Wall 2-1	1	S->N	193.2	-	6664	1.0	1.0	125	339	-	A	464	15991	0.42
	1	N->S	193.5	-	6676	1.0	1.0	125	339	-	A	464	15991	0.42
Wall 2-2	1	S->N	-	-	3863	1.0	1.0	125	339	-	A	-	9270	-
	1	N->S	-	-	3870	1.0	1.0	125	339	-	A	-	9270	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	339	-	-	464	-	-
Seg. 2	-	S->N	193.2	-	3863	1.0	1.0	125	339	-	-	464	9270	0.42
	-	N->S	193.5	-	3870	1.0	1.0	125	339	-	-	464	9270	0.42
<b>Line 3</b>														
Ln3, Lev1	-	S->N	-	-	2445	-	-	-	-	-	-	-	23271	-
	-	N->S	-	-	2443	-	-	-	-	-	-	-	23271	-
Wall 3-1	6	S->N	80.2	-	2445	1.0	1.0	125	638	-	A	763	23271	0.11
	6	N->S	80.1	-	2443	1.0	1.0	125	638	-	A	763	23271	0.10
<b>Line 7</b>														
Ln7, Lev1	-	S->N	-	-	2458	-	-	-	-	-	-	-	24034	-
	-	N->S	-	-	2460	-	-	-	-	-	-	-	24034	-
Wall 7-1	6	S->N	78.0	-	2458	1.0	1.0	125	638	-	A	763	24034	0.10
	6	N->S	78.1	-	2460	1.0	1.0	125	638	-	A	763	24034	0.10
<b>Line 8</b>														
<b>Level 2</b>														
Ln8, Lev2	-	S->N	-	-	8229	-	-	-	-	-	-	-	22249	-
	-	N->S	-	-	8255	-	-	-	-	-	-	-	22249	-
Wall 8-1	1	S->N	-	-	8229	1.0	1.0	125	339	-	A	-	22249	-
	1	N->S	-	-	8255	1.0	1.0	125	339	-	A	-	22249	-
Seg. 1	-	S->N	171.4	-	1114	1.0	1.0	125	339	-	-	464	3013	0.37
	-	N->S	172.0	-	1118	1.0	1.0	125	339	-	-	464	3013	0.37
Seg. 2	-	S->N	171.4	-	2057	1.0	1.0	125	339	-	-	464	5562	0.37
	-	N->S	172.0	-	2064	1.0	1.0	125	339	-	-	464	5562	0.37
Seg. 3	-	S->N	171.4	-	1886	1.0	1.0	125	339	-	-	464	5099	0.37
	-	N->S	172.0	-	1892	1.0	1.0	125	339	-	-	464	5099	0.37
Seg. 4	-	S->N	171.4	-	1886	1.0	1.0	125	339	-	-	464	5099	0.37
	-	N->S	172.0	-	1892	1.0	1.0	125	339	-	-	464	5099	0.37
Seg. 5	-	S->N	171.4	-	1286	1.0	1.0	125	339	-	-	464	3476	0.37
	-	N->S	172.0	-	1290	1.0	1.0	125	339	-	-	464	3476	0.37
<b>Level 1</b>														
Ln8, Lev1	-	S->N	-	-	9497	-	-	-	-	-	-	-	25494	-
	-	N->S	-	-	9523	-	-	-	-	-	-	-	25494	-
Wall 8-1	1	S->N	-	-	9497	1.0	1.0	125	339	-	A	-	25494	-
	1	N->S	-	-	9523	1.0	1.0	125	339	-	A	-	25494	-
Seg. 1	-	S->N	172.7	-	3799	1.0	1.0	125	339	-	-	464	10197	0.37

## WoodWorks® Shearwalls

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## SHEAR RESULTS (flexible wind design, continued)

E-W Shearlines	W Gp	For Dir	ASD Shear Force [plf]			Asp-Cub		Allowable Shear [plf]				Resp. Ratio		
			v	vmax	V [lbs]	Int	Ext	Int	Ext	Co	C		Cmb	V [lbs]
-	-	N->S	173.1	-	3809	1.0	1.0	125	339	-	-	464	10197	0.37
Seg. 2	-	S->N	172.7	-	1899	1.0	1.0	125	339	-	-	464	5099	0.37
-	-	N->S	173.1	-	1905	1.0	1.0	125	339	-	-	464	5099	0.37
Seg. 3	-	S->N	172.7	-	3799	1.0	1.0	125	339	-	-	464	10197	0.37
-	-	N->S	173.1	-	3809	1.0	1.0	125	339	-	-	464	10197	0.37
<b>Line B</b>														
<b>Level 2</b>														
LnB, Lev2	-	Both	-	-	2176	-	-	-	-	-	-	-	18903	-
Wall B-1	5	Both	-	-	963	1.0	1.0	125	495	-	A	-	8367	-
Seg. 1	-	Both	71.4	-	285	1.0	1.0	125	495	-	-	620	2479	0.12
Seg. 2	-	Both	71.4	-	357	1.0	1.0	125	495	-	-	620	3099	0.12
Seg. 3	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Seg. 4	-	Both	71.4	-	321	1.0	1.0	125	495	-	-	620	2789	0.12
Wall B-2	5	Both	-	-	1213	1.0	1.0	125	495	-	A	-	10536	-
Seg. 1	-	Both	71.4	-	321	1.0	1.0	125	495	-	-	620	2789	0.12
Seg. 2	-	Both	71.4	-	285	1.0	1.0	125	495	-	-	620	2479	0.12
Seg. 3	-	Both	71.4	-	321	1.0	1.0	125	495	-	-	620	2789	0.12
Seg. 4	-	Both	71.4	-	285	1.0	1.0	125	495	-	-	620	2479	0.12
<b>Level 1</b>														
LnB, Lev1	-	W->E	-	-	4289	-	-	-	-	-	-	-	5104	-
-	-	E->W	-	-	4074	-	-	-	-	-	-	-	5104	-
Wall B-1	4	Both	0.0	-	0	1.0	1.0	0	495	-	G	-	-	-
Wall B-2	2	Both	0.0	-	0	1.0	1.0	0	638	-	G	-	-	-
Wall B-3	3	W->E	1072.2	-	4289	1.0	1.0	638	638	-	A	1276	5104	0.84
-	3	E->W	1018.6	-	4074	1.0	1.0	638	638	-	A	1276	5104	0.80
Wall B-4	2	Both	0.0	-	0	1.0	1.0	0	638	-	G	-	-	-
<b>Line C</b>														
<b>Level 2</b>														
LnC, Lev2	-	Both	-	-	6312	-	-	-	-	-	-	-	38618	-
Wall C-1	5	Both	101.3	-	2077	1.0	1.0	125	495	-	A	620	12705	0.16
Wall C-2	5	Both	101.3	-	1013	1.0	1.0	125	495	-	A	620	6198	0.16
Wall C-3	6	Both	124.7	-	1247	1.0	1.0	125	638	-	A	763	7630	0.16
Wall C-4	5	Both	101.3	-	1975	1.0	1.0	125	495	-	A	620	12085	0.16
<b>Level 1</b>														
LnC, Lev1	-	W->E	-	-	8991	-	-	-	-	-	-	-	36242	-
-	-	E->W	-	-	8655	-	-	-	-	-	-	-	36242	-
Wall C-1	6	W->E	189.3	-	2555	1.0	1.0	125	638	-	A	763	10300	0.25
-	6	E->W	182.2	-	2460	1.0	1.0	125	638	-	A	763	10300	0.24
Wall C-2	6	W->E	189.3	-	1893	1.0	1.0	125	638	-	A	763	7630	0.25
-	6	E->W	182.2	-	1822	1.0	1.0	125	638	-	A	763	7630	0.24
Wall C-3	6	W->E	189.3	-	1987	1.0	1.0	125	638	-	A	763	8011	0.25
-	6	E->W	182.2	-	1913	1.0	1.0	125	638	-	A	763	8011	0.24
Wall C-4	6	W->E	189.3	-	2555	1.0	1.0	125	638	-	A	763	10300	0.25
-	6	E->W	182.2	-	2460	1.0	1.0	125	638	-	A	763	10300	0.24
<b>Line D</b>														
LnD, Lev1	-	W->E	-	-	1659	-	-	-	-	-	-	-	10536	-
-	-	E->W	-	-	1638	-	-	-	-	-	-	-	10536	-
Wall D-1	5	W->E	97.6	-	1659	1.0	1.0	125	495	-	A	620	10536	0.16
-	5	E->W	96.3	-	1638	1.0	1.0	125	495	-	A	620	10536	0.16
<b>Line E</b>														
<b>Level 2</b>														
LnE, Lev2	-	Both	-	-	2696	-	-	-	-	-	-	-	15494	-
Wall E-1	5	Both	-	-	1294	1.0	1.0	125	495	-	A	-	7437	-
Seg. 1	-	Both	107.9	-	431	1.0	1.0	125	495	-	-	620	2479	0.17
Seg. 2	-	Both	107.9	-	431	1.0	1.0	125	495	-	-	620	2479	0.17
Seg. 3	-	Both	107.9	-	431	1.0	1.0	125	495	-	-	620	2479	0.17
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Wall E-2	5	Both	-	-	1402	1.0	1.0	125	495	-	A	-	8057	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Seg. 2	-	Both	107.9	-	431	1.0	1.0	125	495	-	-	620	2479	0.17
Seg. 3	-	Both	107.9	-	431	1.0	1.0	125	495	-	-	620	2479	0.17
Seg. 4	-	Both	107.9	-	539	1.0	1.0	125	495	-	-	620	3099	0.17
<b>Level 1</b>														
LnE, Lev1	-	Both	-	-	4134	-	-	-	-	-	-	-	20142	-
Wall E-1	5	Both	-	-	2099	1.0	1.0	125	495	-	A	-	10226	-
Seg. 1	-	Both	127.2	-	509	1.0	1.0	125	495	-	-	620	2479	0.21
Seg. 2	-	Both	127.2	-	509	1.0	1.0	125	495	-	-	620	2479	0.21
Seg. 3	-	Both	127.2	-	572	1.0	1.0	125	495	-	-	620	2789	0.21
Seg. 4	-	Both	127.2	-	509	1.0	1.0	125	495	-	-	620	2479	0.21
Wall E-2	5	Both	-	-	2035	1.0	1.0	125	495	-	A	-	9916	-

**SHEAR RESULTS (flexible wind design, continued)**

Seg. 1	-	Both	127.2	-	509	1.0	1.0	125	495	-	620	2479	0.21
Seg. 2	-	Both	127.2	-	509	1.0	1.0	125	495	-	620	2479	0.21
Seg. 3	-	Both	127.2	-	509	1.0	1.0	125	495	-	620	2479	0.21
Seg. 4	-	Both	127.2	-	509	1.0	1.0	125	495	-	620	2479	0.21

**Legend:**

*W Gp* - Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall. "<sup>^</sup>" means that this wall is critical for all walls in the Standard Wall group.

*For Dir* - Direction of wind force along shearline.

*v* - Design shear force on segment = ASD factored shear force per unit FHS

*vmax* - Collector shear force for perforated walls as per SDPWS eqn. 4.3-8 =  $V/FHS/Co$ . Full height sheathing (FHS) factored for narrow segments as per 4.3.4.3

*V* - ASD factored shear force. For shearline: total shearline force. For wall: total of all segments on wall. For segment: force on segment

*Asp/Cub* - For wall: Unblocked structural wood panel factor *Cub* from SDPWS 4.3.3.2. For segment: Aspect ratio adjustment from SDPWS 4.3.3.4.1

*Int* - Unit shear capacity of interior sheathing; *Ext* - Unit shear capacity of exterior sheathing. For wall: Unfactored. For segment: Include *Cub* factor and aspect ratio adjustments.

*Co* - Adjustment factor for perforated walls from SDPWS Equation 4.3-5.

*C* - Sheathing combination rule, *A* = Add capacities, *S* = Strongest side or twice weakest, *G* = Stiffness-based using SDPWS 4.3-3.

*Cmb* - Combined interior and exterior unit shear capacity including perforated wall factor *Co*.

*V* - Total factored shear capacity of shearline, wall or segment.

*Crit Resp* - Response ratio =  $v/Cmb$  = design shear force/unit shear capacity. "*S*" indicates that the wind design criterion was critical in selecting wall.

**Notes:**

Refer to Elevation View diagrams for individual level for uplift anchorage force *t* for perforated walls given by SDPWS 4.3.6.4.2,4.

## HOLD-DOWN DESIGN (flexible wind design)

Level 1					Tensile ASD				Hold-down	Cap [lbs]	Crit Resp.
Line-Wall	Posit'n	Location [ft]		Load Case	Holddown Force [lbs]			Cmb'd			
		X	Y		Shear	Dead	Uplift				
<b>Line 1</b>											
1-1	R Op 1	-17.00	10.63	1	1494			1494	HDU8-SDS2.	4870	0.31
1-1	L Op 2	-17.00	16.38	1	1494			1494	HDU8-SDS2.	4870	0.31
1-1	R Op 2	-17.00	22.63	1	1485			1485	HDU8-SDS2.	4870	0.30
1-1	L Op 3	-17.00	29.38	1	1485			1485	HDU8-SDS2.	4870	0.30
<b>Line 2</b>											
2-1	L End	0.50	0.12	1	3187			3187	HDU8-SDS2.	4870	0.65
	V Elem	0.00	6.88	1	1635			1635	Refer to upper level		
	V Elem	0.00	11.63	1	2841			2841	Refer to upper level		
	V Elem	0.00	21.88	1	2847			2847	Refer to upper level		
	V Elem	0.00	27.63	1	4062			4062	Refer to upper level		
2-1	R End	0.50	34.38	1	1559			1559	HDU8-SDS2.	4870	0.32
	V Elem	0.00	39.38	1	4072			4072	Refer to upper level		
	V Elem	0.00	39.63	1	2978			2978	Refer to upper level		
2-2	R Op 1	0.00	46.13	1	1565			1565	HDU8-SDS2.	4870	0.32
	V Elem	0.00	55.38	1	2985			2985	Refer to upper level		
	V Elem	0.00	59.13	1	1631			1631	Refer to upper level		
2-2	R End	0.00	65.87	1	3202			3202	HDU8-SDS2.	4870	0.66
<b>Line 3</b>											
3-1	L End	26.50	0.63	1	647			647	HDU8-SDS2.	4870	0.13
3-1	R End	26.50	30.88	1	646			646	HDU8-SDS2.	4870	0.13
<b>Line 7</b>											
7-1	L End	52.00	0.12	1	629			629	HDU8-SDS2.	4870	0.13
7-1	R End	52.00	31.38	1	630			630	HDU8-SDS2.	4870	0.13
<b>Line 8</b>											
8-1	L End	78.50	0.12	1	3158			3158	HDU8-SDS2.	4870	0.65
	V Elem	78.50	6.38	1	1766			1766	Refer to upper level		
	V Elem	78.50	10.13	1	3018			3018	Refer to upper level		
8-1	L Op 1	78.50	21.88	1	4123			4123	HDU8-SDS2.	4870	0.85
8-1	R Op 1	78.50	27.63	1	5580			5580	HDU8-SDS2.	4870	1.00
	V Elem	78.50	37.88	1	4485			4485	Refer to upper level		
8-1	L Op 2	78.50	38.38	1	1417			1417	HDU8-SDS2.	4870	0.29
8-1	R Op 2	78.50	44.13	1	4472			4472	HDU8-SDS2.	4870	0.92
	V Elem	78.50	54.88	1	3084			3084	Refer to upper level		
	V Elem	78.50	58.63	1	1803			1803	Refer to upper level		
8-1	R End	78.50	65.87	1	3209			3209	HDU8-SDS2.	4870	0.66
<b>Line B</b>											
	V Elem	0.12	0.00	1	609			609	Refer to upper level		
	V Elem	2.88	0.00	1	348			348	Refer to upper level		
	V Elem	10.63	0.00	1	340			340	Refer to upper level		
	V Elem	12.88	0.00	1	601			601	Refer to upper level		
	V Elem	15.88	0.00	1	71			71	Refer to upper level		
	V Elem	23.63	0.00	1	534			534	Refer to upper level		
	V Elem	26.88	0.00	1	604			604	Refer to upper level		
B-3	L End	37.13	0.00	1	9150			9150	HDU5-SDS2.	4065	1.00
B-3	R End	40.88	0.00	1	8692			8692	HDU5-SDS2.	4065	1.00
	V Elem	49.63	0.00	1	604			604	Refer to upper level		
	V Elem	53.88	0.00	1	604			604	Refer to upper level		
	V Elem	54.38	0.00	1	233			233	Refer to upper level		
	V Elem	62.13	0.00	1	376			376	Refer to upper level		
	V Elem	62.88	0.00	1	609			609	Refer to upper level		
	V Elem	65.13	0.00	1	604			604	Refer to upper level		
	V Elem	67.38	0.00	1	443			443	Refer to upper level		
	V Elem	74.62	0.00	1	447			447	Refer to upper level		
	V Elem	78.37	0.00	1	609			609	Refer to upper level		
<b>Line C</b>											
	V Elem	0.12	31.00	1	820			820	Refer to upper level		
C-1	L End	4.62	31.00	1	1543			1543	HDU8-SDS2.	4870	0.32
C-1	R End	17.87	31.00	1	1485			1485	HDU8-SDS2.	4870	0.30
	V Elem	20.37	31.00	1	820			820	Refer to upper level		
C-2	L End	24.63	31.00	1	2384			2384	HDU8-SDS2.	4870	0.49
C-2	R End	34.38	31.00	1	2326			2326	HDU8-SDS2.	4870	0.48
C-3	L End	43.63	31.50	1	1551			1551	HDU8-SDS2.	4870	0.32
	V Elem	44.13	31.00	1	1023			1023	Refer to upper level		
C-3	R End	53.88	31.50	1	2516			2516	HDU8-SDS2.	4870	0.52
	V Elem	58.13	31.00	1	821			821	Refer to upper level		
C-4	L End	60.13	31.00	1	1543			1543	HDU8-SDS2.	4870	0.32
C-4	R End	73.37	31.00	1	1485			1485	HDU8-SDS2.	4870	0.30
	V Elem	77.38	31.00	1	821			821	Refer to upper level		
<b>Line D</b>											
D-1	L End	-16.87	39.50	1	793			793	HDU8-SDS2.	4870	0.16
D-1	R End	-0.12	39.50	1	782			782	HDU8-SDS2.	4870	0.16



## WoodWorks® Shearwalls

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## HOLD-DOWN DESIGN (flexible wind design, continued)

Line E					Tensile ASD					
Line-Wall	Posit'n	Location [ft]		Load Case	Holddown Force [lbs]			Cap	Crit	
		X	Y		Shear	Dead	Uplift	Hold-down	Resp.	
Line E										
E-1	L End	0.12	66.00	1	2006		2006	HDU8-SDS2.	4870	0.41
E-1	L Op 1	3.88	66.00	1	2006		2006	HDU8-SDS2.	4870	0.41
E-1	R Op 1	8.62	66.00	1	2006		2006	HDU8-SDS2.	4870	0.41
E-1	L Op 2	12.38	66.00	1	2006		2006	HDU8-SDS2.	4870	0.41
E-1	R Op 2	15.13	66.00	1	1998		1998	HDU8-SDS2.	4870	0.41
	V Elem	18.88	66.00	1	920		920	Refer to upper level		
E-1	L Op 3	19.38	66.00	1	1078		1078	HDU8-SDS2.	4870	0.22
E-1	R Op 3	24.13	66.00	1	1086		1086	HDU8-SDS2.	4870	0.22
E-1	R End	27.88	66.00	1	1086		1086	HDU8-SDS2.	4870	0.22
E-2	L End	50.63	66.00	1	1086		1086	HDU8-SDS2.	4870	0.22
E-2	L Op 1	54.38	66.00	1	1086		1086	HDU8-SDS2.	4870	0.22
E-2	R Op 1	59.13	66.00	1	2006		2006	HDU8-SDS2.	4870	0.41
E-2	L Op 2	62.88	66.00	1	2006		2006	HDU8-SDS2.	4870	0.41
E-2	R Op 2	65.63	66.00	1	2006		2006	HDU8-SDS2.	4870	0.41
E-2	L Op 3	69.38	66.00	1	1847		1847	HDU8-SDS2.	4870	0.38
E-2	R Op 3	74.62	66.00	1	1835		1835	HDU8-SDS2.	4870	0.38
E-2	R End	78.37	66.00	1	1994		1994	HDU8-SDS2.	4870	0.41
Level 2					Tensile ASD					
Line-Wall	Posit'n	Location [ft]		Load Case	Holddown Force [lbs]			Cap	Crit	
		X	Y		Shear	Dead	Uplift	Hold-down	Resp.	
Line 2										
2-1	L End	0.00	0.12	1	1631		1631	MSTC48B3	3930	0.42
2-1	L Op 1	0.00	6.88	1	1635		1635	MSTC48B3	3930	0.42
2-1	R Op 1	0.00	11.63	1	2841		2841	MSTC48B3	3930	0.72
2-1	L Op 2	0.00	21.88	1	2847		2847	MSTC48B3	3930	0.72
2-1	R Op 2	0.00	27.63	1	4062		4062	MSTC48B3	3930	1.00
2-1	R End	0.00	39.38	1	4072		4072	MSTC48B3	3930	1.00
2-2	L End	0.00	39.63	1	2978		2978	MSTC48B3	3930	0.76
2-2	L Op 1	0.00	55.38	1	2985		2985	MSTC48B3	3930	0.76
2-2	R Op 1	0.00	59.13	1	1631		1631	MSTC48B3	3930	0.42
2-2	R End	0.00	65.87	1	1635		1635	MSTC48B3	3930	0.42
Line 8										
8-1	L End	78.50	0.12	1	1761		1761	MSTC48B3	3930	0.45
8-1	L Op 1	78.50	6.38	1	1766		1766	MSTC48B3	3930	0.45
8-1	R Op 1	78.50	10.13	1	3018		3018	MSTC48B3	3930	0.77
8-1	L Op 2	78.50	21.88	1	3028		3028	MSTC48B3	3930	0.77
8-1	R Op 2	78.50	27.13	1	4471		4471	MSTC48B3	3930	1.00
8-1	L Op 3	78.50	37.88	1	4485		4485	MSTC48B3	3930	0.99
8-1	R Op 3	78.50	44.13	1	3075		3075	MSTC48B3	3930	0.78
8-1	L Op 4	78.50	54.88	1	3084		3084	MSTC48B3	3930	0.78
8-1	R Op 4	78.50	58.63	1	1803		1803	MSTC48B3	3930	0.46
8-1	R End	78.50	65.87	1	1808		1808	MSTC48B3	3930	0.46
Line B										
B-1	L End	0.12	0.00	1	609		609	MSTC48B3	3930	0.15
B-1	L Op 1	3.88	0.00	1	609		609	MSTC48B3	3930	0.15
B-1	R Op 1	8.13	0.00	1	601		601	MSTC48B3	3930	0.15
B-1	L Op 2	12.88	0.00	1	601		601	MSTC48B3	3930	0.15
B-1	R Op 3	22.63	0.00	1	604		604	MSTC48B3	3930	0.15
B-1	R End	26.88	0.00	1	604		604	MSTC48B3	3930	0.15
B-2	L End	49.63	0.00	1	604		604	MSTC48B3	3930	0.15
B-2	L Op 1	53.88	0.00	1	604		604	MSTC48B3	3930	0.15
B-2	R Op 1	59.13	0.00	1	609		609	MSTC48B3	3930	0.15
B-2	L Op 2	62.88	0.00	1	609		609	MSTC48B3	3930	0.15
B-2	R Op 2	65.13	0.00	1	604		604	MSTC48B3	3930	0.15
B-2	L Op 3	69.38	0.00	1	604		604	MSTC48B3	3930	0.15
B-2	R Op 3	74.62	0.00	1	609		609	MSTC48B3	3930	0.15
B-2	R End	78.37	0.00	1	609		609	MSTC48B3	3930	0.15
Line C										
C-1	L End	0.12	31.00	1	820		820	MSTC48B3	3930	0.21
C-1	R End	20.37	31.00	1	820		820	MSTC48B3	3930	0.21
C-2	L End	24.63	31.00	1	831		831	MSTC48B3	3930	0.21
C-2	R End	34.38	31.00	1	831		831	MSTC48B3	3930	0.21
C-3	L End	44.13	31.50	1	1023		1023	MSTC48B3	3930	0.26
C-3	R End	53.88	31.50	1	1023		1023	MSTC48B3	3930	0.26
C-4	L End	58.13	31.00	1	821		821	MSTC48B3	3930	0.21
C-4	R End	77.38	31.00	1	821		821	MSTC48B3	3930	0.21
Line E										
E-1	L End	0.12	66.00	1	920		920	MSTC48B3	3930	0.23
E-1	L Op 1	3.88	66.00	1	920		920	MSTC48B3	3930	0.23
E-1	R Op 1	8.62	66.00	1	920		920	MSTC48B3	3930	0.23
E-1	L Op 2	12.38	66.00	1	920		920	MSTC48B3	3930	0.23
E-1	R Op 2	15.13	66.00	1	920		920	MSTC48B3	3930	0.23

**HOLD-DOWN DESIGN (flexible wind design, continued)**

E-1	L Op	3	18.88	66.00	1	920	920	MSTC48B3	3930	0.23
E-2	R Op	1	59.13	66.00	1	920	920	MSTC48B3	3930	0.23
E-2	L Op	2	62.88	66.00	1	920	920	MSTC48B3	3930	0.23
E-2	R Op	2	65.63	66.00	1	920	920	MSTC48B3	3930	0.23
E-2	L Op	3	69.38	66.00	1	920	920	MSTC48B3	3930	0.23
E-2	R Op	3	73.63	66.00	1	908	908	MSTC48B3	3930	0.23
E-2	R End		78.37	66.00	1	908	908	MSTC48B3	3930	0.23

**Legend:****Line-Wall:**

At wall or opening – Shearline and wall number At vertical element - Shearline

Posit'n - Position of stud that hold-down is attached to:

V Elem - Vertical element: column or strengthened studs required where not at wall end or opening

L or R End - At left or right wall end

L or R Op n - At left or right side of opening n

Location - Co-ordinates in Plan View

Load Case - Results are for critical load case:

ASCE 7 All Heights: Case 1 or 2 from Fig. 27.4-8

ASCE 7 Low-rise: Windward corner(s) and Case A or B from Fig. 28.4-1

ASCE 7 Minimum loads (27.1.5 / 28.4.4)

Hold-down Forces:

Shear – Wind shear overturning component, based on shearline force, factored for ASD by 0.60. For perforated walls, T from SDPWS 4.3-8 is used.

Dead – Dead load resisting component, factored for ASD by 0.60

Uplift - Uplift wind load component, factored for ASD by 0.60. For perforated walls, T from SDPWS 4.3-8 is used.

Cmb'd - Sum of ASD factored overturning, dead and uplift forces. May also include the uplift force t for perforated walls from SDPWS 4.3.6.2.1 when openings are staggered.

Hold-down – Device used from hold-down database

Cap – Allowable ASD tension load

Crit. Resp. - Critical Response = Combined ASD force / Allowable ASD tension load

**Notes:**

Refer to Shear Results table for factor Co, and shearline dimensions table for the sum of Li, used to calculate tension force T for perforated walls from SDPWS 4.3-9.

## DRAG STRUT FORCES (flexible wind design)

Level 1					Drag Strut Force [lbs]	
Line-Wall	Position on Wall or Opening	Location [ft]		Load Case	---	---
		X	Y		>	<
<b>Line 1</b>						
1-1	Right Opening 1	-17.00	10.50	1	298	298
1-1	Left Opening 2	-17.00	16.50	1	49	49
1-1	Right Opening 2	-17.00	22.50	1	121	121
1-1	Left Opening 3	-17.00	29.50	1	283	283
<b>Line 2</b>						
2-1	Right Wall End	0.50	34.50	1	1161	1163
2-2	Right Opening 1	0.00	46.00	1	673	674
<b>Line 3</b>						
3-1	Left Wall End	26.50	0.50	1	19	19
3-1	Right Wall End	26.50	31.00	1	1297	1296
<b>Line 7</b>						
7-1	Right Wall End	52.00	31.50	1	1285	1286
<b>Line 8</b>						
8-1	Left Opening 1	78.50	22.00	1	633	635
8-1	Right Opening 1	78.50	27.50	1	158	159
8-1	Left Opening 2	78.50	38.50	1	158	159
8-1	Right Opening 2	78.50	44.00	1	633	635
<b>Line B</b>						
B-3	Left Wall End	37.00	0.00	1	2425	2304
B-3	Right Wall End	41.00	0.00	1	1684	1600
<b>Line C</b>						
C-1	Left Wall End	4.50	31.00	1	2024	1948
C-1	Right Wall End	18.00	31.00	1	740	712
C-2	Left Wall End	24.50	31.00	1	1352	1301
C-2	Right Wall End	34.50	31.00	1	400	385
C-3	Left Wall End	43.50	31.50	1	1248	1201
C-3	Right Wall End	54.00	31.50	1	249	239
C-4	Left Wall End	60.00	31.00	1	814	783
C-4	Right Wall End	73.50	31.00	1	471	453
<b>Line D</b>						
D-1	Right Wall End	0.00	39.50	1	1364	1346
<b>Line E</b>						
E-1	Left Opening 1	4.00	66.00	1	298	298
E-1	Right Opening 1	8.50	66.00	1	61	61
E-1	Left Opening 2	12.50	66.00	1	359	359
E-1	Right Opening 2	15.00	66.00	1	228	228
E-1	Left Opening 3	19.50	66.00	1	563	563
E-1	Right Opening 3	24.00	66.00	1	326	326
E-1	Right Wall End	28.00	66.00	1	624	624
E-2	Left Wall End	50.50	66.00	1	561	561
E-2	Left Opening 1	54.50	66.00	1	263	263
E-2	Right Opening 1	59.00	66.00	1	500	500
E-2	Left Opening 2	63.00	66.00	1	201	201
E-2	Right Opening 2	65.50	66.00	1	333	333
E-2	Left Opening 3	69.50	66.00	1	35	35
E-2	Right Opening 3	74.50	66.00	1	298	298
<b>Level 2</b>						
Line-Wall	Position on Wall or Opening	Location [ft]		Load Case	---	---
		X	Y		>	<
<b>Line 2</b>						
2-1	Left Opening 1	0.00	7.00	1	225	225
2-1	Right Opening 1	0.00	11.50	1	337	338
2-1	Left Opening 2	0.00	22.00	1	0	0
2-1	Right Opening 2	0.00	27.50	1	687	688
2-2	Left Opening 1	0.00	55.50	1	212	213
2-2	Right Opening 1	0.00	59.00	1	225	225
<b>Line 8</b>						
8-1	Left Opening 1	78.50	6.50	1	304	305
8-1	Right Opening 1	78.50	10.00	1	132	133
8-1	Left Opening 2	78.50	22.00	1	429	430
8-1	Right Opening 2	78.50	27.00	1	195	195
8-1	Left Opening 3	78.50	38.00	1	320	321
8-1	Right Opening 3	78.50	44.00	1	429	430
8-1	Left Opening 4	78.50	55.00	1	86	86
8-1	Right Opening 4	78.50	58.50	1	351	352
<b>Line B</b>						
B-1	Left Opening 1	4.00	0.00	1	175	175
B-1	Right Opening 1	8.00	0.00	1	64	64

**DRAG STRUT FORCES (flexible wind design, continued)**

B-1	Left Opening 2	13.00	0.00	1	282	282
B-1	Right Opening 3	22.50	0.00	1	18	18
B-1	Right Wall End	27.00	0.00	1	215	215
B-2	Left Wall End	49.50	0.00	1	409	409
B-2	Left Opening 1	54.00	0.00	1	213	213
B-2	Right Opening 1	59.00	0.00	1	351	351
B-2	Left Opening 2	63.00	0.00	1	177	177
B-2	Right Opening 2	65.00	0.00	1	232	232
B-2	Left Opening 3	69.50	0.00	1	36	36
B-2	Right Opening 3	74.50	0.00	1	175	175
<b>Line C</b>						
C-1	Right Wall End	20.50	31.00	1	428	428
C-2	Left Wall End	24.50	31.00	1	107	107
C-2	Right Wall End	34.50	31.00	1	316	316
C-3	Left Wall End	44.00	31.50	1	448	448
C-3	Right Wall End	54.00	31.50	1	5	5
C-4	Left Wall End	58.00	31.00	1	327	327
C-4	Right Wall End	77.50	31.00	1	80	80
<b>Line E</b>						
E-1	Left Opening 1	4.00	66.00	1	294	294
E-1	Right Opening 1	8.50	66.00	1	139	139
E-1	Left Opening 2	12.50	66.00	1	433	433
E-1	Right Opening 2	15.00	66.00	1	348	348
E-1	Left Opening 3	19.00	66.00	1	642	642
E-2	Right Opening 1	59.00	66.00	1	732	732
E-2	Left Opening 2	63.00	66.00	1	438	438
E-2	Right Opening 2	65.50	66.00	1	524	524
E-2	Left Opening 3	69.50	66.00	1	230	230
E-2	Right Opening 3	73.50	66.00	1	368	368

**Legend:***Line-Wall - Shearline and wall number**Position... - Side of opening or wall end that drag strut is attached to**Location - Co-ordinates in Plan View**Load Case - Results are for critical load case:**ASCE 7 All heights Case 1 or 2**ASCE 7 Low-rise corner; Case A or B**Drag strut Force - Axial force in transfer elements at openings and gaps in walls along shearline.**Based on ASD factored shearline force (vmax from 4.3.6.4.1.1 for perforated walls)**-> Due to shearline force in the west-to-east or south-to-north direction**<- Due to shearline force in the east-to-west or north-to-south direction*

**Rigid Diaphragm Wind Design**  
**ASCE 7 Directional (All Heights) Loads**

**SHEAR RESULTS**

N-S Shearlines	W Gp	For Dir	ASD Shear Force [plf]			Asp-Cub		Allowable Shear [plf]					V [lbs]	Resp. Ratio
			v	vmax	V [lbs]	Int	Ext	Int	Ext	Co	C	Cmb		
<b>Line 1</b>														
<b>Level 1</b>														
Ln1, Lev1	-	S->N	-	-	1970	-	-	-	-	-	-	-	8057	-
	-	N->S	-	-	1972	-	-	-	-	-	-	-	8057	-
Wall 1-1	5	S->N	-	-	1970	1.0	1.0	125	495	-	A	-	8057	-
	5	N->S	-	-	1972	1.0	1.0	125	495	-	A	-	8057	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Seg. 2	-	S->N	151.6	-	909	1.0	1.0	125	495	-	-	620	3719	0.24
	-	N->S	151.7	-	910	1.0	1.0	125	495	-	-	620	3719	0.24
Seg. 3	-	S->N	151.6	-	1061	1.0	1.0	125	495	-	-	620	4338	0.24
	-	N->S	151.7	-	1062	1.0	1.0	125	495	-	-	620	4338	0.24
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
<b>Line 2</b>														
<b>Level 2</b>														
Ln2, Lev2	-	S->N	-	-	8364	-	-	-	-	-	-	-	24335	-
	-	N->S	-	-	8384	-	-	-	-	-	-	-	24335	-
Wall 2-1	1	S->N	-	-	4700	1.0	1.0	125	339	-	A	-	13674	-
	1	N->S	-	-	4711	1.0	1.0	125	339	-	A	-	13674	-
Seg. 1	-	S->N	159.3	-	1115	1.0	1.0	125	339	-	-	464	3245	0.34
	-	N->S	159.7	-	1118	1.0	1.0	125	339	-	-	464	3245	0.34
Seg. 2	-	S->N	159.3	-	1673	1.0	1.0	125	339	-	-	464	4867	0.34
	-	N->S	159.7	-	1677	1.0	1.0	125	339	-	-	464	4867	0.34
Seg. 3	-	S->N	159.3	-	1912	1.0	1.0	125	339	-	-	464	5562	0.34
	-	N->S	159.7	-	1916	1.0	1.0	125	339	-	-	464	5562	0.34
Wall 2-2	1	S->N	-	-	3664	1.0	1.0	125	339	-	A	-	10661	-
	1	N->S	-	-	3673	1.0	1.0	125	339	-	A	-	10661	-
Seg. 1	-	S->N	159.3	-	2549	1.0	1.0	125	339	-	-	464	7416	0.34
	-	N->S	159.7	-	2555	1.0	1.0	125	339	-	-	464	7416	0.34
Seg. 2	-	S->N	159.3	-	1115	1.0	1.0	125	339	-	-	464	3245	0.34
	-	N->S	159.7	-	1118	1.0	1.0	125	339	-	-	464	3245	0.34
<b>Level 1</b>														
Ln2, Lev1	-	S->N	-	-	6186	-	-	-	-	-	-	-	25262	-
	-	N->S	-	-	6193	-	-	-	-	-	-	-	25262	-
Wall 2-1	1	S->N	113.5	-	3916	1.0	1.0	125	339	-	A	464	15991	0.24
	1	N->S	113.6	-	3920	1.0	1.0	125	339	-	A	464	15991	0.25
Wall 2-2	1	S->N	-	-	2270	1.0	1.0	125	339	-	A	-	9270	-
	1	N->S	-	-	2273	1.0	1.0	125	339	-	A	-	9270	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	339	-	-	464	-	-
Seg. 2	-	S->N	113.5	-	2270	1.0	1.0	125	339	-	-	464	9270	0.24
	-	N->S	113.6	-	2273	1.0	1.0	125	339	-	-	464	9270	0.25
<b>Line 3</b>														
Ln3, Lev1	-	S->N	-	-	5708	-	-	-	-	-	-	-	23271	-
	-	N->S	-	-	5717	-	-	-	-	-	-	-	23271	-
Wall 3-1	6	S->N	187.2	-	5708	1.0	1.0	125	638	-	A	763	23271	0.25
	6	N->S	187.5	-	5717	1.0	1.0	125	638	-	A	763	23271	0.25
<b>Line 7</b>														
Ln7, Lev1	-	S->N	-	-	5906	-	-	-	-	-	-	-	24034	-
	-	N->S	-	-	5917	-	-	-	-	-	-	-	24034	-
Wall 7-1	6	S->N	187.5	-	5906	1.0	1.0	125	638	-	A	763	24034	0.25
	6	N->S	187.9	-	5917	1.0	1.0	125	638	-	A	763	24034	0.25
<b>Line 8</b>														
<b>Level 2</b>														
Ln8, Lev2	-	S->N	-	-	8105	-	-	-	-	-	-	-	22249	-
	-	N->S	-	-	8129	-	-	-	-	-	-	-	22249	-
Wall 8-1	1	S->N	-	-	8105	1.0	1.0	125	339	-	A	-	22249	-
	1	N->S	-	-	8129	1.0	1.0	125	339	-	A	-	22249	-
Seg. 1	-	S->N	168.9	-	1098	1.0	1.0	125	339	-	-	464	3013	0.36
	-	N->S	169.4	-	1101	1.0	1.0	125	339	-	-	464	3013	0.37
Seg. 2	-	S->N	168.9	-	2026	1.0	1.0	125	339	-	-	464	5562	0.36
	-	N->S	169.4	-	2032	1.0	1.0	125	339	-	-	464	5562	0.37
Seg. 3	-	S->N	168.9	-	1857	1.0	1.0	125	339	-	-	464	5099	0.36
	-	N->S	169.4	-	1863	1.0	1.0	125	339	-	-	464	5099	0.37
Seg. 4	-	S->N	168.9	-	1857	1.0	1.0	125	339	-	-	464	5099	0.36
	-	N->S	169.4	-	1863	1.0	1.0	125	339	-	-	464	5099	0.37
Seg. 5	-	S->N	168.9	-	1266	1.0	1.0	125	339	-	-	464	3476	0.36
	-	N->S	169.4	-	1270	1.0	1.0	125	339	-	-	464	3476	0.37
<b>Level 1</b>														
Ln8, Lev1	-	S->N	-	-	6276	-	-	-	-	-	-	-	25494	-

## WoodWorks® Shearwalls

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## SHEAR RESULTS (rigid wind design, continued)

E-W Shearlines	W Gp	For Dir	ASD Shear Force [plf]			Asp-Cub		Allowable Shear [plf]				V [lbs]	Resp. Ratio	
			v	vmax	V [lbs]	Int	Ext	Int	Ext	Co	C			Cmb
Wall 8-1	1	N->S	-	-	6291	-	-	-	-	-	-	25494	-	
	1	S->N	-	-	6276	1.0	1.0	125	339	-	A	25494	-	
Seg. 1	-	N->S	-	-	6291	1.0	1.0	125	339	-	A	25494	-	
	-	S->N	114.1	-	2510	1.0	1.0	125	339	-	-	464	10197	0.25
Seg. 2	-	N->S	114.4	-	2516	1.0	1.0	125	339	-	-	464	10197	0.25
	-	S->N	114.1	-	1255	1.0	1.0	125	339	-	-	464	5099	0.25
Seg. 3	-	N->S	114.4	-	1258	1.0	1.0	125	339	-	-	464	5099	0.25
	-	S->N	114.1	-	2510	1.0	1.0	125	339	-	-	464	10197	0.25
	-	N->S	114.4	-	2516	1.0	1.0	125	339	-	-	464	10197	0.25
<b>Line B</b>														
<b>Level 2</b>														
LnB, Lev2	-	Both	-	-	2716	-	-	-	-	-	-	18903	-	
Wall B-1	5	Both	-	-	1202	1.0	1.0	125	495	-	A	8367	-	
Seg. 1	-	Both	89.0	-	356	1.0	1.0	125	495	-	-	620	2479	0.14
Seg. 2	-	Both	89.0	-	445	1.0	1.0	125	495	-	-	620	3099	0.14
Seg. 3	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Seg. 4	-	Both	89.0	-	401	1.0	1.0	125	495	-	-	620	2789	0.14
Wall B-2	5	Both	-	-	1514	1.0	1.0	125	495	-	A	10536	-	
Seg. 1	-	Both	89.0	-	401	1.0	1.0	125	495	-	-	620	2789	0.14
Seg. 2	-	Both	89.0	-	356	1.0	1.0	125	495	-	-	620	2479	0.14
Seg. 3	-	Both	89.0	-	401	1.0	1.0	125	495	-	-	620	2789	0.14
Seg. 4	-	Both	89.0	-	356	1.0	1.0	125	495	-	-	620	2479	0.14
<b>Level 1</b>														
LnB, Lev1	-	W->E	-	-	1700	-	-	-	-	-	-	5104	-	
	-	E->W	-	-	1637	-	-	-	-	-	-	5104	-	
Wall B-1	4	Both	0.0	-	0	1.0	1.0	0	495	-	G	-	-	
Wall B-2	2	Both	0.0	-	0	1.0	1.0	0	638	-	G	-	-	
Wall B-3	3	W->E	425.0	-	1700	1.0	1.0	638	638	-	A	1276	5104	0.33
	3	E->W	409.3	-	1637	1.0	1.0	638	638	-	A	1276	5104	0.32
Wall B-4	2	Both	0.0	-	0	1.0	1.0	0	638	-	G	-	-	
<b>Line C</b>														
<b>Level 2</b>														
LnC, Lev2	-	Both	-	-	5923	-	-	-	-	-	-	38618	-	
Wall C-1	5	Both	95.1	-	1949	1.0	1.0	125	495	-	A	620	12705	0.15
Wall C-2	5	Both	95.1	-	951	1.0	1.0	125	495	-	A	620	6198	0.15
Wall C-3	6	Both	117.0	-	1170	1.0	1.0	125	638	-	A	763	7630	0.15
Wall C-4	5	Both	95.1	-	1854	1.0	1.0	125	495	-	A	620	12085	0.15
<b>Level 1</b>														
LnC, Lev1	-	W->E	-	-	9847	-	-	-	-	-	-	36242	-	
	-	E->W	-	-	9535	-	-	-	-	-	-	36242	-	
Wall C-1	6	W->E	207.3	-	2799	1.0	1.0	125	638	-	A	763	10300	0.27
	6	E->W	200.7	-	2710	1.0	1.0	125	638	-	A	763	10300	0.26
Wall C-2	6	W->E	207.3	-	2073	1.0	1.0	125	638	-	A	763	7630	0.27
	6	E->W	200.7	-	2007	1.0	1.0	125	638	-	A	763	7630	0.26
Wall C-3	6	W->E	207.3	-	2177	1.0	1.0	125	638	-	A	763	8011	0.27
	6	E->W	200.7	-	2108	1.0	1.0	125	638	-	A	763	8011	0.26
Wall C-4	6	W->E	207.3	-	2799	1.0	1.0	125	638	-	A	763	10300	0.27
	6	E->W	200.7	-	2710	1.0	1.0	125	638	-	A	763	10300	0.26
<b>Line D</b>														
LnD, Lev1	-	W->E	-	-	2772	-	-	-	-	-	-	10536	-	
	-	E->W	-	-	2689	-	-	-	-	-	-	10536	-	
Wall D-1	5	W->E	163.1	-	2772	1.0	1.0	125	495	-	A	620	10536	0.26
	5	E->W	158.2	-	2689	1.0	1.0	125	495	-	A	620	10536	0.26
<b>Line E</b>														
<b>Level 2</b>														
LnE, Lev2	-	Both	-	-	2545	-	-	-	-	-	-	15494	-	
Wall E-1	5	Both	-	-	1222	1.0	1.0	125	495	-	A	620	7437	-
Seg. 1	-	Both	101.8	-	407	1.0	1.0	125	495	-	-	620	2479	0.16
Seg. 2	-	Both	101.8	-	407	1.0	1.0	125	495	-	-	620	2479	0.16
Seg. 3	-	Both	101.8	-	407	1.0	1.0	125	495	-	-	620	2479	0.16
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Wall E-2	5	Both	-	-	1324	1.0	1.0	125	495	-	A	620	8057	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	495	-	-	620	-	-
Seg. 2	-	Both	101.8	-	407	1.0	1.0	125	495	-	-	620	2479	0.16
Seg. 3	-	Both	101.8	-	407	1.0	1.0	125	495	-	-	620	2479	0.16
Seg. 4	-	Both	101.8	-	509	1.0	1.0	125	495	-	-	620	3099	0.16
<b>Level 1</b>														
LnE, Lev1	-	W->E	-	-	4754	-	-	-	-	-	-	20142	-	
	-	E->W	-	-	4640	-	-	-	-	-	-	20142	-	
Wall E-1	5	W->E	-	-	2414	1.0	1.0	125	495	-	A	620	10226	-

## SHEAR RESULTS (rigid wind design, continued)

	5	E->W	-	-	2356	1.0	1.0	125	495	-	A	-	10226	-
Seg. 1	-	W->E	146.3	-	585	1.0	1.0	125	495	-	-	620	2479	0.24
	-	E->W	142.8	-	571	1.0	1.0	125	495	-	-	620	2479	0.23
Seg. 2	-	W->E	146.3	-	585	1.0	1.0	125	495	-	-	620	2479	0.24
	-	E->W	142.8	-	571	1.0	1.0	125	495	-	-	620	2479	0.23
Seg. 3	-	W->E	146.3	-	658	1.0	1.0	125	495	-	-	620	2789	0.24
	-	E->W	142.8	-	643	1.0	1.0	125	495	-	-	620	2789	0.23
Seg. 4	-	W->E	146.3	-	585	1.0	1.0	125	495	-	-	620	2479	0.24
	-	E->W	142.8	-	571	1.0	1.0	125	495	-	-	620	2479	0.23
Wall E-2	5	W->E	-	-	2341	1.0	1.0	125	495	-	A	-	9916	-
	5	E->W	-	-	2284	1.0	1.0	125	495	-	A	-	9916	-
Seg. 1	-	W->E	146.3	-	585	1.0	1.0	125	495	-	-	620	2479	0.24
	-	E->W	142.8	-	571	1.0	1.0	125	495	-	-	620	2479	0.23
Seg. 2	-	W->E	146.3	-	585	1.0	1.0	125	495	-	-	620	2479	0.24
	-	E->W	142.8	-	571	1.0	1.0	125	495	-	-	620	2479	0.23
Seg. 3	-	W->E	146.3	-	585	1.0	1.0	125	495	-	-	620	2479	0.24
	-	E->W	142.8	-	571	1.0	1.0	125	495	-	-	620	2479	0.23
Seg. 4	-	W->E	146.3	-	585	1.0	1.0	125	495	-	-	620	2479	0.24
	-	E->W	142.8	-	571	1.0	1.0	125	495	-	-	620	2479	0.23

## Legend:

W Gp - Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall. "A" means that this wall is critical for all walls in the Standard Wall group.

For Dir - Direction of wind force along shearline.

v - Design shear force on segment = ASD factored shear force per unit FHS

vmax - Collector shear force for perforated walls as per SDPWS eqn. 4.3-8 = V/FHS/Co. Full height sheathing (FHS) factored for narrow segments as per 4.3.4.3

V - ASD factored shear force. For shearline: total shearline force. For wall: total of all segments on wall. For segment: force on segment

Asp/Cub - For wall: Unblocked structural wood panel factor Cub from SDPWS 4.3.3.2. For segment: Aspect ratio adjustment from SDPWS 4.3.3.4.1

Int - Unit shear capacity of interior sheathing; Ext - Unit shear capacity of exterior sheathing. For wall: Unfactored. For segment: Include Cub factor and aspect ratio adjustments.

Co - Adjustment factor for perforated walls from SDPWS Equation 4.3-5.

C - Sheathing combination rule, A = Add capacities, S = Strongest side or twice weakest, G = Stiffness-based using SDPWS 4.3-3.

Cmb - Combined interior and exterior unit shear capacity including perforated wall factor Co.

V - Total factored shear capacity of shearline, wall or segment.

Crit Resp - Response ratio = v/Cmb = design shear force/unit shear capacity. "S" indicates that the wind design criterion was critical in selecting wall.

## Notes:

Refer to Elevation View diagrams for individual level for uplift anchorage force t for perforated walls given by SDPWS 4.3.6.4.2,4.

## HOLD-DOWN DESIGN (rigid wind design)

Level 1					Tensile ASD				Hold-down	Cap [lbs]	Crit Resp.
Line-Wall	Posit'n	Location [ft]		Load Case	Holddown Force [lbs]			Cmb'd			
		X	Y		Shear	Dead	Uplift				
<b>Line 1</b>											
1-1	R Op 1	-17.00	10.63	1	2630			2630	HDU8-SDS2.	4870	0.54
1-1	L Op 2	-17.00	16.38	1	2632			2632	HDU8-SDS2.	4870	0.54
1-1	R Op 2	-17.00	22.63	1	2614			2614	HDU8-SDS2.	4870	0.54
1-1	L Op 3	-17.00	29.38	1	2616			2616	HDU8-SDS2.	4870	0.54
<b>Line 2</b>											
2-1	L End	0.50	0.12	1	2570			2570	HDU8-SDS2.	4870	0.53
	V Elem	0.00	6.88	1	1660			1660	Refer to upper level		
	V Elem	0.00	11.63	1	2884			2884	Refer to upper level		
	V Elem	0.00	21.88	1	2891			2891	Refer to upper level		
	V Elem	0.00	27.63	1	4123			4123	Refer to upper level		
2-1	R End	0.50	34.38	1	916			916	HDU8-SDS2.	4870	0.19
	V Elem	0.00	39.38	1	4133			4133	Refer to upper level		
	V Elem	0.00	39.63	1	3023			3023	Refer to upper level		
2-2	R Op 1	0.00	46.13	1	919			919	HDU8-SDS2.	4870	0.19
	V Elem	0.00	55.38	1	3031			3031	Refer to upper level		
	V Elem	0.00	59.13	1	1656			1656	Refer to upper level		
2-2	R End	0.00	65.87	1	2580			2580	HDU8-SDS2.	4870	0.53
<b>Line 3</b>											
3-1	L End	26.50	0.63	1	1510			1510	HDU8-SDS2.	4870	0.31
3-1	R End	26.50	30.88	1	1512			1512	HDU8-SDS2.	4870	0.31
<b>Line 7</b>											
7-1	L End	52.00	0.12	1	1512			1512	HDU8-SDS2.	4870	0.31
7-1	R End	52.00	31.38	1	1515			1515	HDU8-SDS2.	4870	0.31
<b>Line 8</b>											
8-1	L End	78.50	0.12	1	2658			2658	HDU8-SDS2.	4870	0.55
	V Elem	78.50	6.38	1	1740			1740	Refer to upper level		
	V Elem	78.50	10.13	1	2973			2973	Refer to upper level		
8-1	L Op 1	78.50	21.88	1	3606			3606	HDU8-SDS2.	4870	0.74
8-1	R Op 1	78.50	27.63	1	5038			5038	HDU8-SDS2.	4870	1.00
	V Elem	78.50	37.88	1	4417			4417	Refer to upper level		
8-1	L Op 2	78.50	38.38	1	936			936	HDU8-SDS2.	4870	0.19
8-1	R Op 2	78.50	44.13	1	3952			3952	HDU8-SDS2.	4870	0.81
	V Elem	78.50	54.88	1	3037			3037	Refer to upper level		
	V Elem	78.50	58.63	1	1776			1776	Refer to upper level		
8-1	R End	78.50	65.87	1	2706			2706	HDU8-SDS2.	4870	0.56
<b>Line B</b>											
	V Elem	0.12	0.00	1	760			760	Refer to upper level		
	V Elem	2.88	0.00	1	434			434	Refer to upper level		
	V Elem	10.63	0.00	1	424			424	Refer to upper level		
	V Elem	12.88	0.00	1	750			750	Refer to upper level		
	V Elem	15.88	0.00	1	88			88	Refer to upper level		
	V Elem	23.63	0.00	1	666			666	Refer to upper level		
	V Elem	26.88	0.00	1	754			754	Refer to upper level		
B-3	L End	37.13	0.00	1	3627			3627	HDU5-SDS2.	4065	0.89
B-3	R End	40.88	0.00	1	3493			3493	HDU5-SDS2.	4065	0.86
	V Elem	49.63	0.00	1	754			754	Refer to upper level		
	V Elem	53.88	0.00	1	754			754	Refer to upper level		
	V Elem	54.38	0.00	1	291			291	Refer to upper level		
	V Elem	62.13	0.00	1	469			469	Refer to upper level		
	V Elem	62.88	0.00	1	760			760	Refer to upper level		
	V Elem	65.13	0.00	1	754			754	Refer to upper level		
	V Elem	67.38	0.00	1	552			552	Refer to upper level		
	V Elem	74.62	0.00	1	558			558	Refer to upper level		
	V Elem	78.37	0.00	1	760			760	Refer to upper level		
<b>Line C</b>											
	V Elem	0.12	31.00	1	770			770	Refer to upper level		
C-1	L End	4.62	31.00	1	1690			1690	HDU8-SDS2.	4870	0.35
C-1	R End	17.87	31.00	1	1636			1636	HDU8-SDS2.	4870	0.34
	V Elem	20.37	31.00	1	770			770	Refer to upper level		
C-2	L End	24.63	31.00	1	2481			2481	HDU8-SDS2.	4870	0.51
C-2	R End	34.38	31.00	1	2427			2427	HDU8-SDS2.	4870	0.50
C-3	L End	43.63	31.50	1	1699			1699	HDU8-SDS2.	4870	0.35
	V Elem	44.13	31.00	1	960			960	Refer to upper level		
C-3	R End	53.88	31.50	1	2605			2605	HDU8-SDS2.	4870	0.53
	V Elem	58.13	31.00	1	770			770	Refer to upper level		
C-4	L End	60.13	31.00	1	1690			1690	HDU8-SDS2.	4870	0.35
C-4	R End	73.37	31.00	1	1636			1636	HDU8-SDS2.	4870	0.34
	V Elem	77.38	31.00	1	770			770	Refer to upper level		
<b>Line D</b>											
D-1	L End	-16.87	39.50	1	1324			1324	HDU8-SDS2.	4870	0.27
D-1	R End	-0.12	39.50	1	1284			1284	HDU8-SDS2.	4870	0.26



## WoodWorks® Shearwalls

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## HOLD-DOWN DESIGN (rigid wind design, continued)

Line E					Tensile ASD						
Line-Wall	Posit'n	Location [ft]		Load Case	Holddown Force [lbs]			Hold-down	Cap [lbs]	Crit Resp.	
		X	Y		Shear	Dead	Uplift	Cmb'd			
<b>Line E</b>											
E-1	L End	0.12	66.00	1	2117			2117	HDU8-SDS2.	4870	0.43
E-1	L Op 1	3.88	66.00	1	2087			2087	HDU8-SDS2.	4870	0.43
E-1	R Op 1	8.62	66.00	1	2117			2117	HDU8-SDS2.	4870	0.43
E-1	L Op 2	12.38	66.00	1	2087			2087	HDU8-SDS2.	4870	0.43
E-1	R Op 2	15.13	66.00	1	2108			2108	HDU8-SDS2.	4870	0.43
	V Elem	18.88	66.00	1	869			869	Refer to upper level		
E-1	L Op 3	19.38	66.00	1	1209			1209	HDU8-SDS2.	4870	0.25
E-1	R Op 3	24.13	66.00	1	1248			1248	HDU8-SDS2.	4870	0.26
E-1	R End	27.88	66.00	1	1218			1218	HDU8-SDS2.	4870	0.25
E-2	L End	50.63	66.00	1	1248			1248	HDU8-SDS2.	4870	0.26
E-2	L Op 1	54.38	66.00	1	1218			1218	HDU8-SDS2.	4870	0.25
E-2	R Op 1	59.13	66.00	1	2117			2117	HDU8-SDS2.	4870	0.43
E-2	L Op 2	62.88	66.00	1	2087			2087	HDU8-SDS2.	4870	0.43
E-2	R Op 2	65.63	66.00	1	2117			2117	HDU8-SDS2.	4870	0.43
E-2	L Op 3	69.38	66.00	1	1937			1937	HDU8-SDS2.	4870	0.40
E-2	R Op 3	74.62	66.00	1	1956			1956	HDU8-SDS2.	4870	0.40
E-2	R End	78.37	66.00	1	2076			2076	HDU8-SDS2.	4870	0.43
<b>Level 2</b>											
<b>Line 2</b>					<b>Line 8</b>						
2-1	L End	0.00	0.12	1	1656			1656	MSTC48B3	3930	0.42
2-1	L Op 1	0.00	6.88	1	1660			1660	MSTC48B3	3930	0.42
2-1	R Op 1	0.00	11.63	1	2884			2884	MSTC48B3	3930	0.73
2-1	L Op 2	0.00	21.88	1	2891			2891	MSTC48B3	3930	0.74
2-1	R Op 2	0.00	27.63	1	4123			4123	MSTC48B3	3930	1.00
2-1	R End	0.00	39.38	1	4133			4133	MSTC48B3	3930	1.00
2-2	L End	0.00	39.63	1	3023			3023	MSTC48B3	3930	0.77
2-2	L Op 1	0.00	55.38	1	3031			3031	MSTC48B3	3930	0.77
2-2	R Op 1	0.00	59.13	1	1656			1656	MSTC48B3	3930	0.42
2-2	R End	0.00	65.87	1	1660			1660	MSTC48B3	3930	0.42
8-1	L End	78.50	0.12	1	1734			1734	MSTC48B3	3930	0.44
8-1	L Op 1	78.50	6.38	1	1740			1740	MSTC48B3	3930	0.44
8-1	R Op 1	78.50	10.13	1	2973			2973	MSTC48B3	3930	0.76
8-1	L Op 2	78.50	21.88	1	2981			2981	MSTC48B3	3930	0.76
8-1	R Op 2	78.50	27.13	1	4404			4404	MSTC48B3	3930	1.00
8-1	L Op 3	78.50	37.88	1	4417			4417	MSTC48B3	3930	0.99
8-1	R Op 3	78.50	44.13	1	3028			3028	MSTC48B3	3930	0.77
8-1	L Op 4	78.50	54.88	1	3037			3037	MSTC48B3	3930	0.77
8-1	R Op 4	78.50	58.63	1	1776			1776	MSTC48B3	3930	0.45
8-1	R End	78.50	65.87	1	1781			1781	MSTC48B3	3930	0.45
<b>Line B</b>											
B-1	L End	0.12	0.00	1	760			760	MSTC48B3	3930	0.19
B-1	L Op 1	3.88	0.00	1	760			760	MSTC48B3	3930	0.19
B-1	R Op 1	8.13	0.00	1	750			750	MSTC48B3	3930	0.19
B-1	L Op 2	12.88	0.00	1	750			750	MSTC48B3	3930	0.19
B-1	R Op 3	22.63	0.00	1	754			754	MSTC48B3	3930	0.19
B-1	R End	26.88	0.00	1	754			754	MSTC48B3	3930	0.19
B-2	L End	49.63	0.00	1	754			754	MSTC48B3	3930	0.19
B-2	L Op 1	53.88	0.00	1	754			754	MSTC48B3	3930	0.19
B-2	R Op 1	59.13	0.00	1	760			760	MSTC48B3	3930	0.19
B-2	L Op 2	62.88	0.00	1	760			760	MSTC48B3	3930	0.19
B-2	R Op 2	65.13	0.00	1	754			754	MSTC48B3	3930	0.19
B-2	L Op 3	69.38	0.00	1	754			754	MSTC48B3	3930	0.19
B-2	R Op 3	74.62	0.00	1	760			760	MSTC48B3	3930	0.19
B-2	R End	78.37	0.00	1	760			760	MSTC48B3	3930	0.19
<b>Line C</b>											
C-1	L End	0.12	31.00	1	770			770	MSTC48B3	3930	0.20
C-1	R End	20.37	31.00	1	770			770	MSTC48B3	3930	0.20
C-2	L End	24.63	31.00	1	780			780	MSTC48B3	3930	0.20
C-2	R End	34.38	31.00	1	780			780	MSTC48B3	3930	0.20
C-3	L End	44.13	31.50	1	960			960	MSTC48B3	3930	0.24
C-3	R End	53.88	31.50	1	960			960	MSTC48B3	3930	0.24
C-4	L End	58.13	31.00	1	770			770	MSTC48B3	3930	0.20
C-4	R End	77.38	31.00	1	770			770	MSTC48B3	3930	0.20
<b>Line E</b>											
E-1	L End	0.12	66.00	1	869			869	MSTC48B3	3930	0.22
E-1	L Op 1	3.88	66.00	1	869			869	MSTC48B3	3930	0.22
E-1	R Op 1	8.62	66.00	1	869			869	MSTC48B3	3930	0.22
E-1	L Op 2	12.38	66.00	1	869			869	MSTC48B3	3930	0.22
E-1	R Op 2	15.13	66.00	1	869			869	MSTC48B3	3930	0.22

**HOLD-DOWN DESIGN (rigid wind design, continued)**

E-1	L Op	3	18.88	66.00	1	869	869	MSTC48B3	3930	0.22
E-2	R Op	1	59.13	66.00	1	869	869	MSTC48B3	3930	0.22
E-2	L Op	2	62.88	66.00	1	869	869	MSTC48B3	3930	0.22
E-2	R Op	2	65.63	66.00	1	869	869	MSTC48B3	3930	0.22
E-2	L Op	3	69.38	66.00	1	869	869	MSTC48B3	3930	0.22
E-2	R Op	3	73.63	66.00	1	857	857	MSTC48B3	3930	0.22
E-2	R End		78.37	66.00	1	857	857	MSTC48B3	3930	0.22

**Legend:****Line-Wall:**

At wall or opening – Shearline and wall number At vertical element - Shearline

Posit'n - Position of stud that hold-down is attached to:

V Elem - Vertical element: column or strengthened studs required where not at wall end or opening

L or R End - At left or right wall end

L or R Op n - At left or right side of opening n

Location - Co-ordinates in Plan View

Load Case - Results are for critical load case:

ASCE 7 All Heights: Case 1 or 2 from Fig. 27.4-8

ASCE 7 Low-rise: Windward corner(s) and Case A or B from Fig. 28.4-1

ASCE 7 Minimum loads (27.1.5 / 28.4.4)

Hold-down Forces:

Shear – Wind shear overturning component, based on shearline force, factored for ASD by 0.60. For perforated walls, T from SDPWS 4.3-8 is used.

Dead – Dead load resisting component, factored for ASD by 0.60

Uplift - Uplift wind load component, factored for ASD by 0.60. For perforated walls, T from SDPWS 4.3-8 is used.

Cmb'd - Sum of ASD factored overturning, dead and uplift forces. May also include the uplift force t for perforated walls from SDPWS 4.3.6.2.1 when openings are staggered.

Hold-down – Device used from hold-down database

Cap – Allowable ASD tension load

Crit. Resp. - Critical Response = Combined ASD force / Allowable ASD tension load

**Notes:**

Refer to Shear Results table for factor Co, and shearline dimensions table for the sum of Li, used to calculate tension force T for perforated walls from SDPWS 4.3-9.

## DRAG STRUT FORCES (rigid wind design)

Level 1					Drag Strut Force [lbs]	
Line-Wall	Position on Wall or Opening	Location [ft]		Load Case	---	---
		X	Y		>	<
<b>Line 1</b>						
1-1	Right Opening 1	-17.00	10.50	1	524	524
1-1	Left Opening 2	-17.00	16.50	1	86	86
1-1	Right Opening 2	-17.00	22.50	1	213	213
1-1	Left Opening 3	-17.00	29.50	1	499	499
<b>Line 2</b>						
2-1	Right Wall End	0.50	34.50	1	682	683
2-2	Right Opening 1	0.00	46.00	1	396	396
<b>Line 3</b>						
3-1	Left Wall End	26.50	0.50	1	43	43
3-1	Right Wall End	26.50	31.00	1	3027	3032
<b>Line 7</b>						
7-1	Right Wall End	52.00	31.50	1	3087	3093
<b>Line 8</b>						
8-1	Left Opening 1	78.50	22.00	1	418	419
8-1	Right Opening 1	78.50	27.50	1	105	105
8-1	Left Opening 2	78.50	38.50	1	105	105
8-1	Right Opening 2	78.50	44.00	1	418	419
<b>Line B</b>						
B-3	Left Wall End	37.00	0.00	1	961	926
B-3	Right Wall End	41.00	0.00	1	668	643
<b>Line C</b>						
C-1	Left Wall End	4.50	31.00	1	2217	2147
C-1	Right Wall End	18.00	31.00	1	810	785
C-2	Left Wall End	24.50	31.00	1	1480	1433
C-2	Right Wall End	34.50	31.00	1	438	425
C-3	Left Wall End	43.50	31.50	1	1366	1323
C-3	Right Wall End	54.00	31.50	1	272	264
C-4	Left Wall End	60.00	31.00	1	891	863
C-4	Right Wall End	73.50	31.00	1	516	499
<b>Line D</b>						
D-1	Right Wall End	0.00	39.50	1	2279	2210
<b>Line E</b>						
E-1	Left Opening 1	4.00	66.00	1	343	335
E-1	Right Opening 1	8.50	66.00	1	70	69
E-1	Left Opening 2	12.50	66.00	1	413	403
E-1	Right Opening 2	15.00	66.00	1	262	256
E-1	Left Opening 3	19.50	66.00	1	648	632
E-1	Right Opening 3	24.00	66.00	1	375	366
E-1	Right Wall End	28.00	66.00	1	718	701
E-2	Left Wall End	50.50	66.00	1	645	629
E-2	Left Opening 1	54.50	66.00	1	302	295
E-2	Right Opening 1	59.00	66.00	1	574	561
E-2	Left Opening 2	63.00	66.00	1	232	226
E-2	Right Opening 2	65.50	66.00	1	383	374
E-2	Left Opening 3	69.50	66.00	1	40	39
E-2	Right Opening 3	74.50	66.00	1	343	335
<b>Level 2</b>						
Line-Wall	Position on Wall or Opening	Location [ft]		Load Case	---	---
		X	Y		>	<
<b>Line 2</b>						
2-1	Left Opening 1	0.00	7.00	1	228	229
2-1	Right Opening 1	0.00	11.50	1	342	343
2-1	Left Opening 2	0.00	22.00	1	0	0
2-1	Right Opening 2	0.00	27.50	1	697	699
2-2	Left Opening 1	0.00	55.50	1	215	216
2-2	Right Opening 1	0.00	59.00	1	228	229
<b>Line 8</b>						
8-1	Left Opening 1	78.50	6.50	1	299	300
8-1	Right Opening 1	78.50	10.00	1	130	131
8-1	Left Opening 2	78.50	22.00	1	422	423
8-1	Right Opening 2	78.50	27.00	1	192	192
8-1	Left Opening 3	78.50	38.00	1	315	316
8-1	Right Opening 3	78.50	44.00	1	422	423
8-1	Left Opening 4	78.50	55.00	1	84	85
8-1	Right Opening 4	78.50	58.50	1	345	346
<b>Line B</b>						
B-1	Left Opening 1	4.00	0.00	1	218	218
B-1	Right Opening 1	8.00	0.00	1	79	79

**DRAG STRUT FORCES (rigid wind design, continued)**

B-1	Left Opening 2	13.00	0.00	1	352	352
B-1	Right Opening 3	22.50	0.00	1	23	23
B-1	Right Wall End	27.00	0.00	1	268	268
B-2	Left Wall End	49.50	0.00	1	510	510
B-2	Left Opening 1	54.00	0.00	1	265	265
B-2	Right Opening 1	59.00	0.00	1	438	438
B-2	Left Opening 2	63.00	0.00	1	221	221
B-2	Right Opening 2	65.00	0.00	1	290	290
B-2	Left Opening 3	69.50	0.00	1	45	45
B-2	Right Opening 3	74.50	0.00	1	218	218
<b>Line C</b>						
C-1	Right Wall End	20.50	31.00	1	402	402
C-2	Left Wall End	24.50	31.00	1	100	100
C-2	Right Wall End	34.50	31.00	1	296	296
C-3	Left Wall End	44.00	31.50	1	421	421
C-3	Right Wall End	54.00	31.50	1	5	5
C-4	Left Wall End	58.00	31.00	1	307	307
C-4	Right Wall End	77.50	31.00	1	75	75
<b>Line E</b>						
E-1	Left Opening 1	4.00	66.00	1	278	278
E-1	Right Opening 1	8.50	66.00	1	132	132
E-1	Left Opening 2	12.50	66.00	1	409	409
E-1	Right Opening 2	15.00	66.00	1	328	328
E-1	Left Opening 3	19.00	66.00	1	606	606
E-2	Right Opening 1	59.00	66.00	1	691	691
E-2	Left Opening 2	63.00	66.00	1	414	414
E-2	Right Opening 2	65.50	66.00	1	495	495
E-2	Left Opening 3	69.50	66.00	1	217	217
E-2	Right Opening 3	73.50	66.00	1	347	347

**Legend:***Line-Wall - Shearline and wall number**Position... - Side of opening or wall end that drag strut is attached to**Location - Co-ordinates in Plan View**Load Case - Results are for critical load case:**ASCE 7 All heights Case 1 or 2**ASCE 7 Low-rise corner; Case A or B**Drag strut Force - Axial force in transfer elements at openings and gaps in walls along shearline.**Based on ASD factored shearline force (vmax from 4.3.6.4.1.1 for perforated walls)**-> Due to shearline force in the west-to-east or south-to-north direction**<- Due to shearline force in the east-to-west or north-to-south direction*

## Out-of-plane Wind Design

## COMPONENTS AND CLADDING by SHEARLINE

North-South Shearlines			Sheathing [psf]			Fastener Withdrawal [lbs]					Service Cond Factors	
Line	Lev	Grp	Force	Cap	Force/Cap	Force End	Force Int	Cap	Force/Cap End	Force/Cap Int	Temp	Moist
1	1	5	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
2	1	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	2	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
3	2	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
4	1	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
5	1	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	2	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
6	1	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
7	2	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
8	1	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	2	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
East-West Shearlines			Sheathing [psf]			Fastener Withdrawal [lbs]					Service Cond Factors	
Line	Lev	Grp	Force	Cap	Force/Cap	Force End	Force Int	Cap	Force/Cap End	Force/Cap Int	Temp	Moist
A	1	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	2	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
B	1	2	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	1	4	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	2	5	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
D	1	5	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
E	1	5	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	2	5	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
F	1	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00
	2	1	17.5	190.6	0.09	23.3	18.9	72.3	0.32	0.26	1.00	1.00

Legend:

Grp - Wall Design Group ( results for all design groups for rigid, flexible design listed for each wall )

Sheathing:

Force - C&amp;C end zone exterior pressures using negative (suction) coefficient in ASCE 7 Figure 30.4-1 added to interior pressure using coefficients from Table 26.11-1

Cap - Out-of-plane capacity of exterior sheathing from SDPWS Table 3.21, factored for ASD and load duration, and assuming continuous over 2 spans

Fastener Withdrawal:

Force - Force tributary to each nail in end zone and interior zone

Cap - Factored withdrawal capacity of individual nail according to NDS 12.2-3

## Flexible Diaphragm Seismic Design

## SEISMIC INFORMATION

Level	Mass [lbs]	Area [sq.ft]	Story Shear [lbs]		Diaphragm Force Fpx [lbs]	
			E-W	N-S	E-W	N-S
2	84163	5301.0	34010	34010	20199	20199
1	99624	5963.0	21126	21126	23910	23910
All	183787	-	55136	55136	-	-

## Legend:

Building mass – Sum of all generated and input building masses on level =  $w_x$  in ASCE 7 equation 12.8-12.

Storey shear – Total unfactored (strength-level) shear force induced at level  $x$ , =  $F_x$  in ASCE 7 equation 12.8-11.

Diaphragm force  $F_{px}$  - Unfactored force intended for diaphragm design from Eqn 12.10-1; used by Shearwalls only for drag strut forces, see 12.10.2.1 Exception 2.

Redundancy Factor  $\rho$  (rho):

E-W 1.00, N-S 1.00

Automatically calculated according to ASCE 7 12.3.4.2.

Vertical Earthquake Load  $E_v$ 

$E_v = 0.2 S_{ds} D$ ;  $S_{ds} = 0.60$ ;  $E_v = 0.120 D$  unfactored;  $0.084 D$  factored; total dead load factor:  $0.6 - 0.084 = 0.516$  tension,  $1.0 + 0.084 = 1.084$  compression.

## SHEAR RESULTS (flexible seismic design)

N-S Shearlines	W Gp	For Dir	ASD Shear Force [plf]			Asp-Cub		Allowable Shear [plf]					Resp. Ratio	
			v	vmax	V [lbs]	Int	Ext	Int	Ext	Co	C	Cmb		V [lbs]
<b>Line 1</b>														
<b>Level 1</b>														
Ln1, Lev1	-	Both	-	-	1781	-	-	-	-	-	-	-	4594	-
Wall 1-1	5	Both	-	-	1781	1.0	1.0	125	353	-	S	-	4594	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Seg. 2	-	Both	137.0	-	822	1.0	1.0	125	353	-	-	353	2120	0.39
Seg. 3	-	Both	137.0	-	959	1.0	1.0	125	353	-	-	353	2474	0.39
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
<b>Line 2</b>														
<b>Level 2</b>														
Ln2, Lev2	-	Both	-	-	11911	-	-	-	-	-	-	-	13125	-
Wall 2-1	1	Both	-	-	6693	1.0	1.0	125	242	-	S	-	7375	-
Seg. 1	-	Both	226.9	-	1588	1.0	1.0	125	242	-	-	250	1750	0.91
Seg. 2	-	Both	226.9	-	2382	1.0	1.0	125	242	-	-	250	2625	0.91
Seg. 3	-	Both	226.9	-	2722	1.0	1.0	125	242	-	-	250	3000	0.91
Wall 2-2	1	Both	-	-	5218	1.0	1.0	125	242	-	S	-	5750	-
Seg. 1	-	Both	226.9	-	3630	1.0	1.0	125	242	-	-	250	4000	0.91
Seg. 2	-	Both	226.9	-	1588	1.0	1.0	125	242	-	-	250	1750	0.91
<b>Level 1</b>														
Ln2, Lev1	-	Both	-	-	15381	-	-	-	-	-	-	-	13625	-
Wall 2-1	1^	Both	282.2	-	9737	1.0	1.0	125	242	-	S	250	8625	1.00
Wall 2-2	1^	Both	-	-	5644	1.0	1.0	125	242	-	S	-	5000	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	242	-	-	250	-	-
Seg. 2	-	Both	282.2	-	5644	1.0	1.0	125	242	-	-	250	5000	1.00
<b>Line 3</b>														
Ln3, Lev1	-	Both	-	-	3527	-	-	-	-	-	-	-	13899	-
Wall 3-1	6	Both	115.6	-	3527	1.0	1.0	125	456	-	S	456	13899	0.25
<b>Line 7</b>														
Ln7, Lev1	-	Both	-	-	3544	-	-	-	-	-	-	-	14355	-
Wall 7-1	6	Both	112.5	-	3544	1.0	1.0	125	456	-	S	456	14355	0.25
<b>Line 8</b>														
<b>Level 2</b>														
Ln8, Lev2	-	Both	-	-	11896	-	-	-	-	-	-	-	12000	-
Wall 8-1	1	Both	-	-	11896	1.0	1.0	125	242	-	S	-	12000	-
Seg. 1	-	Both	247.8	-	1611	1.0	1.0	125	242	-	-	250	1625	0.99
Seg. 2	-	Both	247.8	-	2974	1.0	1.0	125	242	-	-	250	3000	0.99
Seg. 3	-	Both	247.8	-	2726	1.0	1.0	125	242	-	-	250	2750	0.99
Seg. 4	-	Both	247.8	-	2726	1.0	1.0	125	242	-	-	250	2750	0.99
Seg. 5	-	Both	247.8	-	1859	1.0	1.0	125	242	-	-	250	1875	0.99
<b>Level 1</b>														
Ln8, Lev1	-	Both	-	-	14362	-	-	-	-	-	-	-	13750	-
Wall 8-1	1	Both	-	-	14362	1.0	1.0	125	242	-	S	-	13750	-
Seg. 1	-	Both	261.1	-	5745	1.0	1.0	125	242	-	-	250	5500	1.00
Seg. 2	-	Both	261.1	-	2872	1.0	1.0	125	242	-	-	250	2750	1.00
Seg. 3	-	Both	261.1	-	5745	1.0	1.0	125	242	-	-	250	5500	1.00
<b>Line B</b>														
<b>Level 2</b>														
LnB, Lev2	-	Both	-	-	5993	-	-	-	-	-	-	-	10779	-
Wall B-1	5	Both	-	-	2653	1.0	1.0	125	353	-	S	-	4771	-
Seg. 1	-	Both	196.5	-	786	1.0	1.0	125	353	-	-	353	1414	0.56
Seg. 2	-	Both	196.5	-	983	1.0	1.0	125	353	-	-	353	1767	0.56
Seg. 3	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Seg. 4	-	Both	196.5	-	884	1.0	1.0	125	353	-	-	353	1590	0.56
Wall B-2	5	Both	-	-	3341	1.0	1.0	125	353	-	S	-	6008	-
Seg. 1	-	Both	196.5	-	884	1.0	1.0	125	353	-	-	353	1590	0.56
Seg. 2	-	Both	196.5	-	786	1.0	1.0	125	353	-	-	353	1414	0.56
Seg. 3	-	Both	196.5	-	884	1.0	1.0	125	353	-	-	353	1590	0.56
Seg. 4	-	Both	196.5	-	786	1.0	1.0	125	353	-	-	353	1414	0.56
<b>Level 1</b>														
LnB, Lev1	-	Both	-	-	10459	-	-	-	-	-	-	-	3646	-
Wall B-1	4	Both	0.0	-	0	1.0	1.0	0	353	-	G	-	-	-
Wall B-2	2	Both	0.0	-	0	1.0	1.0	0	456	-	G	-	-	-
Wall B-3	3^	Both	2614.8	-	10459	1.0	1.0	456	456	-	A	911	3646	1.00
Wall B-4	2	Both	0.0	-	0	1.0	1.0	0	456	-	G	-	-	-
<b>Line C</b>														
<b>Level 2</b>														
LnC, Lev2	-	Both	-	-	11034	-	-	-	-	-	-	-	22227	-
Wall C-1	5	Both	175.4	-	3597	1.0	1.0	125	353	-	S	353	7245	0.50

## SHEAR RESULTS (flexible seismic design, continued)

Wall C-2	5	Both	175.4	-	1754	1.0	1.0	125	353	-	S	353	3534	0.50
Wall C-3	6	Both	226.2	-	2262	1.0	1.0	125	456	-	S	456	4557	0.50
Wall C-4	5	Both	175.4	-	3421	1.0	1.0	125	353	-	S	353	6891	0.50
<b>Level 1</b>														
LnC, Lev1	-	Both	-	-	15586	-	-	-	-	-	-	-	21646	-
Wall C-1	6	Both	328.1	-	4430	1.0	1.0	125	456	-	S	456	6152	0.72
Wall C-2	6	Both	328.1	-	3281	1.0	1.0	125	456	-	S	456	4557	0.72
Wall C-3	6	Both	328.1	-	3445	1.0	1.0	125	456	-	S	456	4785	0.72
Wall C-4	6	Both	328.1	-	4430	1.0	1.0	125	456	-	S	456	6152	0.72
<b>Line D</b>														
LnD, Lev1	-	Both	-	-	2808	-	-	-	-	-	-	-	6008	-
Wall D-1	5	Both	165.2	-	2808	1.0	1.0	125	353	-	S	353	6008	0.47
<b>Line E</b>														
<b>Level 2</b>														
LnE, Lev2	-	Both	-	-	6779	-	-	-	-	-	-	-	8835	-
Wall E-1	5	Both	-	-	3254	1.0	1.0	125	353	-	S	-	4241	-
Seg. 1	-	Both	271.2	-	1085	1.0	1.0	125	353	-	-	353	1414	0.77
Seg. 2	-	Both	271.2	-	1085	1.0	1.0	125	353	-	-	353	1414	0.77
Seg. 3	-	Both	271.2	-	1085	1.0	1.0	125	353	-	-	353	1414	0.77
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Wall E-2	5	Both	-	-	3525	1.0	1.0	125	353	-	S	-	4594	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Seg. 2	-	Both	271.2	-	1085	1.0	1.0	125	353	-	-	353	1414	0.77
Seg. 3	-	Both	271.2	-	1085	1.0	1.0	125	353	-	-	353	1414	0.77
Seg. 4	-	Both	271.2	-	1356	1.0	1.0	125	353	-	-	353	1767	0.77
<b>Level 1</b>														
LnE, Lev1	-	Both	-	-	9742	-	-	-	-	-	-	-	11486	-
Wall E-1	5	Both	-	-	4946	1.0	1.0	125	353	-	S	-	5831	-
Seg. 1	-	Both	299.8	-	1199	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 2	-	Both	299.8	-	1199	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 3	-	Both	299.8	-	1349	1.0	1.0	125	353	-	-	353	1590	0.85
Seg. 4	-	Both	299.8	-	1199	1.0	1.0	125	353	-	-	353	1414	0.85
Wall E-2	5	Both	-	-	4796	1.0	1.0	125	353	-	S	-	5654	-
Seg. 1	-	Both	299.8	-	1199	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 2	-	Both	299.8	-	1199	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 3	-	Both	299.8	-	1199	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 4	-	Both	299.8	-	1199	1.0	1.0	125	353	-	-	353	1414	0.85

## Legend:

W Gp - Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall. "A" means that this wall is critical for all walls in the Standard Wall group.

For Dir - Direction of seismic force along shearline.

v - Design shear force on segment = ASD factored shear force per unit FHS

vmax - Collector shear force for perforated walls as per SDPWS eqn. 4.3-8 = V/FHS/Co. Full height sheathing (FHS) factored for narrow segments as per 4.3.4.3

V - ASD factored shear force. For shearline: total shearline force. For wall: total of all segments on wall. For segment: force on segment

Asp/Cub - For wall: Unblocked structural wood panel factor Cub from SDPWS 4.3.3.2. For segment: Aspect ratio adjustment from SDPWS 4.3.3.4.1

Int - Unit shear capacity of interior sheathing; Ext - Unit shear capacity of exterior sheathing. For wall: Unfactored. For segment: Include Cub factor and aspect ratio adjustments.

Co - Adjustment factor for perforated walls from SDPWS Equation 4.3-5.

C - Sheathing combination rule, A = Add capacities, S = Strongest side or twice weakest, G = Stiffness-based using SDPWS 4.3-3.

Cmb - Combined interior and exterior unit shear capacity including perforated wall factor Co.

V - Total factored shear capacity of shearline, wall or segment.

Crit Resp - Response ratio = v/Cmb = design shear force/unit shear capacity. "W" indicates that the wind design criterion was critical in selecting wall.

## Notes:

Refer to Elevation View diagrams for individual level for uplift anchorage force t for perforated walls given by SDPWS 4.3.6.4.2.4.



## HOLD-DOWN DESIGN (flexible seismic design)

Level	Line-Wall	Posit'n	Location [ft]		Tensile ASD				Hold-down	Cap [lbs]	Crit Resp.
			X	Y	Shear	Dead	Ev	Cmb'd			
<b>Level 1</b>											
<b>Line 1</b>											
	1-1	R Op 1	-17.00	10.63	2377			2377	HDU8-SDS2.	4870	0.49
	1-1	L Op 2	-17.00	16.38	2377			2377	HDU8-SDS2.	4870	0.49
	1-1	R Op 2	-17.00	22.63	2362			2362	HDU8-SDS2.	4870	0.49
	1-1	L Op 3	-17.00	29.38	2362			2362	HDU8-SDS2.	4870	0.49
<b>Line 2</b>											
	2-1	L End	0.50	0.12	4632			4632	HDU8-SDS2.	4870	0.95
		V Elem	0.00	6.88	2358			2358	Refer to upper level		
		V Elem	0.00	11.63	4107			4107	Refer to upper level		
		V Elem	0.00	21.88	4107			4107	Refer to upper level		
		V Elem	0.00	27.63	5872			5872	Refer to upper level		
	2-1	R End	0.50	34.38	2274			2274	HDU8-SDS2.	4870	0.47
		V Elem	0.00	39.38	5872			5872	Refer to upper level		
		V Elem	0.00	39.63	4305			4305	Refer to upper level		
	2-2	R Op 1	0.00	46.13	2286			2286	HDU8-SDS2.	4870	0.47
		V Elem	0.00	55.38	4305			4305	Refer to upper level		
		V Elem	0.00	59.13	2358			2358	Refer to upper level		
	2-2	R End	0.00	65.87	4644			4644	HDU8-SDS2.	4870	0.95
<b>Line 3</b>											
	3-1	L End	26.50	0.63	933			933	HDU8-SDS2.	4870	0.19
	3-1	R End	26.50	30.88	933			933	HDU8-SDS2.	4870	0.19
<b>Line 7</b>											
	7-1	L End	52.00	0.12	907			907	HDU8-SDS2.	4870	0.19
	7-1	R End	52.00	31.38	907			907	HDU8-SDS2.	4870	0.19
<b>Line 8</b>											
	8-1	L End	78.50	0.12	4659			4659	HDU8-SDS2.	4870	0.96
		V Elem	78.50	6.38	2546			2546	Refer to upper level		
		V Elem	78.50	10.13	4363			4363	Refer to upper level		
	8-1	L Op 1	78.50	21.88	6035			6035	HDU8-SDS2.	4870	1.00
	8-1	R Op 1	78.50	27.63	8161			8161	HDU8-SDS2.	4870	1.00
		V Elem	78.50	37.88	6464			6464	Refer to upper level		
	8-1	L Op 2	78.50	38.38	2138			2138	HDU8-SDS2.	4870	0.44
	8-1	R Op 2	78.50	44.13	6558			6558	HDU8-SDS2.	4870	1.00
		V Elem	78.50	54.88	4445			4445	Refer to upper level		
		V Elem	78.50	58.63	2606			2606	Refer to upper level		
	8-1	R End	78.50	65.87	4719			4719	HDU8-SDS2.	4870	0.97
<b>Line B</b>											
		V Elem	0.12	0.00	1677			1677	Refer to upper level		
		V Elem	2.88	0.00	957			957	Refer to upper level		
		V Elem	10.63	0.00	935			935	Refer to upper level		
		V Elem	12.88	0.00	1655			1655	Refer to upper level		
		V Elem	15.88	0.00	194			194	Refer to upper level		
		V Elem	23.63	0.00	1470			1470	Refer to upper level		
		V Elem	26.88	0.00	1665			1665	Refer to upper level		
	B-3	L End	37.13	0.00	22313			22313	HDU5-SDS2.	4065	1.00
	B-3	R End	40.88	0.00	22313			22313	HDU5-SDS2.	4065	1.00
		V Elem	49.63	0.00	1665			1665	Refer to upper level		
		V Elem	53.88	0.00	1665			1665	Refer to upper level		
		V Elem	54.38	0.00	643			643	Refer to upper level		
		V Elem	62.13	0.00	1034			1034	Refer to upper level		
		V Elem	62.88	0.00	1677			1677	Refer to upper level		
		V Elem	65.13	0.00	1665			1665	Refer to upper level		
		V Elem	67.38	0.00	1219			1219	Refer to upper level		
		V Elem	74.62	0.00	1231			1231	Refer to upper level		
		V Elem	78.37	0.00	1677			1677	Refer to upper level		
<b>Line C</b>											
		V Elem	0.12	31.00	1421			1421	Refer to upper level		
	C-1	L End	4.62	31.00	2674			2674	HDU8-SDS2.	4870	0.55
	C-1	R End	17.87	31.00	2674			2674	HDU8-SDS2.	4870	0.55
		V Elem	20.37	31.00	1421			1421	Refer to upper level		
	C-2	L End	24.63	31.00	4132			4132	HDU8-SDS2.	4870	0.85
	C-2	R End	34.38	31.00	4132			4132	HDU8-SDS2.	4870	0.85
	C-3	L End	43.63	31.50	2689			2689	HDU8-SDS2.	4870	0.55
		V Elem	44.13	31.00	1856			1856	Refer to upper level		
	C-3	R End	53.88	31.50	4545			4545	HDU8-SDS2.	4870	0.93
		V Elem	58.13	31.00	1422			1422	Refer to upper level		
	C-4	L End	60.13	31.00	2674			2674	HDU8-SDS2.	4870	0.55
	C-4	R End	73.37	31.00	2674			2674	HDU8-SDS2.	4870	0.55
		V Elem	77.38	31.00	1422			1422	Refer to upper level		
<b>Line D</b>											
	D-1	L End	-16.87	39.50	1341			1341	HDU8-SDS2.	4870	0.28
	D-1	R End	-0.12	39.50	1341			1341	HDU8-SDS2.	4870	0.28

## WoodWorks® Shearwalls

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## HOLD-DOWN DESIGN (flexible seismic design, continued)

Line E				Tensile ASD				Cap		Crit
Line-Wall	Posit'n	Location [ft]		Holddown Force [lbs]				Hold-down	[lbs]	Resp.
		X	Y	Shear	Dead	Ev	Cmb'd			
<b>Line E</b>										
E-1	L End	0.12	66.00	4872			4872	HDU8-SDS2.	4870	1.00
E-1	L Op 1	3.88	66.00	4872			4872	HDU8-SDS2.	4870	1.00
E-1	R Op 1	8.62	66.00	4872			4872	HDU8-SDS2.	4870	1.00
E-1	L Op 2	12.38	66.00	4872			4872	HDU8-SDS2.	4870	1.00
E-1	R Op 2	15.13	66.00	4853			4853	HDU8-SDS2.	4870	1.00
	V Elem	18.88	66.00	2314			2314	Refer to upper level		
E-1	L Op 3	19.38	66.00	2539			2539	HDU8-SDS2.	4870	0.52
E-1	R Op 3	24.13	66.00	2558			2558	HDU8-SDS2.	4870	0.53
E-1	R End	27.88	66.00	2558			2558	HDU8-SDS2.	4870	0.53
E-2	L End	50.63	66.00	2558			2558	HDU8-SDS2.	4870	0.53
E-2	L Op 1	54.38	66.00	2558			2558	HDU8-SDS2.	4870	0.53
E-2	R Op 1	59.13	66.00	4872			4872	HDU8-SDS2.	4870	1.00
E-2	L Op 2	62.88	66.00	4872			4872	HDU8-SDS2.	4870	1.00
E-2	R Op 2	65.63	66.00	4872			4872	HDU8-SDS2.	4870	1.00
E-2	L Op 3	69.38	66.00	4472			4472	HDU8-SDS2.	4870	0.92
E-2	R Op 3	74.62	66.00	4442			4442	HDU8-SDS2.	4870	0.91
E-2	R End	78.37	66.00	4841			4841	HDU8-SDS2.	4870	0.99
<b>Level 2</b>										
<b>Line 2</b>										
2-1	L End	0.00	0.12	2358			2358	MSTC48B3	3930	0.60
2-1	L Op 1	0.00	6.88	2358			2358	MSTC48B3	3930	0.60
2-1	R Op 1	0.00	11.63	4107			4107	MSTC48B3	3930	1.00
2-1	L Op 2	0.00	21.88	4107			4107	MSTC48B3	3930	1.00
2-1	R Op 2	0.00	27.63	5872			5872	MSTC48B3	3930	0.99
2-1	R End	0.00	39.38	5872			5872	MSTC48B3	3930	0.99
2-2	L End	0.00	39.63	4305			4305	MSTC48B3	3930	0.98
2-2	L Op 1	0.00	55.38	4305			4305	MSTC48B3	3930	0.98
2-2	R Op 1	0.00	59.13	2358			2358	MSTC48B3	3930	0.60
2-2	R End	0.00	65.87	2358			2358	MSTC48B3	3930	0.60
<b>Line 8</b>										
8-1	L End	78.50	0.12	2546			2546	MSTC48B3	3930	0.65
8-1	L Op 1	78.50	6.38	2546			2546	MSTC48B3	3930	0.65
8-1	R Op 1	78.50	10.13	4363			4363	MSTC48B3	3930	1.00
8-1	L Op 2	78.50	21.88	4363			4363	MSTC48B3	3930	1.00
8-1	R Op 2	78.50	27.13	6464			6464	MSTC48B3	3930	0.99
8-1	L Op 3	78.50	37.88	6464			6464	MSTC48B3	3930	1.00
8-1	R Op 3	78.50	44.13	4445			4445	MSTC48B3	3930	1.00
8-1	L Op 4	78.50	54.88	4445			4445	MSTC48B3	3930	0.98
8-1	R Op 4	78.50	58.63	2606			2606	MSTC48B3	3930	0.66
8-1	R End	78.50	65.87	2606			2606	MSTC48B3	3930	0.66
<b>Line B</b>										
B-1	L End	0.12	0.00	1677			1677	MSTC48B3	3930	0.43
B-1	L Op 1	3.88	0.00	1677			1677	MSTC48B3	3930	0.43
B-1	R Op 1	8.13	0.00	1655			1655	MSTC48B3	3930	0.42
B-1	L Op 2	12.88	0.00	1655			1655	MSTC48B3	3930	0.42
B-1	R Op 3	22.63	0.00	1665			1665	MSTC48B3	3930	0.42
B-1	R End	26.88	0.00	1665			1665	MSTC48B3	3930	0.42
B-2	L End	49.63	0.00	1665			1665	MSTC48B3	3930	0.42
B-2	L Op 1	53.88	0.00	1665			1665	MSTC48B3	3930	0.42
B-2	R Op 1	59.13	0.00	1677			1677	MSTC48B3	3930	0.43
B-2	L Op 2	62.88	0.00	1677			1677	MSTC48B3	3930	0.43
B-2	R Op 2	65.13	0.00	1665			1665	MSTC48B3	3930	0.42
B-2	L Op 3	69.38	0.00	1665			1665	MSTC48B3	3930	0.42
B-2	R Op 3	74.62	0.00	1677			1677	MSTC48B3	3930	0.43
B-2	R End	78.37	0.00	1677			1677	MSTC48B3	3930	0.43
<b>Line C</b>										
C-1	L End	0.12	31.00	1421			1421	MSTC48B3	3930	0.36
C-1	R End	20.37	31.00	1421			1421	MSTC48B3	3930	0.36
C-2	L End	24.63	31.00	1440			1440	MSTC48B3	3930	0.37
C-2	R End	34.38	31.00	1440			1440	MSTC48B3	3930	0.37
C-3	L End	44.13	31.50	1856			1856	MSTC48B3	3930	0.47
C-3	R End	53.88	31.50	1856			1856	MSTC48B3	3930	0.47
C-4	L End	58.13	31.00	1422			1422	MSTC48B3	3930	0.36
C-4	R End	77.38	31.00	1422			1422	MSTC48B3	3930	0.36
<b>Line E</b>										
E-1	L End	0.12	66.00	2314			2314	MSTC48B3	3930	0.59
E-1	L Op 1	3.88	66.00	2314			2314	MSTC48B3	3930	0.59
E-1	R Op 1	8.62	66.00	2314			2314	MSTC48B3	3930	0.59
E-1	L Op 2	12.38	66.00	2314			2314	MSTC48B3	3930	0.59
E-1	R Op 2	15.13	66.00	2314			2314	MSTC48B3	3930	0.59

**HOLD-DOWN DESIGN (flexible seismic design, continued)**

E-1	L Op	3	18.88	66.00	2314	2314	MSTC48B3	3930	0.59
E-2	R Op	1	59.13	66.00	2314	2314	MSTC48B3	3930	0.59
E-2	L Op	2	62.88	66.00	2314	2314	MSTC48B3	3930	0.59
E-2	R Op	2	65.63	66.00	2314	2314	MSTC48B3	3930	0.59
E-2	L Op	3	69.38	66.00	2314	2314	MSTC48B3	3930	0.59
E-2	R Op	3	73.63	66.00	2284	2284	MSTC48B3	3930	0.58
E-2	R End		78.37	66.00	2284	2284	MSTC48B3	3930	0.58

**Legend:****Line-Wall:**

At wall or opening – Shearline and wall number

At vertical element - Shearline

**Posit'n - Position of stud that hold-down is attached to:**

V Elem - Vertical element: column or strengthened studs required where not at wall end or opening

L or R End - At left or right wall end

L or R Op n - At left or right side of opening n

**Location - Co-ordinates in Plan View****Hold-down Forces:**

Shear – Seismic shear overturning component, factored for ASD by 0.7. For perforated walls, T from SDPWS 4.3-8 is used

Dead – Dead load resisting component, factored for ASD by 0.60

Ev – Vertical seismic load effect from ASCE 7 12.4.2.2 =  $-0.2Sds \times \text{ASD seismic factor} \times \text{unfactored } D = 0.140 \times \text{factored } D$ . Refer to Seismic Information table for more details.

Cmb'd - Sum of ASD-factored overturning, dead and vertical seismic forces. May also include the uplift force t for perforated walls from SDPWS 4.3.6.2.1 when openings are staggered.

Hold-down – Device used from hold-down database

Cap – Allowable ASD tension load

Crit. Resp. – Critical Response = Combined ASD force/Allowable ASD tension load

**Notes:**

Shear overturning force is horizontal seismic load effect Eh from ASCE 7 12.4.2.

Uses load combination 8 from ASCE 7 2.4.1 =  $0.6D + 0.7(Eh - Ev)$ .

Anchor bolts must have minimum 0.229" x 3" x 3" steel plate washers, conforming to specifications in SDPWS 4.3.6.4.3 and 4.4.1.6.

Refer to Shear Results table for factor Co, and shearline dimensions table for the sum of Li, used to calculate tension force T for perforated walls from SDPWS 4.3-9.

Shearwalls does not check for either plan or vertical structural irregularities.

## DRAG STRUT FORCES (flexible seismic design)

Level 1					Drag Strut Force [lbs]	
Line-Wall	Position on Wall or Opening	Location [ft]		---	->	<---
		X	Y			
<b>Line 1</b>						
1-1	Right Opening 1	-17.00	10.50	473	473	
1-1	Left Opening 2	-17.00	16.50	78	78	
1-1	Right Opening 2	-17.00	22.50	192	192	
1-1	Left Opening 3	-17.00	29.50	451	451	
<b>Line 2</b>						
2-1	Right Wall End	0.50	34.50	1697	1697	
2-2	Right Opening 1	0.00	46.00	983	983	
<b>Line 3</b>						
3-1	Left Wall End	26.50	0.50	27	27	
3-1	Right Wall End	26.50	31.00	1871	1871	
<b>Line 7</b>						
7-1	Right Wall End	52.00	31.50	1853	1853	
<b>Line 8</b>						
8-1	Left Opening 1	78.50	22.00	957	957	
8-1	Right Opening 1	78.50	27.50	239	239	
8-1	Left Opening 2	78.50	38.50	239	239	
8-1	Right Opening 2	78.50	44.00	957	957	
<b>Line B</b>						
B-3	Left Wall End	37.00	0.00	5914	5914	
B-3	Right Wall End	41.00	0.00	4107	4107	
<b>Line C</b>						
C-1	Left Wall End	4.50	31.00	3509	3509	
C-1	Right Wall End	18.00	31.00	1282	1282	
C-2	Left Wall End	24.50	31.00	2343	2343	
C-2	Right Wall End	34.50	31.00	694	694	
C-3	Left Wall End	43.50	31.50	2163	2163	
C-3	Right Wall End	54.00	31.50	431	431	
C-4	Left Wall End	60.00	31.00	1410	1410	
C-4	Right Wall End	73.50	31.00	816	816	
<b>Line D</b>						
D-1	Right Wall End	0.00	39.50	2308	2308	
<b>Line E</b>						
E-1	Left Opening 1	4.00	66.00	703	703	
E-1	Right Opening 1	8.50	66.00	144	144	
E-1	Left Opening 2	12.50	66.00	847	847	
E-1	Right Opening 2	15.00	66.00	537	537	
E-1	Left Opening 3	19.50	66.00	1327	1327	
E-1	Right Opening 3	24.00	66.00	768	768	
E-1	Right Wall End	28.00	66.00	1471	1471	
E-2	Left Wall End	50.50	66.00	1321	1321	
E-2	Left Opening 1	54.50	66.00	619	619	
E-2	Right Opening 1	59.00	66.00	1177	1177	
E-2	Left Opening 2	63.00	66.00	474	474	
E-2	Right Opening 2	65.50	66.00	785	785	
E-2	Left Opening 3	69.50	66.00	82	82	
E-2	Right Opening 3	74.50	66.00	703	703	
<b>Level 2</b>						
Line-Wall	Position on Wall or Opening	Location [ft]		---	->	<---
		X	Y			
<b>Line 2</b>						
2-1	Left Opening 1	0.00	7.00	325	325	
2-1	Right Opening 1	0.00	11.50	487	487	
2-1	Left Opening 2	0.00	22.00	0	0	
2-1	Right Opening 2	0.00	27.50	993	993	
2-2	Left Opening 1	0.00	55.50	307	307	
2-2	Right Opening 1	0.00	59.00	325	325	
<b>Line 8</b>						
8-1	Left Opening 1	78.50	6.50	439	439	
8-1	Right Opening 1	78.50	10.00	192	192	
8-1	Left Opening 2	78.50	22.00	620	620	
8-1	Right Opening 2	78.50	27.00	282	282	
8-1	Left Opening 3	78.50	38.00	462	462	
8-1	Right Opening 3	78.50	44.00	620	620	
8-1	Left Opening 4	78.50	55.00	124	124	
8-1	Right Opening 4	78.50	58.50	507	507	
<b>Line B</b>						
B-1	Left Opening 1	4.00	0.00	481	481	
B-1	Right Opening 1	8.00	0.00	175	175	

**DRAG STRUT FORCES (flexible seismic design, continued)**

B-1	Left Opening 2	13.00	0.00	776	776
B-1	Right Opening 3	22.50	0.00	51	51
B-1	Right Wall End	27.00	0.00	591	591
B-2	Left Wall End	49.50	0.00	1126	1126
B-2	Left Opening 1	54.00	0.00	586	586
B-2	Right Opening 1	59.00	0.00	968	968
B-2	Left Opening 2	63.00	0.00	487	487
B-2	Right Opening 2	65.00	0.00	640	640
B-2	Left Opening 3	69.50	0.00	99	99
B-2	Right Opening 3	74.50	0.00	481	481
<b>Line C</b>					
C-1	Right Wall End	20.50	31.00	715	715
C-2	Left Wall End	24.50	31.00	153	153
C-2	Right Wall End	34.50	31.00	501	501
C-3	Left Wall End	44.00	31.50	834	834
C-3	Right Wall End	54.00	31.50	23	23
C-4	Left Wall End	58.00	31.00	540	540
C-4	Right Wall End	77.50	31.00	141	141
<b>Line E</b>					
E-1	Left Opening 1	4.00	66.00	739	739
E-1	Right Opening 1	8.50	66.00	351	351
E-1	Left Opening 2	12.50	66.00	1090	1090
E-1	Right Opening 2	15.00	66.00	874	874
E-1	Left Opening 3	19.00	66.00	1613	1613
E-2	Right Opening 1	59.00	66.00	1841	1841
E-2	Left Opening 2	63.00	66.00	1102	1102
E-2	Right Opening 2	65.50	66.00	1318	1318
E-2	Left Opening 3	69.50	66.00	579	579
E-2	Right Opening 3	73.50	66.00	924	924

**Legend:***Line-Wall - Shearline and wall number**Position... - Side of opening or wall end that drag strut is attached to**Location - Co-ordinates in Plan View**Drag strut Force - Axial force in transfer elements at openings and gaps in walls along shearline.**Based on ASD factored shearline force derived from the greater of:**Diaphragm force  $F_{px}$  from Eqn. 12.10-1 plus 25% irregularity increase (12.3.3.4)**Storey force  $V_x$  from Eqn 12.8-13**For perforated walls, shearline force is  $v_{max}$  from 4.3.6.4.1.1. Includes redundancy factor  $\rho$ .**-> Due to shearline force in the west-to-east or south-to-north direction**<- Due to shearline force in the east-to-west or north-to-south direction*

## Rigid Diaphragm Seismic Design

## SEISMIC INFORMATION

Level	Mass [lbs]	Area [sq.ft]	Story Shear [lbs]		Diaphragm Force Fpx [lbs]	
			E-W	N-S	E-W	N-S
2	84163	5301.0	34010	34010	20199	20199
1	99624	5963.0	21126	21126	23910	23910
All	183787	-	55136	55136	-	-

## Legend:

Building mass – Sum of all generated and input building masses on level =  $w_x$  in ASCE 7 equation 12.8-12.

Storey shear – Total unfactored (strength-level) shear force induced at level  $x$ , =  $F_x$  in ASCE 7 equation 12.8-11.

Diaphragm force  $F_{px}$  - Unfactored force intended for diaphragm design from Eqn 12.10-1; used by Shearwalls only for drag strut forces, see 12.10.2.1 Exception 2.

Redundancy Factor  $\rho$  (rho):

E-W 1.00, N-S 1.00

Automatically calculated according to ASCE 7 12.3.4.2.

Vertical Earthquake Load  $E_v$ 

$E_v = 0.2 S_{ds} D$ ;  $S_{ds} = 0.60$ ;  $E_v = 0.120 D$  unfactored;  $0.084 D$  factored; total dead load factor:  $0.6 - 0.084 = 0.516$  tension,  $1.0 + 0.084 = 1.084$  compression.

## WoodWorks® Shearwalls

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## SHEAR RESULTS (rigid seismic design)

N-S Shearlines	W Gp	For Dir	ASD Shear Force [plf]			Asp-Cub		Allowable Shear [plf]					Resp. Ratio	
			v	vmax	V [lbs]	Int	Ext	Int	Ext	Co	C	Cmb		V [lbs]
<b>Line 1</b>														
<b>Level 1</b>														
Ln1, Lev1	-	Both	-	-	3477	-	-	-	-	-	-	-	4594	-
Wall 1-1	5	Both	-	-	3477	1.0	1.0	125	353	-	S	-	4594	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Seg. 2	-	Both	267.5	-	1605	1.0	1.0	125	353	-	-	353	2120	0.76
Seg. 3	-	Both	267.5	-	1872	1.0	1.0	125	353	-	-	353	2474	0.76
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
<b>Line 2</b>														
<b>Level 2</b>														
Ln2, Lev2	-	Both	-	-	12886	-	-	-	-	-	-	-	13125	-
Wall 2-1	1	Both	-	-	7240	1.0	1.0	125	242	-	S	-	7375	-
Seg. 1	-	Both	245.4	-	1718	1.0	1.0	125	242	-	-	250	1750	0.98
Seg. 2	-	Both	245.4	-	2577	1.0	1.0	125	242	-	-	250	2625	0.98
Seg. 3	-	Both	245.4	-	2945	1.0	1.0	125	242	-	-	250	3000	0.98
Wall 2-2	1	Both	-	-	5645	1.0	1.0	125	242	-	S	-	5750	-
Seg. 1	-	Both	245.4	-	3927	1.0	1.0	125	242	-	-	250	4000	0.98
Seg. 2	-	Both	245.4	-	1718	1.0	1.0	125	242	-	-	250	1750	0.98
<b>Level 1</b>														
Ln2, Lev1	-	Both	-	-	9789	-	-	-	-	-	-	-	13625	-
Wall 2-1	1	Both	179.6	-	6197	1.0	1.0	125	242	-	S	250	8625	0.72
Wall 2-2	1	Both	-	-	3592	1.0	1.0	125	242	-	S	-	5000	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	242	-	-	250	-	-
Seg. 2	-	Both	179.6	-	3592	1.0	1.0	125	242	-	-	250	5000	0.72
<b>Line 3</b>														
Ln3, Lev1	-	Both	-	-	9176	-	-	-	-	-	-	-	13899	-
Wall 3-1	6	Both	300.9	-	9176	1.0	1.0	125	456	-	S	456	13899	0.66
<b>Line 7</b>														
Ln7, Lev1	-	Both	-	-	9845	-	-	-	-	-	-	-	14355	-
Wall 7-1	6	Both	312.5	-	9845	1.0	1.0	125	456	-	S	456	14355	0.69
<b>Line 8</b>														
<b>Level 2</b>														
Ln8, Lev2	-	Both	-	-	12499	-	-	-	-	-	-	-	12000	-
Wall 8-1	1	Both	-	-	12499	1.0	1.0	125	242	-	S	-	12000	-
Seg. 1	-	Both	260.4	-	1693	1.0	1.0	125	242	-	-	250	1625	1.00
Seg. 2	-	Both	260.4	-	3125	1.0	1.0	125	242	-	-	250	3000	1.00
Seg. 3	-	Both	260.4	-	2864	1.0	1.0	125	242	-	-	250	2750	1.00
Seg. 4	-	Both	260.4	-	2864	1.0	1.0	125	242	-	-	250	2750	1.00
Seg. 5	-	Both	260.4	-	1953	1.0	1.0	125	242	-	-	250	1875	1.00
<b>Level 1</b>														
Ln8, Lev1	-	Both	-	-	10405	-	-	-	-	-	-	-	13750	-
Wall 8-1	1	Both	-	-	10405	1.0	1.0	125	242	-	S	-	13750	-
Seg. 1	-	Both	189.2	-	4162	1.0	1.0	125	242	-	-	250	5500	0.76
Seg. 2	-	Both	189.2	-	2081	1.0	1.0	125	242	-	-	250	2750	0.76
Seg. 3	-	Both	189.2	-	4162	1.0	1.0	125	242	-	-	250	5500	0.76
<b>Line B</b>														
<b>Level 2</b>														
LnB, Lev2	-	Both	-	-	6245	-	-	-	-	-	-	-	10779	-
Wall B-1	5	Both	-	-	2764	1.0	1.0	125	353	-	S	-	4771	-
Seg. 1	-	Both	204.7	-	819	1.0	1.0	125	353	-	-	353	1414	0.58
Seg. 2	-	Both	204.7	-	1024	1.0	1.0	125	353	-	-	353	1767	0.58
Seg. 3	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Seg. 4	-	Both	204.7	-	921	1.0	1.0	125	353	-	-	353	1590	0.58
Wall B-2	5	Both	-	-	3481	1.0	1.0	125	353	-	S	-	6008	-
Seg. 1	-	Both	204.7	-	921	1.0	1.0	125	353	-	-	353	1590	0.58
Seg. 2	-	Both	204.7	-	819	1.0	1.0	125	353	-	-	353	1414	0.58
Seg. 3	-	Both	204.7	-	921	1.0	1.0	125	353	-	-	353	1590	0.58
Seg. 4	-	Both	204.7	-	819	1.0	1.0	125	353	-	-	353	1414	0.58
<b>Level 1</b>														
LnB, Lev1	-	Both	-	-	4506	-	-	-	-	-	-	-	3646	-
Wall B-1	4	Both	0.0	-	0	1.0	1.0	0	353	-	G	-	-	-
Wall B-2	2	Both	0.0	-	0	1.0	1.0	0	456	-	G	-	-	-
Wall B-3	3	Both	1126.5	-	4506	1.0	1.0	456	456	-	A	911	3646	1.00
Wall B-4	2	Both	0.0	-	0	1.0	1.0	0	456	-	G	-	-	-
<b>Line C</b>														
<b>Level 2</b>														
LnC, Lev2	-	Both	-	-	12683	-	-	-	-	-	-	-	22227	-
Wall C-1	5	Both	201.7	-	4134	1.0	1.0	125	353	-	S	353	7245	0.57

## WoodWorks® Shearwalls

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## SHEAR RESULTS (rigid seismic design, continued)

Wall C-2	5	Both	201.7	-	2017	1.0	1.0	125	353	-	S	353	3534	0.57
Wall C-3	6	Both	260.0	-	2600	1.0	1.0	125	456	-	S	456	4557	0.57
Wall C-4	5	Both	201.7	-	3932	1.0	1.0	125	353	-	S	353	6891	0.57
<b>Level 1</b>														
LnC, Lev1	-	Both	-	-	20120	-	-	-	-	-	-	-	21646	-
Wall C-1	6^	Both	423.6	-	5718	1.0	1.0	125	456	-	S	456	6152	0.93
Wall C-2	6^	Both	423.6	-	4236	1.0	1.0	125	456	-	S	456	4557	0.93
Wall C-3	6^	Both	423.6	-	4448	1.0	1.0	125	456	-	S	456	4785	0.93
Wall C-4	6^	Both	423.6	-	5718	1.0	1.0	125	456	-	S	456	6152	0.93
<b>Line D</b>														
LnD, Lev1	-	Both	-	-	5349	-	-	-	-	-	-	-	6008	-
Wall D-1	5^	Both	314.6	-	5349	1.0	1.0	125	353	-	S	353	6008	0.89
<b>Line E</b>														
<b>Level 2</b>														
LnE, Lev2	-	Both	-	-	5833	-	-	-	-	-	-	-	8835	-
Wall E-1	5	Both	-	-	2800	1.0	1.0	125	353	-	S	-	4241	-
Seg. 1	-	Both	233.3	-	933	1.0	1.0	125	353	-	-	353	1414	0.66
Seg. 2	-	Both	233.3	-	933	1.0	1.0	125	353	-	-	353	1414	0.66
Seg. 3	-	Both	233.3	-	933	1.0	1.0	125	353	-	-	353	1414	0.66
Seg. 4	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Wall E-2	5	Both	-	-	3033	1.0	1.0	125	353	-	S	-	4594	-
Seg. 1	-	Both	0.0	-	0	1.0	1.0	125	353	-	-	353	-	-
Seg. 2	-	Both	233.3	-	933	1.0	1.0	125	353	-	-	353	1414	0.66
Seg. 3	-	Both	233.3	-	933	1.0	1.0	125	353	-	-	353	1414	0.66
Seg. 4	-	Both	233.3	-	1167	1.0	1.0	125	353	-	-	353	1767	0.66
<b>Level 1</b>														
LnE, Lev1	-	Both	-	-	9777	-	-	-	-	-	-	-	11486	-
Wall E-1	5	Both	-	-	4964	1.0	1.0	125	353	-	S	-	5831	-
Seg. 1	-	Both	300.8	-	1203	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 2	-	Both	300.8	-	1203	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 3	-	Both	300.8	-	1354	1.0	1.0	125	353	-	-	353	1590	0.85
Seg. 4	-	Both	300.8	-	1203	1.0	1.0	125	353	-	-	353	1414	0.85
Wall E-2	5	Both	-	-	4813	1.0	1.0	125	353	-	S	-	5654	-
Seg. 1	-	Both	300.8	-	1203	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 2	-	Both	300.8	-	1203	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 3	-	Both	300.8	-	1203	1.0	1.0	125	353	-	-	353	1414	0.85
Seg. 4	-	Both	300.8	-	1203	1.0	1.0	125	353	-	-	353	1414	0.85

## Legend:

W Gp - Wall design group defined in Sheathing and Framing Materials tables, where it shows associated Standard Wall. "^" means that this wall is critical for all walls in the Standard Wall group.

For Dir - Direction of seismic force along shearline.

v - Design shear force on segment = ASD factored shear force per unit FHS

vmax - Collector shear force for perforated walls as per SDPWS eqn. 4.3-8 = V/FHS/Co. Full height sheathing (FHS) factored for narrow segments as per 4.3.4.3

V - ASD factored shear force. For shearline: total shearline force. For wall: total of all segments on wall. For segment: force on segment

Asp/Cub - For wall: Unblocked structural wood panel factor Cub from SDPWS 4.3.3.2. For segment: Aspect ratio adjustment from SDPWS 4.3.3.4.1

Int - Unit shear capacity of interior sheathing; Ext - Unit shear capacity of exterior sheathing. For wall: Unfactored. For segment: Include Cub factor and aspect ratio adjustments.

Co - Adjustment factor for perforated walls from SDPWS Equation 4.3-5.

C - Sheathing combination rule, A = Add capacities, S = Strongest side or twice weakest, G = Stiffness-based using SDPWS 4.3-3.

Cmb - Combined interior and exterior unit shear capacity including perforated wall factor Co.

V - Total factored shear capacity of shearline, wall or segment.

Crit Resp - Response ratio = v/Cmb = design shear force/unit shear capacity. "W" indicates that the wind design criterion was critical in selecting wall.

## Notes:

Refer to Elevation View diagrams for individual level for uplift anchorage force t for perforated walls given by SDPWS 4.3.6.4.2,4.



## HOLD-DOWN DESIGN (rigid seismic design)

Level 1				Tensile ASD				Hold-down	Cap [lbs]	Crit Resp.
Line-Wall	Posit'n	Location [ft]		Shear	Holddown Force [lbs]					
		X	Y		Dead	Ev	Cmb'd			
<b>Line 1</b>										
1-1	R Op 1	-17.00	10.63	4641			4641	HDU8-SDS2.	4870	0.95
1-1	L Op 2	-17.00	16.38	4641			4641	HDU8-SDS2.	4870	0.95
1-1	R Op 2	-17.00	22.63	4612			4612	HDU8-SDS2.	4870	0.95
1-1	L Op 3	-17.00	29.38	4612			4612	HDU8-SDS2.	4870	0.95
<b>Line 2</b>										
2-1	L End	0.50	0.12	3998			3998	HDU8-SDS2.	4870	0.82
	V Elem	0.00	6.88	2551			2551	Refer to upper level		
	V Elem	0.00	11.63	4443			4443	Refer to upper level		
	V Elem	0.00	21.88	4443			4443	Refer to upper level		
	V Elem	0.00	27.63	6353			6353	Refer to upper level		
2-1	R End	0.50	34.38	1447			1447	HDU8-SDS2.	4870	0.30
	V Elem	0.00	39.38	6353			6353	Refer to upper level		
	V Elem	0.00	39.63	4658			4658	Refer to upper level		
2-2	R Op 1	0.00	46.13	1455			1455	HDU8-SDS2.	4870	0.30
	V Elem	0.00	55.38	4658			4658	Refer to upper level		
	V Elem	0.00	59.13	2551			2551	Refer to upper level		
2-2	R End	0.00	65.87	4006			4006	HDU8-SDS2.	4870	0.82
<b>Line 3</b>										
3-1	L End	26.50	0.63	2427			2427	HDU8-SDS2.	4870	0.50
3-1	R End	26.50	30.88	2427			2427	HDU8-SDS2.	4870	0.50
<b>Line 7</b>										
7-1	L End	52.00	0.12	2520			2520	HDU8-SDS2.	4870	0.52
7-1	R End	52.00	31.38	2520			2520	HDU8-SDS2.	4870	0.52
<b>Line 8</b>										
8-1	L End	78.50	0.12	4206			4206	HDU8-SDS2.	4870	0.86
	V Elem	78.50	6.38	2675			2675	Refer to upper level		
	V Elem	78.50	10.13	4584			4584	Refer to upper level		
8-1	L Op 1	78.50	21.88	5652			5652	HDU8-SDS2.	4870	1.00
8-1	R Op 1	78.50	27.63	7877			7877	HDU8-SDS2.	4870	1.00
	V Elem	78.50	37.88	6791			6791	Refer to upper level		
8-1	L Op 2	78.50	38.38	1549			1549	HDU8-SDS2.	4870	0.32
8-1	R Op 2	78.50	44.13	6201			6201	HDU8-SDS2.	4870	1.00
	V Elem	78.50	54.88	4670			4670	Refer to upper level		
	V Elem	78.50	58.63	2738			2738	Refer to upper level		
8-1	R End	78.50	65.87	4269			4269	HDU8-SDS2.	4870	0.88
<b>Line B</b>										
	V Elem	0.12	0.00	1747			1747	Refer to upper level		
	V Elem	2.88	0.00	997			997	Refer to upper level		
	V Elem	10.63	0.00	974			974	Refer to upper level		
	V Elem	12.88	0.00	1724			1724	Refer to upper level		
	V Elem	15.88	0.00	202			202	Refer to upper level		
	V Elem	23.63	0.00	1532			1532	Refer to upper level		
	V Elem	26.88	0.00	1734			1734	Refer to upper level		
B-3	L End	37.13	0.00	9613			9613	HDU5-SDS2.	4065	1.00
B-3	R End	40.88	0.00	9613			9613	HDU5-SDS2.	4065	1.00
	V Elem	49.63	0.00	1734			1734	Refer to upper level		
	V Elem	53.88	0.00	1734			1734	Refer to upper level		
	V Elem	54.38	0.00	670			670	Refer to upper level		
	V Elem	62.13	0.00	1077			1077	Refer to upper level		
	V Elem	62.88	0.00	1747			1747	Refer to upper level		
	V Elem	65.13	0.00	1734			1734	Refer to upper level		
	V Elem	67.38	0.00	1270			1270	Refer to upper level		
	V Elem	74.62	0.00	1283			1283	Refer to upper level		
	V Elem	78.37	0.00	1747			1747	Refer to upper level		
<b>Line C</b>										
	V Elem	0.12	31.00	1633			1633	Refer to upper level		
C-1	L End	4.62	31.00	3453			3453	HDU8-SDS2.	4870	0.71
C-1	R End	17.87	31.00	3453			3453	HDU8-SDS2.	4870	0.71
	V Elem	20.37	31.00	1633			1633	Refer to upper level		
C-2	L End	24.63	31.00	5130			5130	HDU8-SDS2.	4870	1.00
C-2	R End	34.38	31.00	5130			5130	HDU8-SDS2.	4870	1.00
C-3	L End	43.63	31.50	3471			3471	HDU8-SDS2.	4870	0.71
	V Elem	44.13	31.00	2134			2134	Refer to upper level		
C-3	R End	53.88	31.50	5605			5605	HDU8-SDS2.	4870	1.00
	V Elem	58.13	31.00	1634			1634	Refer to upper level		
C-4	L End	60.13	31.00	3453			3453	HDU8-SDS2.	4870	0.71
C-4	R End	73.37	31.00	3453			3453	HDU8-SDS2.	4870	0.71
	V Elem	77.38	31.00	1634			1634	Refer to upper level		
<b>Line D</b>										
D-1	L End	-16.87	39.50	2555			2555	HDU8-SDS2.	4870	0.52
D-1	R End	-0.12	39.50	2555			2555	HDU8-SDS2.	4870	0.52

## WoodWorks® Shearwalls

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## HOLD-DOWN DESIGN (rigid seismic design, continued)

Line E				Tensile ASD				Cap		Crit
Line-Wall	Posit'n	Location [ft]		Hold-down Force [lbs]				Hold-down	[lbs]	Resp.
		X	Y	Shear	Dead	Ev	Cmb'd			
<b>Line E</b>										
E-1	L End	0.12	66.00	4558			4558	HDU8-SDS2.	4870	0.94
E-1	L Op 1	3.88	66.00	4558			4558	HDU8-SDS2.	4870	0.94
E-1	R Op 1	8.62	66.00	4558			4558	HDU8-SDS2.	4870	0.94
E-1	L Op 2	12.38	66.00	4558			4558	HDU8-SDS2.	4870	0.94
E-1	R Op 2	15.13	66.00	4539			4539	HDU8-SDS2.	4870	0.93
	V Elem	18.88	66.00	1991				Refer to upper level		
E-1	L Op 3	19.38	66.00	2548			2548	HDU8-SDS2.	4870	0.52
E-1	R Op 3	24.13	66.00	2567			2567	HDU8-SDS2.	4870	0.53
E-1	R End	27.88	66.00	2567			2567	HDU8-SDS2.	4870	0.53
E-2	L End	50.63	66.00	2567			2567	HDU8-SDS2.	4870	0.53
E-2	L Op 1	54.38	66.00	2567			2567	HDU8-SDS2.	4870	0.53
E-2	R Op 1	59.13	66.00	4558			4558	HDU8-SDS2.	4870	0.94
E-2	L Op 2	62.88	66.00	4558			4558	HDU8-SDS2.	4870	0.94
E-2	R Op 2	65.63	66.00	4558			4558	HDU8-SDS2.	4870	0.94
E-2	L Op 3	69.38	66.00	4214			4214	HDU8-SDS2.	4870	0.87
E-2	R Op 3	74.62	66.00	4188			4188	HDU8-SDS2.	4870	0.86
E-2	R End	78.37	66.00	4532			4532	HDU8-SDS2.	4870	0.93
<b>Level 2</b>										
<b>Line 2</b>										
2-1	L End	0.00	0.12	2551			2551	MSTC48B3	3930	0.65
2-1	L Op 1	0.00	6.88	2551			2551	MSTC48B3	3930	0.65
2-1	R Op 1	0.00	11.63	4443			4443	MSTC48B3	3930	1.13*
2-1	L Op 2	0.00	21.88	4443			4443	MSTC48B3	3930	1.13*
2-1	R Op 2	0.00	27.63	6353			6353	MSTC48B3	3930	1.62*
2-1	R End	0.00	39.38	6353			6353	MSTC48B3	3930	1.62*
2-2	L End	0.00	39.63	4658			4658	MSTC48B3	3930	1.19*
2-2	L Op 1	0.00	55.38	4658			4658	MSTC48B3	3930	1.19*
2-2	R Op 1	0.00	59.13	2551			2551	MSTC48B3	3930	0.65
2-2	R End	0.00	65.87	2551			2551	MSTC48B3	3930	0.65
<b>Line 8</b>										
8-1	L End	78.50	0.12	2675			2675	MSTC48B3	3930	0.68
8-1	L Op 1	78.50	6.38	2675			2675	MSTC48B3	3930	0.68
8-1	R Op 1	78.50	10.13	4584			4584	MSTC48B3	3930	1.00
8-1	L Op 2	78.50	21.88	4584			4584	MSTC48B3	3930	1.00
8-1	R Op 2	78.50	27.13	6791			6791	MSTC48B3	3930	1.00
8-1	L Op 3	78.50	37.88	6791			6791	MSTC48B3	3930	1.00
8-1	R Op 3	78.50	44.13	4670			4670	MSTC48B3	3930	1.00
8-1	L Op 4	78.50	54.88	4670			4670	MSTC48B3	3930	1.00
8-1	R Op 4	78.50	58.63	2738			2738	MSTC48B3	3930	0.70
8-1	R End	78.50	65.87	2738			2738	MSTC48B3	3930	0.70
<b>Line B</b>										
B-1	L End	0.12	0.00	1747			1747	MSTC48B3	3930	0.44
B-1	L Op 1	3.88	0.00	1747			1747	MSTC48B3	3930	0.44
B-1	R Op 1	8.13	0.00	1724			1724	MSTC48B3	3930	0.44
B-1	L Op 2	12.88	0.00	1724			1724	MSTC48B3	3930	0.44
B-1	R Op 3	22.63	0.00	1734			1734	MSTC48B3	3930	0.44
B-1	R End	26.88	0.00	1734			1734	MSTC48B3	3930	0.44
B-2	L End	49.63	0.00	1734			1734	MSTC48B3	3930	0.44
B-2	L Op 1	53.88	0.00	1734			1734	MSTC48B3	3930	0.44
B-2	R Op 1	59.13	0.00	1747			1747	MSTC48B3	3930	0.44
B-2	L Op 2	62.88	0.00	1747			1747	MSTC48B3	3930	0.44
B-2	R Op 2	65.13	0.00	1734			1734	MSTC48B3	3930	0.44
B-2	L Op 3	69.38	0.00	1734			1734	MSTC48B3	3930	0.44
B-2	R Op 3	74.62	0.00	1747			1747	MSTC48B3	3930	0.44
B-2	R End	78.37	0.00	1747			1747	MSTC48B3	3930	0.44
<b>Line C</b>										
C-1	L End	0.12	31.00	1633			1633	MSTC48B3	3930	0.42
C-1	R End	20.37	31.00	1633			1633	MSTC48B3	3930	0.42
C-2	L End	24.63	31.00	1655			1655	MSTC48B3	3930	0.42
C-2	R End	34.38	31.00	1655			1655	MSTC48B3	3930	0.42
C-3	L End	44.13	31.50	2134			2134	MSTC48B3	3930	0.54
C-3	R End	53.88	31.50	2134			2134	MSTC48B3	3930	0.54
C-4	L End	58.13	31.00	1634			1634	MSTC48B3	3930	0.42
C-4	R End	77.38	31.00	1634			1634	MSTC48B3	3930	0.42
<b>Line E</b>										
E-1	L End	0.12	66.00	1991			1991	MSTC48B3	3930	0.51
E-1	L Op 1	3.88	66.00	1991			1991	MSTC48B3	3930	0.51
E-1	R Op 1	8.62	66.00	1991			1991	MSTC48B3	3930	0.51
E-1	L Op 2	12.38	66.00	1991			1991	MSTC48B3	3930	0.51
E-1	R Op 2	15.13	66.00	1991			1991	MSTC48B3	3930	0.51

**HOLD-DOWN DESIGN (rigid seismic design, continued)**

E-1	L Op	3	18.88	66.00	1991	1991	MSTC48B3	3930	0.51
E-2	R Op	1	59.13	66.00	1991	1991	MSTC48B3	3930	0.51
E-2	L Op	2	62.88	66.00	1991	1991	MSTC48B3	3930	0.51
E-2	R Op	2	65.63	66.00	1991	1991	MSTC48B3	3930	0.51
E-2	L Op	3	69.38	66.00	1991	1991	MSTC48B3	3930	0.51
E-2	R Op	3	73.63	66.00	1965	1965	MSTC48B3	3930	0.50
E-2	R End		78.37	66.00	1965	1965	MSTC48B3	3930	0.50

**Legend:****Line-Wall:**

At wall or opening – Shearline and wall number

At vertical element - Shearline

**Posit'n - Position of stud that hold-down is attached to:**

V Elem - Vertical element: column or strengthened studs required where not at wall end or opening

L or R End - At left or right wall end

L or R Op n - At left or right side of opening n

**Location - Co-ordinates in Plan View****Hold-down Forces:**

Shear – Seismic shear overturning component, factored for ASD by 0.7. For perforated walls, T from SDPWS 4.3-8 is used

Dead – Dead load resisting component, factored for ASD by 0.60

Ev – Vertical seismic load effect from ASCE 7 12.4.2.2 =  $-0.2Sds \times \text{ASD seismic factor} \times \text{unfactored } D = 0.140 \times \text{factored } D$ . Refer to Seismic Information table for more details.

Cmb'd - Sum of ASD-factored overturning, dead and vertical seismic forces. May also include the uplift force t for perforated walls from SDPWS 4.3.6.2.1 when openings are staggered.

Hold-down – Device used from hold-down database

Cap – Allowable ASD tension load

Crit. Resp. – Critical Response = Combined ASD force/Allowable ASD tension load

**Notes:**

Shear overturning force is horizontal seismic load effect Eh from ASCE 7 12.4.2.

Uses load combination 8 from ASCE 7 2.4.1 =  $0.6D + 0.7(Eh - Ev)$ .

Anchor bolts must have minimum 0.229" x 3" x 3" steel plate washers, conforming to specifications in SDPWS 4.3.6.4.3 and 4.4.1.6.

Refer to Shear Results table for factor Co, and shearline dimensions table for the sum of Li, used to calculate tension force T for perforated walls from SDPWS 4.3-9.

Shearwalls does not check for either plan or vertical structural irregularities.

## DRAG STRUT FORCES (rigid seismic design)

Level 1				Drag Strut Force [lbs]	
Line-Wall	Position on Wall or Opening	Location [ft]		--->	<---
		X	Y		
<b>Line 1</b>					
1-1	Right Opening 1	-17.00	10.50	924	924
1-1	Left Opening 2	-17.00	16.50	152	152
1-1	Right Opening 2	-17.00	22.50	376	376
1-1	Left Opening 3	-17.00	29.50	880	880
<b>Line 2</b>					
2-1	Right Wall End	0.50	34.50	1080	1080
2-2	Right Opening 1	0.00	46.00	626	626
<b>Line 3</b>					
3-1	Left Wall End	26.50	0.50	70	70
3-1	Right Wall End	26.50	31.00	4866	4866
<b>Line 7</b>					
7-1	Right Wall End	52.00	31.50	5146	5146
<b>Line 8</b>					
8-1	Left Opening 1	78.50	22.00	694	694
8-1	Right Opening 1	78.50	27.50	173	173
8-1	Left Opening 2	78.50	38.50	173	173
8-1	Right Opening 2	78.50	44.00	694	694
<b>Line B</b>					
B-3	Left Wall End	37.00	0.00	2548	2548
B-3	Right Wall End	41.00	0.00	1769	1769
<b>Line C</b>					
C-1	Left Wall End	4.50	31.00	4530	4530
C-1	Right Wall End	18.00	31.00	1655	1655
C-2	Left Wall End	24.50	31.00	3025	3025
C-2	Right Wall End	34.50	31.00	896	896
C-3	Left Wall End	43.50	31.50	2792	2792
C-3	Right Wall End	54.00	31.50	557	557
C-4	Left Wall End	60.00	31.00	1821	1821
C-4	Right Wall End	73.50	31.00	1053	1053
<b>Line D</b>					
D-1	Right Wall End	0.00	39.50	4397	4397
<b>Line E</b>					
E-1	Left Opening 1	4.00	66.00	705	705
E-1	Right Opening 1	8.50	66.00	145	145
E-1	Left Opening 2	12.50	66.00	850	850
E-1	Right Opening 2	15.00	66.00	538	538
E-1	Left Opening 3	19.50	66.00	1332	1332
E-1	Right Opening 3	24.00	66.00	771	771
E-1	Right Wall End	28.00	66.00	1476	1476
E-2	Left Wall End	50.50	66.00	1326	1326
E-2	Left Opening 1	54.50	66.00	621	621
E-2	Right Opening 1	59.00	66.00	1181	1181
E-2	Left Opening 2	63.00	66.00	476	476
E-2	Right Opening 2	65.50	66.00	788	788
E-2	Left Opening 3	69.50	66.00	82	82
E-2	Right Opening 3	74.50	66.00	705	705
<b>Level 2</b>					
Line-Wall	Position on Wall or Opening	Location [ft]		Drag Strut Force [lbs]	
		X	Y	--->	<---
<b>Line 2</b>					
2-1	Left Opening 1	0.00	7.00	351	351
2-1	Right Opening 1	0.00	11.50	527	527
2-1	Right Opening 2	0.00	27.50	1074	1074
2-2	Left Opening 1	0.00	55.50	332	332
2-2	Right Opening 1	0.00	59.00	351	351
<b>Line 8</b>					
8-1	Left Opening 1	78.50	6.50	462	462
8-1	Right Opening 1	78.50	10.00	201	201
8-1	Left Opening 2	78.50	22.00	651	651
8-1	Right Opening 2	78.50	27.00	296	296
8-1	Left Opening 3	78.50	38.00	485	485
8-1	Right Opening 3	78.50	44.00	651	651
8-1	Left Opening 4	78.50	55.00	130	130
8-1	Right Opening 4	78.50	58.50	533	533
<b>Line B</b>					
B-1	Left Opening 1	4.00	0.00	501	501
B-1	Right Opening 1	8.00	0.00	183	183
B-1	Left Opening 2	13.00	0.00	809	809

**DRAG STRUT FORCES (rigid seismic design, continued)**

B-1	Right Opening 3	22.50	0.00	53	53
B-1	Right Wall End	27.00	0.00	616	616
B-2	Left Wall End	49.50	0.00	1174	1174
B-2	Left Opening 1	54.00	0.00	610	610
B-2	Right Opening 1	59.00	0.00	1008	1008
B-2	Left Opening 2	63.00	0.00	507	507
B-2	Right Opening 2	65.00	0.00	666	666
B-2	Left Opening 3	69.50	0.00	103	103
B-2	Right Opening 3	74.50	0.00	501	501
<b>Line C</b>					
C-1	Right Wall End	20.50	31.00	822	822
C-2	Left Wall End	24.50	31.00	176	176
C-2	Right Wall End	34.50	31.00	576	576
C-3	Left Wall End	44.00	31.50	959	959
C-3	Right Wall End	54.00	31.50	26	26
C-4	Left Wall End	58.00	31.00	620	620
C-4	Right Wall End	77.50	31.00	162	162
<b>Line E</b>					
E-1	Left Opening 1	4.00	66.00	636	636
E-1	Right Opening 1	8.50	66.00	302	302
E-1	Left Opening 2	12.50	66.00	938	938
E-1	Right Opening 2	15.00	66.00	752	752
E-1	Left Opening 3	19.00	66.00	1388	1388
E-2	Right Opening 1	59.00	66.00	1584	1584
E-2	Left Opening 2	63.00	66.00	948	948
E-2	Right Opening 2	65.50	66.00	1134	1134
E-2	Left Opening 3	69.50	66.00	498	498
E-2	Right Opening 3	73.50	66.00	795	795

**Legend:**

*Line-Wall - Shearline and wall number*

*Position... - Side of opening or wall end that drag strut is attached to*

*Location - Co-ordinates in Plan View*

*Drag strut Force - Axial force in transfer elements at openings and gaps in walls along shearline.*

*Based on ASD factored shearline force derived from the greater of:*

*Diaphragm force  $F_{px}$  from Eqn. 12.10-1 plus 25% irregularity increase (12.3.3.4)*

*Storey force  $V_x$  from Eqn 12.8-13*

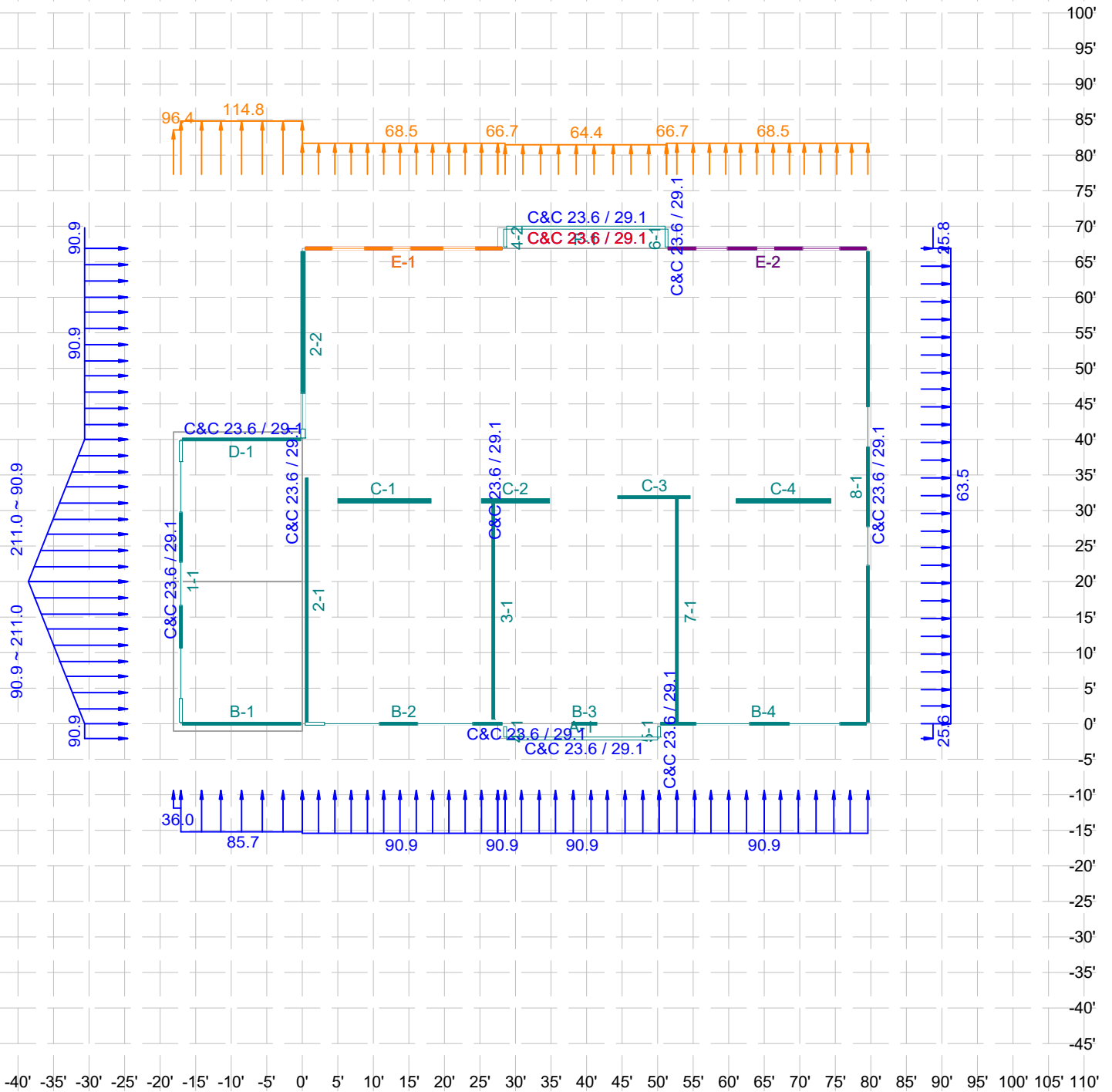
*For perforated walls, shearline force is  $v_{max}$  from 4.3.6.4.1.1. Includes redundancy factor  $\rho$ .*

*-> Due to shearline force in the west-to-east or south-to-north direction*

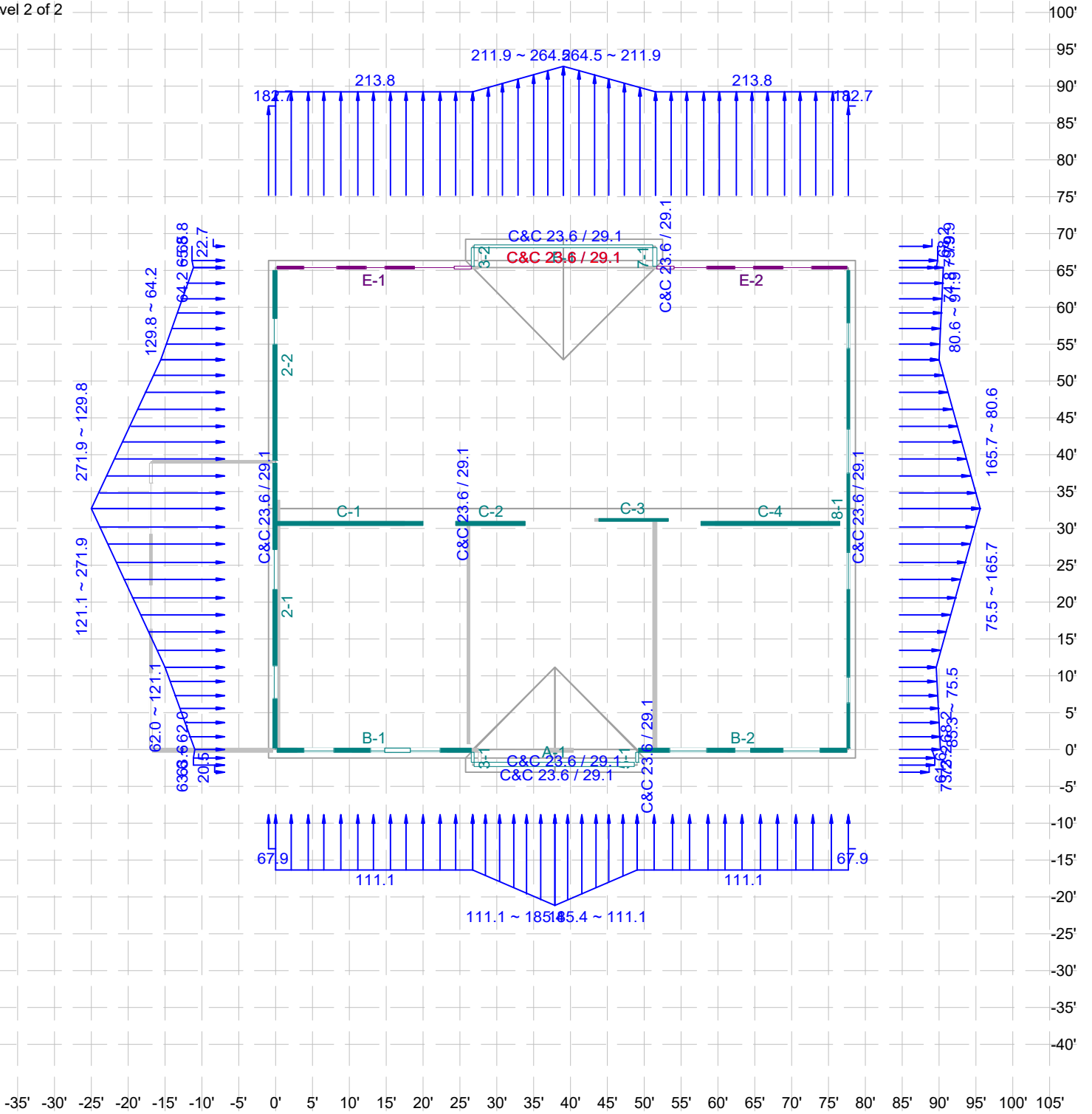
*<- Due to shearline force in the east-to-west or north-to-south direction*



Level 1 of 2



Level 2 of 2

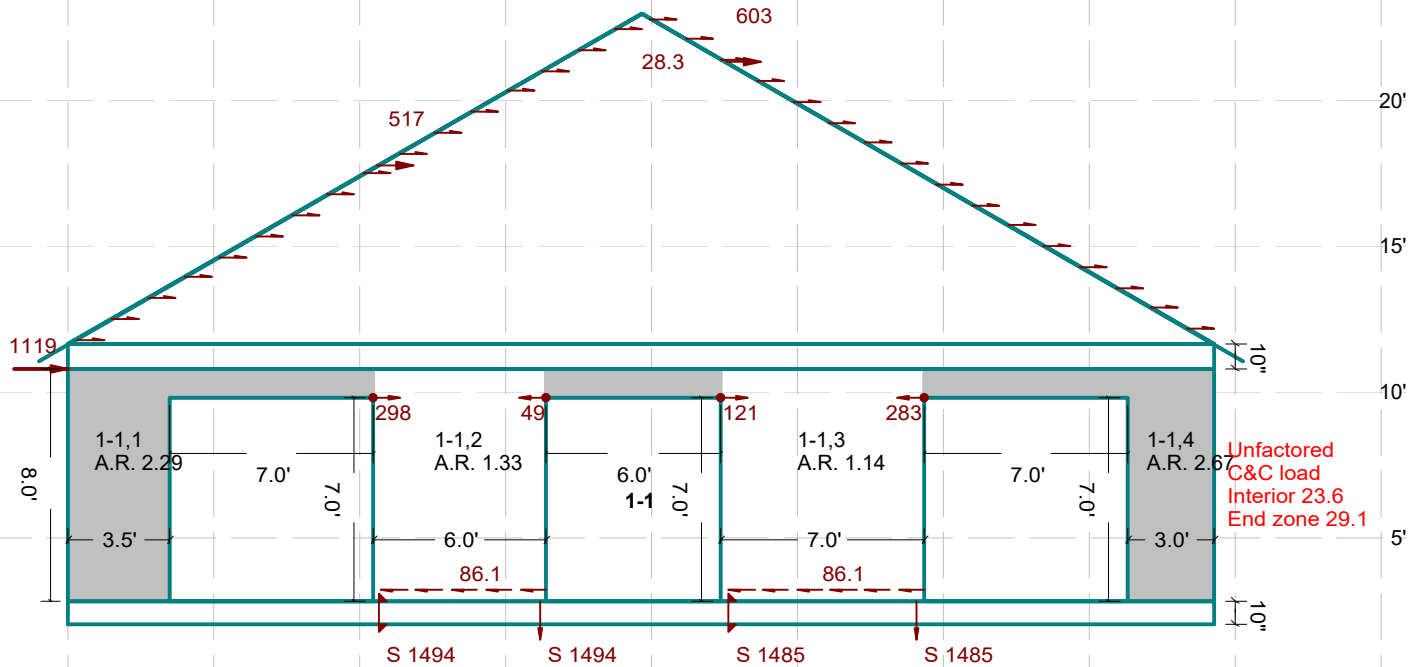


Unfactored generated wind shear load using Direction method, Case 1 (plf)

Orange = Selected wall(s)



**Elevation View  
Shearline 1, at X = -17 ft, Level 1.  
Flexible Diaphragm Wind Design.**



A.R. - Aspect ratio; Adj - Adjustment

**All shearwalls, Design group 5:**

Exterior surface:  
 7/16" Structural sheathing w/ 8d nails @ 4/12"  
 Shear capacity: 494.8 plf  
 C&C sheath. load: 14.2 / 17.5 psf; cap. 190.6 psf  
 Nail withdr. load 23.3 lbs; cap. 72.3 lbs  
 Interior surface:  
 1/2" Gypsum WBoard 1-ply w/ 5d nails @ 7/7"  
 Shear capacity: 125.0 plf  
 Frame: Hem-Fir @ 16", blocked  
**Critical Segment: 1-1,3:**  
 Design shear force: 86.1 plf  
 Combined capacity (added): 619.8 plf

**Factored Forces**

**Vertical**

- ▶ Holddown force (lbs)
- ↓ Compression force (lbs)
- S - Shear overturning (lbs)
- U - Wind uplift (lbs)
- D - Dead (lbs)

Combined: S - D + U (tens); S + D - U (comp)

**Unfactored Loads**

- ↓↓↓ Dead

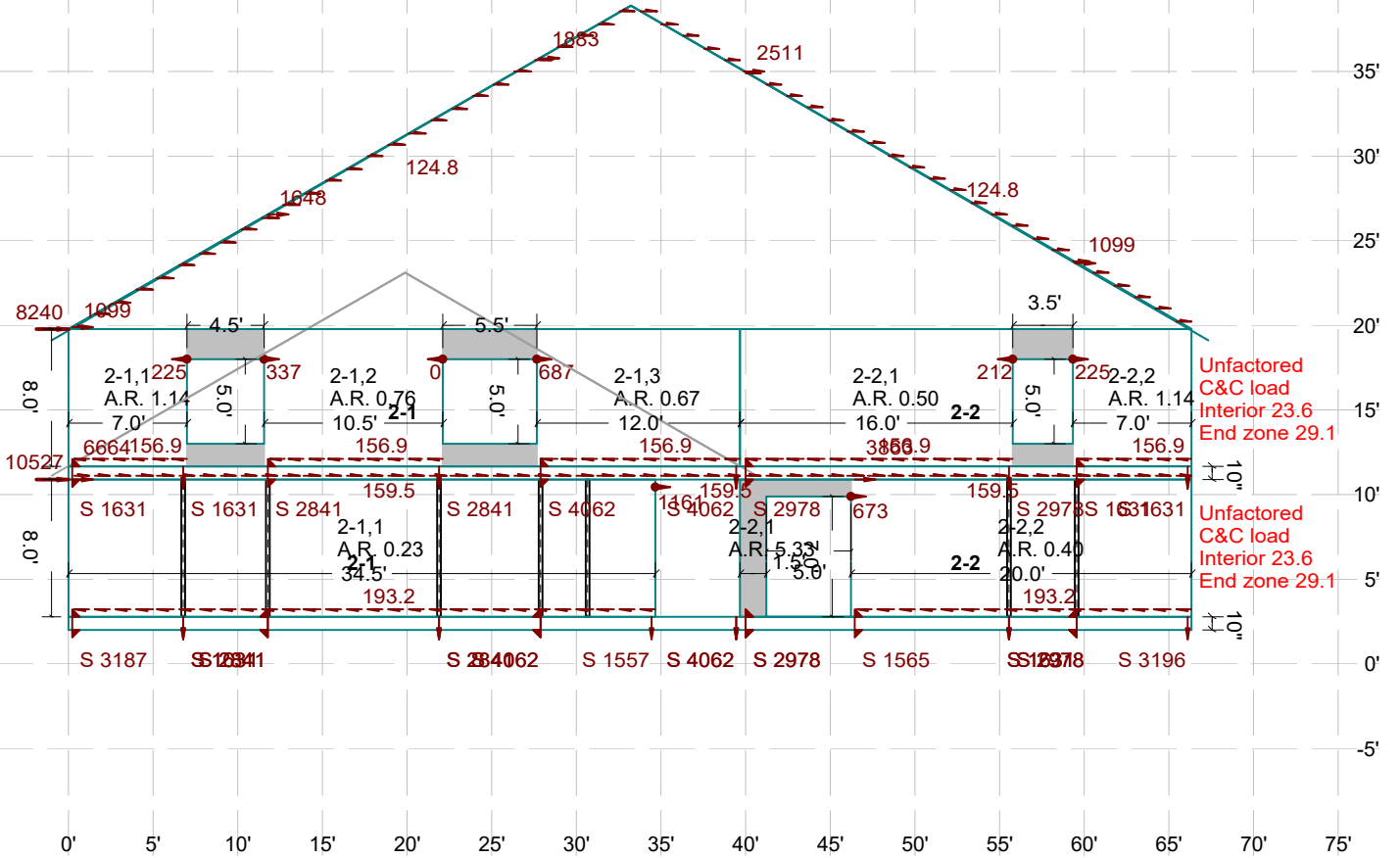
**Horizontal**

- ▶ Vs - Shearline force (lbs)
  - ▶ Vs / diaphragm length (plf)
  - ▶ V / full height sheathing (plf)
  - ▶ Drag strut force (lbs)
- Factors: S,U = 0.6  
 D = 0.6 (tens); 1.0 (comp)

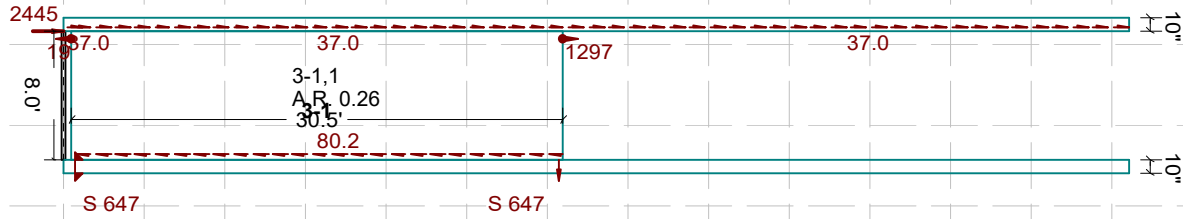
- ↑↑↑ Wind uplift

0' 5' 10' 15' 20' 25' 30' 35' 40' 45'

Elevation View  
Shearline 2, at X = 0 To 0.5 ft, Level 1 To 2.  
Flexible Diaphragm Wind Design.



**Elevation View**  
**Shearline 3, at X = 26.5 ft, Level 1.**  
**Flexible Diaphragm Wind Design.**



A.R. - Aspect ratio; Adj - Adjustment

**All shearwalls, Design group 6:**

Exterior surface:  
 7/16" Structural sheathing w/ 8d nails @ 3/12"  
 Shear capacity: 638.0 plf  
 C&C sheath. load: 14.2 / 17.5 psf; cap.  
 Nail withdr. load 0.0 lbs; cap.

Interior surface:  
 1/2" Gypsum WBoard 1-ply w/ 5d nails @ 7/7"  
 Shear capacity: 125.0 plf  
 Frame: Hem-Fir @ 16", blocked

**Critical Segment: 3-1,1:**

Design shear force: 80.2 plf  
 Combined capacity (added): 763.0 plf

**Factored Forces**

**Vertical**

- ▶ Holddown force (lbs)
- ↓ Compression force (lbs)
- S - Shear overturning (lbs)
- U - Wind uplift (lbs)
- D - Dead (lbs)

**Horizontal**

- ▶ Vs - Shearline force (lbs)
  - ▶ Vs / diaphragm length (plf)
  - ▶ V / full height sheathing (plf)
  - ▶ Drag strut force (lbs)
- Factors: S,U = 0.6  
 D = 0.6 (tens); 1.0 (comp)

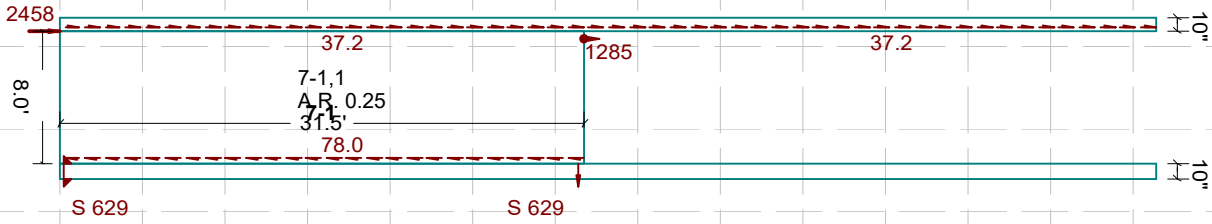
Combined: S - D + U (tens); S + D - U (comp)

**Unfactored Loads**

- ↓↓↓ Dead
- ↑↑↑ Wind uplift

-5' 0' 5' 10' 15' 20' 25' 30' 35' 40' 45' 50' 55' 60' 65' 70' 75' 80'

**Elevation View**  
**Shearline 7, at X = 52 ft, Level 1.**  
**Flexible Diaphragm Wind Design.**



A.R. - Aspect ratio; Adj - Adjustment

**All shearwalls, Design group 6:**

Exterior surface:  
 7/16" Structural sheathing w/ 8d nails @ 3/12"  
 Shear capacity: 638.0 plf  
 C&C sheath. load: 14.2 / 17.5 psf; cap.  
 Nail withdr. load 0.0 lbs; cap.

Interior surface:  
 1/2" Gypsum WBoard 1-ply w/ 5d nails @ 7/7"  
 Shear capacity: 125.0 plf  
 Frame: Hem-Fir @ 16", blocked

**Critical Segment: 7-1,1:**

Design shear force: 78 plf  
 Combined capacity (added): 763.0 plf

**Factored Forces**

**Vertical**

- ▶ Holddown force (lbs)
- ↓ Compression force (lbs)
- S - Shear overturning (lbs)
- U - Wind uplift (lbs)
- D - Dead (lbs)

Combined: S - D + U (tens); S + D - U (comp)

**Unfactored Loads**

- ↓↓↓ Dead

**Horizontal**

- ▶ Vs - Shearline force (lbs)
  - ▶ Vs / diaphragm length (plf)
  - ▶ V / full height sheathing (plf)
  - ▶ Drag strut force (lbs)
- Factors: S,U = 0.6  
 D = 0.6 (tens); 1.0 (comp)

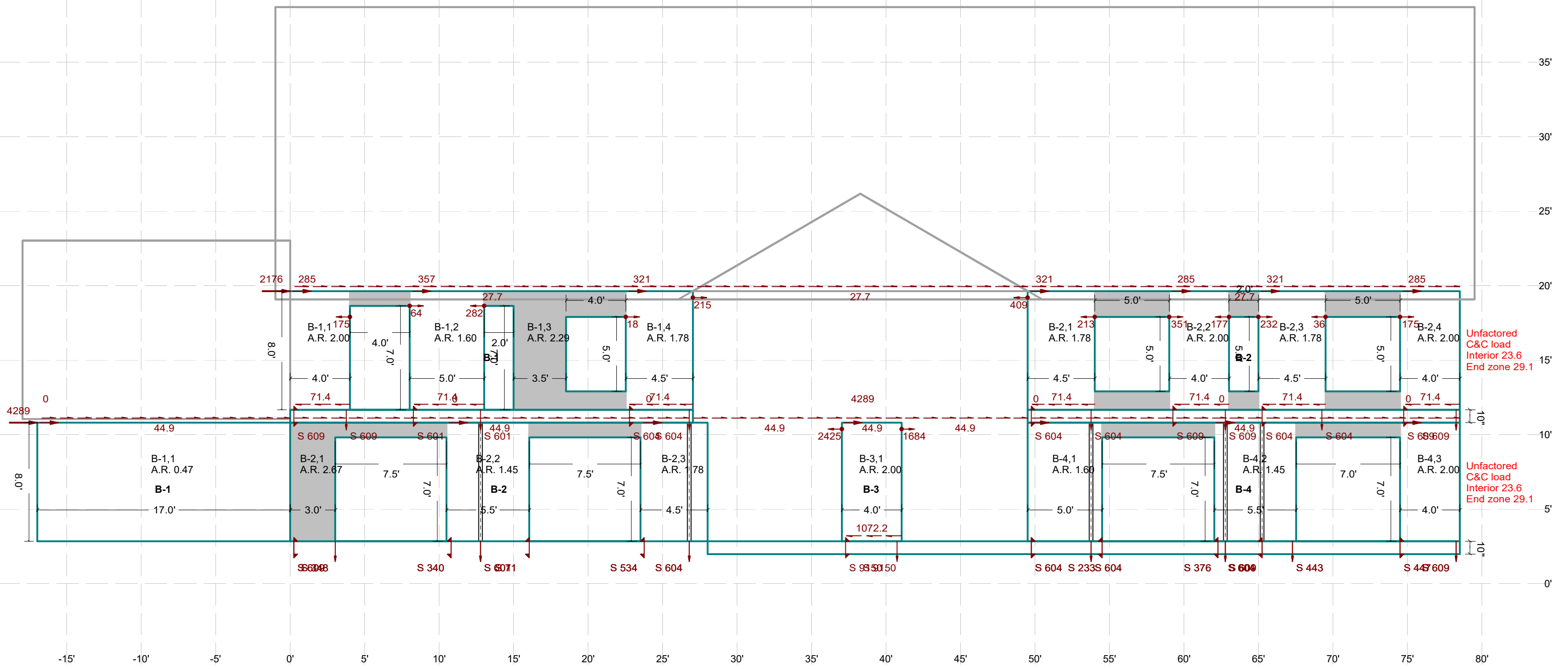
- ↑↑↑ Wind uplift

0' 5' 10' 15' 20' 25' 30' 35' 40' 45' 50' 55' 60' 65' 70' 75' 80'

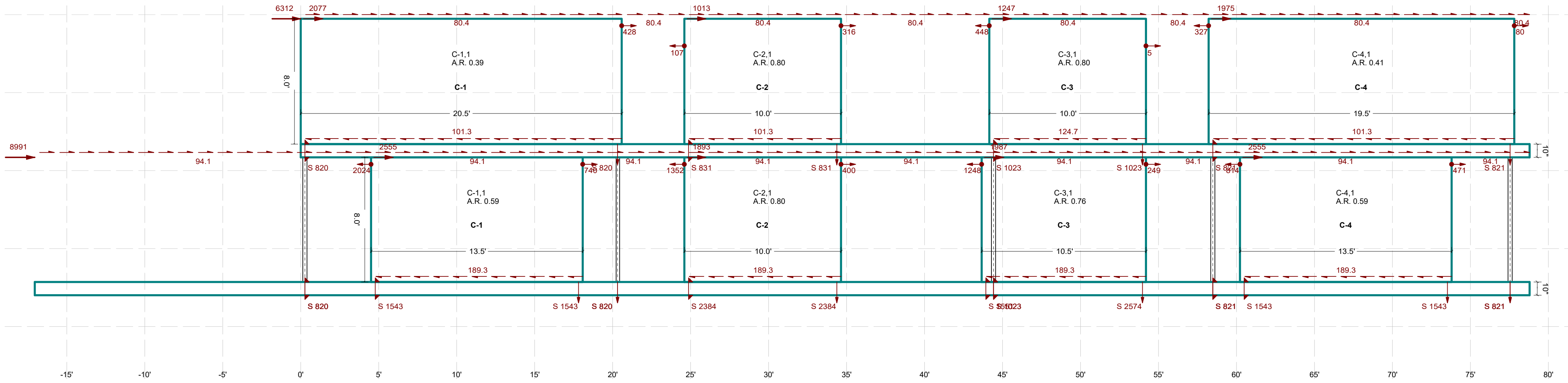


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Elevation View  
Shearline B, at Y = 0 ft, Level 1 To 2.  
Flexible Diaphragm Wind Design.



Elevation View  
Shearline C, at Y = 31 To 31.5 ft, Level 1 To 2.  
Flexible Diaphragm Wind Design.



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Elevation View  
Shearline E, at Y = 66 ft, Level 1 To 2.  
Flexible Diaphragm Wind Design.

