

STRUCTURAL SHEAR-WALL CALCULATION PACKAGE

Floor plans, two-story elevations, lateral design parameters, wall-line distribution, story drift, hold-downs, and second-floor strap schedule.

PROJECT INFORMATION

Project Name	Sample Project
Project Address	Sample
Owner / Client	Sample
Prepared By	Sample
Company / Firm	Sample
Job No.	Sample
Report Date	2026-06-16

DESIGN BASIS SUMMARY

Design Code	IBC 2024 / AWC SDPWS 2021
Wind / Seismic Basis	ASCE 7-22 wind and seismic inputs
Building Story Mode	1 story
Analysis Method	Maximum required / Envelope: larger of flexible or rigid
Computed Cs	0.246 = SDS 1.601 / R 6.50
Wind MRI	110.0 mph
Wall Model Count	4 wall(s), including 0 upper-story wall(s)

GENERAL CALCULATION NOTES

Nonstructural stucco/siding segments are excluded from shear-wall capacity, rigidity, hold-down, and strap design. Second-floor shear segments receive floor-line strap calculations; when an upper segment is not directly stacked above a lower structural segment, the segment remains calculated and is flagged as TRANSFER/COLLECTOR REQUIRED.

Final structural design, load path, fastener installation, proprietary connector selection, and local code compliance shall be verified by the Engineer of Record before permit submittal or construction.

Project Notes: Sample

REPORT INDEX

1	Cover Sheet / Project Information
2	Design Parameters and Wall Schedule
3	First Floor Plan and Second Floor Plan, when applicable
4	Wall Elevations with drag forces, hold-downs, and straps
5	Calculation Summary, Story Drift, Segment Forces, and Connector Schedules

DESIGN PARAMETERS

Input parameters used by the shear-wall force distribution, segment force, hold-down, strap, and drift calculations.

SEISMIC PARAMETERS

Item	Value	Basis
Ss	2.001	Mapped short-period spectral response
S1	0.840	Mapped 1-second spectral response
Fa	1.200	Site coefficient
Fv	1.700	Site coefficient
SDS	1.601	Design short-period response
R	6.50	Response modification coefficient
Cs	0.246	Cs = SDS / R
Seismic ASD Factor	0.70	User design factor

WIND PARAMETERS

Item	Value	Basis
Wind MRI / Speed	110.0 mph	ASCE 7 wind input
Windward Wall Pressure	16.00 psf	pww
Leeward Wall Pressure	16.00 psf	plee
Roof Wind Pressure	8.00 psf	roof component
Wind ASD Factor	0.60	User design factor
Analysis Method	Maximum required / Envelope: larger of flexible or rigid	Flexible / rigid / envelope

GRAVITY / MASS INPUTS

Item	Value	Basis
Roof Tributary Span	20.00 ft	Roof load tributary width
Roof Dead Load	15.00 psf	Seismic W and overturning counteraction
Roof Live Load	20.00 psf	Reference only unless specifically required
Wall Dead Load	10.00 psf	Wall seismic weight
Floor Dead Load	12.00 psf	Story 1 tributary floor mass in 2-story mode
Floor Live Load	40.00 psf	Reference input

SEGMENT / DRIFT DESIGN INPUTS

Item	Value	Basis
Panel Capacity Input	562.00 plf	Rigidity / drift proxy and selected wall check
HD Offset	3.00 in.	Effective overturning lever arm reduction
Tension Stud Pack Width	3.00 in.	beff calculation
Compression Stud Pack Width	3.00 in.	beff calculation
Chord Dead Load Tributary Width	5.00 ft	0.6D and Ev counteraction
Max Segment h/b	2.00	Segmented WSP limit
Cd Factor	4.00	Story drift amplification
Story Drift Limit	0.0200	Allowable ratio
Panel Drift at Capacity	0.500 in.	Stiffness proxy

SAMPLE

WALL SCHEDULE / MODEL INPUT SUMMARY

All wall lines currently included in the model. FHS excludes nonstructural and over-aspect segments; second-floor unstacked segments are flagged for collector transfer but still receive strap calculations.

Wall	Story	Direction	Line	Total Length	Height	Base	Valid FHS	Vwall	v	Max Connector	Status
W1	1	E-W	0.00 ft	18.00 ft	9.00 ft	0' - 0"	10.00 ft	3283 lb	328 plf	3388 lb	OK
W2	1	N-S	18.00 ft	16.00 ft	9.00 ft	0' - 0"	12.00 ft	2918 lb	243 plf	2509 lb	OK
W3	1	E-W	16.00 ft	18.00 ft	9.00 ft	0' - 0"	13.00 ft	3711 lb	285 plf	2851 lb	OK
W4	1	N-S	0.00 ft	16.00 ft	9.00 ft	0' - 0"	16.00 ft	3335 lb	208 plf	1822 lb	OK

SAMPLE

FIRST FLOOR PLAN / STORY 1 - LOWER LEVEL

Lower-level shear-wall plan with structural wall lines, nonstructural segments, and elevation-opening markers.

FIRST FLOOR PLAN / STORY 1 - LOWER LEVEL

Click + drag to draw a Story 1 wall. Click a wall to select it; click its length label to type a new length. Press Delete/Backspace or use Del



Window openings added in elevation are shown with light blue plan markers. Door openings are shown with yellow plan markers.

Stacked Elevation - E-W @ 0.00 ft (W1 S1)

Elevation auto-fitted with reduced blank space. Hold-down and strap values are shown only at structural shear-panel segment ends; nonstructural stucco/siding segments are excluded.



RECOMMENDED TABLES - Stacked Elevation - E-W @ 0.00 ft (W1 S1)

Recommended shear panel, hold-down, and strap tables are printed directly after the related wall elevation.

Recommended Shear Panel - W1 - Story 1 - E-W

Panel check uses this wall's actual distributed wall-line force: $v = V_{wall} / \Sigma FHS = 328.32$ plf.

Panel ID	Sheathing	Framing Size	Edge Nailing	Intermediate	Sill	SDS Screws	A35 Spacing	Anchor Bolting	Shear/ft (plf)	Capacity (plf)	Status
WW-1	15/32" Struct I OSB, blocked	2x DFL	10d common @ 6" OC	10d @ 6" OC	per detail	N/A	as required	5/8" DIA, spacing by design	328.32	437	✓ OK
WW-1 + GWB	15/32" Struct I OSB + 1/2" GWB	2x DFL	10d common @ 6" + 5d cooler @ 7"	6" / 7"	per detail	N/A	as required	5/8" DIA, spacing by design	328.32	562	✓ OK
A	15/32" Struct I Plywood	2x	8d @ 6" OC	8d @ 12" OC	16d @ 6" OC	12" OC	24" OC	5/8" DIA @ 48" OC	328.32	258	X FAILED
B	15/32" Struct I Plywood	4x post	10d @ 6" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	12" OC	16" OC	5/8" DIA @ 48" OC	328.32	313	X FAILED
C	15/32" Struct I Plywood	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	8" OC	12" OC	5/8" DIA @ 32" OC	328.32	469	✓ OK
D	15/32" Struct I Plywood	4x post	10d @ 3" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	6" OC	8" OC	5/8" DIA @ 32" OC	328.32	612	✓ OK
E	15/32" Struct I Plywood	4x post	10d @ 2" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	4" OC	8" OC	5/8" DIA @ 24" OC	328.32	800	✓ OK
F	15/32" Struct I Plywood (each face)	4x post	10d @ 4" OC	10d @ 8" OC	5/8"Ø lag screws @ 8" OC	(2) @ 8" OC	6" OC	5/8" DIA @ 16" OC	328.32	938	✓ OK
G	15/32" Struct I Plywood (each face)	4x post	10d @ 3" OC	10d @ 8" OC	5/8"Ø lag screws @ 8" OC	(2) @ 6" OC	A35 @ 4" OC	5/8" DIA @ 16" OC	328.32	1224	✓ OK
H	15/32" Struct I Plywood (each face)	4x post	10d @ 2" OC	10d @ 6" OC	5/8"Ø lag screws @ 6" OC	(2) @ 4" OC	ITP4 @ 4" OC	5/8" DIA @ 8" OC	328.32	1601	✓ OK

Recommended Hold-Down - W1 - Story 1 - E-W

Hold-down check uses this wall's governing required end tension: HD = 3387,75 lb.

Model No.	Anchor Bolt Dia.	Min Member Size	Wood Fasteners	Hold-Down Req'd (lb)	Capacity (lb)	Status
DTT1Z	3/8"	1½×3½	(6) #9×1½ SDS	3387.75	840	X FAILED
DTT2Z	½"	1½×3½	(8) #11½ SDS	3387.75	1825	X FAILED
DTT2Z-SDS2.5	½"	3×3½	(8) #11½ SDS	3387.75	2145	X FAILED
HDU2-SDS2.5	3/8"	3×3½	(6) #11½ SDS	3387.75	3075	X FAILED
HDU4-SDS2.5	3/8"	3×3½	(10) #11½ SDS	3387.75	4565	✓ OK
HDU5-SDS2.5	3/8"	3×3½	(14) #11½ SDS	3387.75	5645	✓ OK
HDU8-SDS2.5	7/8"	3½×3½	(20) #11½ SDS	3387.75	6765	✓ OK
HDU11-SDS2.5	1"	3½×5½	(30) #11½ SDS	3387.75	9535	✓ OK
HDU14-SDS2.5	1"	5½×5½	(36) #11½ SDS	3387.75	14390	✓ OK

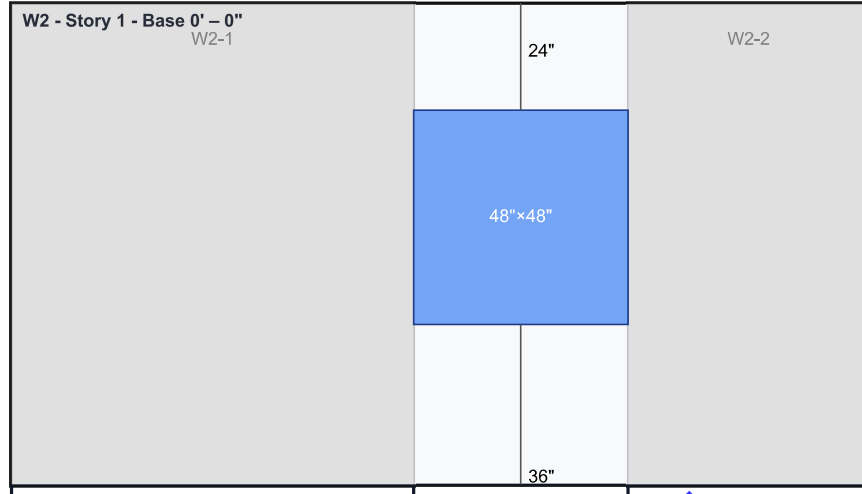
Stacked Elevation - N-S @ 18.00 ft (W2 S1)

Elevation auto-fitted with reduced blank space. Hold-down and strap values are shown only at structural shear-panel segment ends; nonstructural stucco/siding segments are excluded.

90"

54"

Drag V = 2918 lb | v = 243 plf



HD 2329 lb / HDU2-SDS2.5

Combined two-story elevation shown by actual wall base height and plan-line position.

HD 2329 lb / HDU2-SDS2.5
HD 2509 lb / HDU2-SDS2.5

HD 2509 lb / HDU2-SDS2.5

SAMPLE

RECOMMENDED TABLES - Stacked Elevation - N-S @ 18.00 ft (W2 S1)

Recommended shear panel, hold-down, and strap tables are printed directly after the related wall elevation.

Recommended Shear Panel - W2 - Story 1 - N-S

Panel check uses this wall's actual distributed wall-line force: $v = V_{wall} / \Sigma FHS = 243.20$ plf.

Panel ID	Sheathing	Framing Size	Edge Nailing	Intermediate	Sill	SDS Screws	A35 Spacing	Anchor Bolting	Shear/ft (plf)	Capacity (plf)	Status
WW-1	15/32" Struct I OSB, blocked	2x DFL	10d common @ 6" OC	10d @ 6" OC	per detail	N/A	as required	5/8" DIA, spacing by design	243.20	437	✓ OK
WW-1 + GWB	15/32" Struct I OSB + 1/2" GWB	2x DFL	10d common @ 6" + 5d cooler @ 7"	6" / 7"	per detail	N/A	as required	5/8" DIA, spacing by design	243.20	562	✓ OK
A	15/32" Struct I Plywood	2x	8d @ 6" OC	8d @ 12" OC	16d @ 6" OC	12" OC	24" OC	5/8" DIA @ 48" OC	243.20	258	✓ OK
B	15/32" Struct I Plywood	4x post	10d @ 6" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	12" OC	16" OC	5/8" DIA @ 48" OC	243.20	313	✓ OK
C	15/32" Struct I Plywood	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	8" OC	12" OC	5/8" DIA @ 32" OC	243.20	469	✓ OK
D	15/32" Struct I Plywood	4x post	10d @ 3" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	6" OC	8" OC	5/8" DIA @ 32" OC	243.20	612	✓ OK
E	15/32" Struct I Plywood	4x post	10d @ 2" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	4" OC	8" OC	5/8" DIA @ 24" OC	243.20	800	✓ OK
F	15/32" Struct I Plywood (each face)	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	(2) @ 8" OC	6" OC	5/8" DIA @ 16" OC	243.20	938	✓ OK
G	15/32" Struct I Plywood (each face)	4x post	10d @ 3" OC	10d @ 8" OC	5/8"Ø lag screws @ 8" OC	(2) @ 6" OC	A34 @ 4" OC	5/8" DIA @ 16" OC	243.20	1224	✓ OK
H	15/32" Struct I Plywood (each face)	4x post	10d @ 2" OC	10d @ 6" OC	5/8"Ø lag screws @ 6" OC	(2) @ 4" OC	ITP4 @ 4" OC	5/8" DIA @ 8" OC	243.20	1601	✓ OK

Recommended Hold-Down - W2 - Story 1 - N-S

Hold-down check uses this wall's governing required end tension: HD = 2508.85 lb.

Model No.	Anchor Bolt Dia.	Min Member Size	Wood Fasteners	Hold-Down Req'd (lb)	Capacity (lb)	Status
DTT1Z	3/8"	1½×3½	(6) #9×1½ SD	2508.85	840	X FAILED
DTT2Z	1/2"	1½×3½	(8) 1/4×1½ SDS	2508.85	1825	X FAILED
DTT2Z-SDS2.5	1/2"	3×3½	(8) 1/4×2½ SDS	2508.85	2145	X FAILED
HDU2-SDS2.5	3/8"	3×3½	(6) 1/4×2½ SDS	2508.85	3075	✓ OK
HDU4-SDS2.5	3/8"	3×3½	(18) 1/4×2½ SDS	2508.85	4565	✓ OK
HDU5-SDS2.5	3/8"	3×3½	(14) 1/4×2½ SDS	2508.85	5645	✓ OK
HDU8-SDS2.5	7/8"	3½×3½	(20) 1/4×2½ SDS	2508.85	6765	✓ OK
HDU11-SDS2.5	1"	3½×5½	(30) 1/4×2½ SDS	2508.85	9535	✓ OK
HDU14-SDS2.5	1"	5½×5½	(36) 1/4×2½ SDS	2508.85	14390	✓ OK

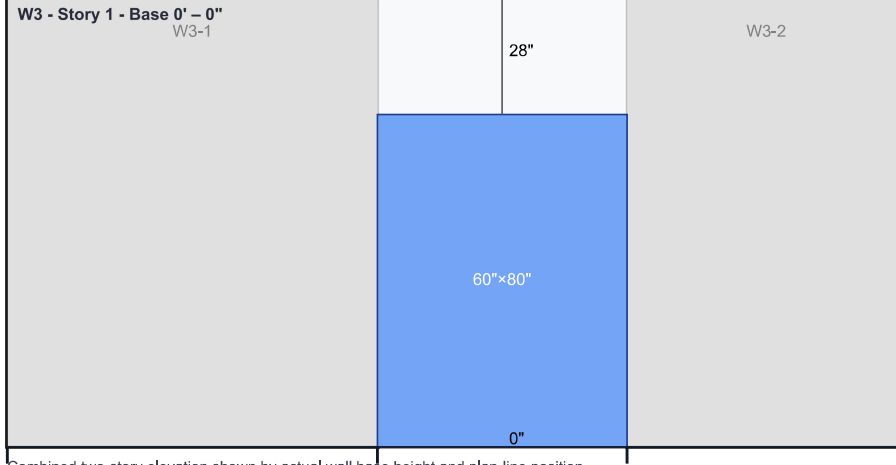
Stacked Elevation - E-W @ 16.00 ft (W3 S1)

Elevation auto-fitted with reduced blank space. Hold-down and strap values are shown only at structural shear-panel segment ends; nonstructural stucco/siding segments are excluded.

89"

67"

Drag V = 3711 lb | v = 285 plf



HD 2748 lb / HDU2-SDS2.5

Combined two-story elevation shown by actual wall base height and plan-line position.

HD 2748 lb / HDU2-SDS2.5

HD 2851 lb / HDU2-SDS2.5

HD 2851 lb / HDU2-SDS2.5

SAMPLE

RECOMMENDED TABLES - Stacked Elevation - E-W @ 16.00 ft (W3 S1)

Recommended shear panel, hold-down, and strap tables are printed directly after the related wall elevation.

Recommended Shear Panel - W3 - Story 1 - E-W

Panel check uses this wall's actual distributed wall-line force: $v = V_{wall} / \Sigma FHS = 285.50$ plf.

Panel ID	Sheathing	Framing Size	Edge Nailing	Intermediate	Sill	SDS Screws	A35 Spacing	Anchor Bolting	Shear/ft (plf)	Capacity (plf)	Status
WW-1	15/32" Struct I OSB, blocked	2x DFL	10d common @ 6" OC	10d @ 6" OC	per detail	N/A	as required	5/8" DIA, spacing by design	285.50	437	✓ OK
WW-1 + GWB	15/32" Struct I OSB + 1/2" GWB	2x DFL	10d common @ 6" + 5d cooler @ 7"	6" / 7"	per detail	N/A	as required	5/8" DIA, spacing by design	285.50	562	✓ OK
A	15/32" Struct I Plywood	2x	8d @ 6" OC	8d @ 12" OC	16d @ 6" OC	12" OC	24" OC	5/8" DIA @ 48" OC	285.50	258	X FAILED
B	15/32" Struct I Plywood	4x post	10d @ 6" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	12" OC	16" OC	5/8" DIA @ 48" OC	285.50	313	✓ OK
C	15/32" Struct I Plywood	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	8" OC	12" OC	5/8" DIA @ 32" OC	285.50	469	✓ OK
D	15/32" Struct I Plywood	4x post	10d @ 3" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	6" OC	8" OC	5/8" DIA @ 32" OC	285.50	612	✓ OK
E	15/32" Struct I Plywood	4x post	10d @ 2" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	4" OC	8" OC	5/8" DIA @ 24" OC	285.50	800	✓ OK
F	15/32" Struct I Plywood (each face)	4x post	10d @ 4" OC	10d @ 8" OC	5/8"Ø lag screws @ 8" OC	(2) @ 8" OC	6" OC	5/8" DIA @ 16" OC	285.50	938	✓ OK
G	15/32" Struct I Plywood (each face)	4x post	10d @ 3" OC	10d @ 8" OC	5/8"Ø lag screws @ 8" OC	(2) @ 6" OC	A35 @ 4" OC	5/8" DIA @ 16" OC	285.50	1224	✓ OK
H	15/32" Struct I Plywood (each face)	4x post	10d @ 2" OC	10d @ 6" OC	5/8"Ø lag screws @ 6" OC	(2) @ 4" OC	ITP4 @ 4" OC	5/8" DIA @ 8" OC	285.50	1601	✓ OK

Recommended Hold-Down - W3 - Story 1 - E-W

Hold-down check uses this wall's governing required end tension: HD = 2851,14 lb.

Model No.	Anchor Bolt Dia.	Min Member Size	Wood Fasteners	Hold-Down Req'd (lb)	Capacity (lb)	Status
DTT1Z	3/8"	1½×3½	(6) #9×1½ SDS	2851.14	840	X FAILED
DTT2Z	½"	1½×3½	(8) #11×1½ SDS	2851.14	1825	X FAILED
DTT2Z-SDS2.5	½"	3×3½	(8) #11×2½ SDS	2851.14	2145	X FAILED
HDU2-SDS2.5	3/8"	3×3½	(6) #11×2½ SDS	2851.14	3075	✓ OK
HDU4-SDS2.5	3/8"	3×3½	(10) #11×2½ SDS	2851.14	4565	✓ OK
HDU5-SDS2.5	3/8"	3×3½	(14) #11×2½ SDS	2851.14	5645	✓ OK
HDU8-SDS2.5	7/8"	3½×3½	(20) #11×2½ SDS	2851.14	6765	✓ OK
HDU11-SDS2.5	1"	3½×5½	(30) #11×2½ SDS	2851.14	9535	✓ OK
HDU14-SDS2.5	1"	5½×5½	(36) #11×2½ SDS	2851.14	14390	✓ OK

Stacked Elevation - N-S @ 0.00 ft (W4 S1)

Elevation auto-fitted with reduced blank space. Hold-down and strap values are shown only at structural shear-panel segment ends; nonstructural stucco/siding segments are excluded.

Drag V = 3335 lb | v = 208 plf

W4 - Story 1 - Base 0' - 0"

W4-1

Combined two-story elevation shown by actual wall base height and plan-line position.

HD 1822 lb / DTT2Z

HD 1822 lb / DTT2Z

SAMPLE

RECOMMENDED TABLES - Stacked Elevation - N-S @ 0.00 ft (W4 S1)

Recommended shear panel, hold-down, and strap tables are printed directly after the related wall elevation.

Recommended Shear Panel - W4 - Story 1 - N-S

Panel check uses this wall's actual distributed wall-line force: $v = V_{wall} / \Sigma FHS = 208.46$ pif.

Panel ID	Sheathing	Framing Size	Edge Nailing	Intermediate	Sill	SDS Screws	A35 Spacing	Anchor Bolting	Shear/ft (pif)	Capacity (pif)	Status
WW-1	15/32" Struct I OSB, blocked	2x DFL	10d common @ 6" OC	10d @ 6" OC	per detail	N/A	as required	5/8" DIA, spacing by design	208.46	437	✓ OK
WW-1 + GWB	15/32" Struct I OSB + 1/2" GWB	2x DFL	10d common @ 6" + 5d cooler @ 7"	6" / 7"	per detail	N/A	as required	5/8" DIA, spacing by design	208.46	562	✓ OK
A	15/32" Struct I Plywood	2x	8d @ 6" OC	8d @ 12" OC	16d @ 6" OC	12" OC	24" OC	5/8" DIA @ 48" OC	208.46	258	✓ OK
B	15/32" Struct I Plywood	4x post	10d @ 6" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	12" OC	16" OC	5/8" DIA @ 48" OC	208.46	313	✓ OK
C	15/32" Struct I Plywood	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	8" OC	12" OC	5/8" DIA @ 32" OC	208.46	469	✓ OK
D	15/32" Struct I Plywood	4x post	10d @ 3" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	6" OC	8" OC	5/8" DIA @ 32" OC	208.46	612	✓ OK
E	15/32" Struct I Plywood	4x post	10d @ 2" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	4" OC	8" OC	5/8" DIA @ 24" OC	208.46	800	✓ OK
F	15/32" Struct I Plywood (each face)	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	(2) @ 8" OC	6" OC	5/8" DIA @ 16" OC	208.46	938	✓ OK
G	15/32" Struct I Plywood (each face)	4x post	10d @ 3" OC	10d @ 8" OC	5/8"Ø lag screws @ 8" OC	(2) @ 6" OC	A34 @ 4" OC	5/8" DIA @ 16" OC	208.46	1224	✓ OK
H	15/32" Struct I Plywood (each face)	4x post	10d @ 2" OC	10d @ 6" OC	5/8"Ø lag screws @ 6" OC	(2) @ 4" OC	ITP4 @ 4" OC	5/8" DIA @ 8" OC	208.46	1601	✓ OK

Recommended Hold-Down - W4 - Story 1 - N-S

Hold-down check uses this wall's governing required end tension: $HD = 1821.52$ lb.

Model No.	Anchor Bolt Dia.	Min Member Size	Wood Fasteners	Hold-Down Req'd (lb)	Capacity (lb)	Status
DTT1Z	3/8"	1½×3½	(6) #9×1½" SD	1821.52	840	✗ FAILED
DTT2Z	½"	1½×3½	(8) ½×1½" SDS	1821.52	1825	✓ OK
DTT2Z-SDS2.5	½"	3×3½	(8) ½×2½" SDS	1821.52	2145	✓ OK
HDU2-SDS2.5	¾"	3×3½	(6) ½×2½" SDS	1821.52	3075	✓ OK
HDU4-SDS2.5	¾"	3×3½	(18) ½×2½" SDS	1821.52	4565	✓ OK
HDU5-SDS2.5	¾"	3×3½	(14) ½×2½" SDS	1821.52	5645	✓ OK
HDU8-SDS2.5	¾"	3½×3½	(20) ½×2½" SDS	1821.52	6765	✓ OK
HDU11-SDS2.5	1"	3½×5½	(30) ½×2½" SDS	1821.52	9535	✓ OK
HDU14-SDS2.5	1"	5½×5½	(36) ½×2½" SDS	1821.52	14390	✓ OK

CALCULATION TABLES AND CONNECTOR SCHEDULES

CONNECTOR / PANEL SCHEDULE BY STRUCTURAL SEGMENT

Connectors are listed at the valid structural shear-panel segment ends. Second-floor values are strap forces at the floor-line transfer. First-floor values are hold-down forces at the foundation/floor line.

Wall	Story	Connector Location	Required Force	Min Panel Option	Recommended Connector	Status
W1	1	Hold-down / Seg 1: 6.00 ft - 10.58 ft, both ends	3388 lb	WW-1	HDU4-SDS2.5	OK
W1	1	Hold-down / Seg 2: 12.58 ft - 18.00 ft, both ends	3300 lb	WW-1	HDU4-SDS2.5	OK
W2	1	Hold-down / Seg 1: 0.00 ft - 7.50 ft, both ends	2329 lb	A	HDU2-SDS2.5	OK
W2	1	Hold-down / Seg 2: 11.50 ft - 16.00 ft, both ends	2509 lb	A	HDU2-SDS2.5	OK
W3	1	Hold-down / Seg 1: 0.00 ft - 7.42 ft, both ends	2748 lb	B	HDU2-SDS2.5	OK
W3	1	Hold-down / Seg 2: 12.42 ft - 18.00 ft, both ends	2851 lb	B	HDU2-SDS2.5	OK
W4	1	Hold-down / Seg 1: 0.00 ft - 16.00 ft, both ends	1822 lb	A	DTT2Z	OK

Overall Summary

Summary

Parameter	Value
Computed Seismic Coefficient, Cs	0.246 (matches PDF Cs ≈ 0.246)

Cs = SDS / R; example PDF uses Cs = 0.246.

Parameter	Value
Seismic Effective Weight Used, W	7020.00 lb (roof D 5400.00 lb + wall D 1620.00 lb) W = D roof tributary + wall dead load; roof live load is not included in seismic W unless specifically required.
Seismic Wall-Line Shear	1210.36 lb E = 0.70 × Cs × W for ASD distribution.
Wind Wall-Line Shear Including Opposing Wall	3283.20 lb Wwind = 0.60[(pww + plee)(h/2)L + proof × trib width × L].
Controlling Wall-Line Shear	3711.44 lb by envelope method Selected by flexible, rigid, or envelope distribution method.
Wall Average Shear	285.50 lb/ft over 13.00 ft FHS vavg = Vwall / total full-height sheathing length.
Max Segment Overturning Tension	First-floor hold-down: 3387.75 lb; second-floor strap: 0.00 lb; governing overall: 3387.75 lb T = Vseg × h / beff; combined tension includes 0.6D counteraction and Ev.
Wind MRI	110.00 mph Wind speed / MRI input per ASCE 7 wind data.

Calculated Lateral Design Values

Calculated Lateral Design Values

This table provides the calculated design values for the selected wall line. It reports the flexible demand, rigid demand, envelope demand, opposing wind wall pressure component, full-height segment checks, and hold-down tension calculation.

Item	Equation / Basis	Calculated Value
Selected wall line	User-selected wall from layout tool	W3__S1 - Story 1 (E-W line @ 16.00 ft)
Building story mode	User-selected story setting	1 story
Stacked shear-wall check	2-story mode checks same direction, same line location, and segment overlap below	Not required for 1-story mode
Parallel / opposing wall lines counted	All walls with same resisting direction are included in distribution	2 wall line(s)
Analysis method	Flexible, rigid, or envelope selected by user	envelope
Cs	Cs = SDS / R	1.601 / 6.50 = 0.246
Seismic effective weight	W = roof D × tributary width × wall length + wall D × wall height × wall length	7020.00 lb
Seismic ASD wall-line demand	E_ASD = 0.70 × Cs × W	1210.36 lb
Opposing wind wall pressure component	0.60 × (windward psf + leeward psf) × h/2 × L	1555.20 lb
Roof wind component	0.60 × roof wind psf × tributary width × L	1728.00 lb
Total wind demand including opposing wall	Wind component + roof component	3283.20 lb
Flexible diaphragm demand	Tributary wind/seismic demand assigned to selected wall line	3283.20 lb
Rigid diaphragm share	Wall rigidity proxy / total parallel rigidity	56.52% = 7306 / 12926
Rigid diaphragm demand	Total same-direction story demand × rigid share	6566.40 × 56.52% = 3711.44 lb
Envelope demand	Maximum of flexible and rigid demand	3711.44 lb
Used wall-line shear	Demand used for shear and hold-down design based on selected method	3711.44 lb
Full-height sheathing length, selected wall	Sum of valid structural full-height segments meeting h/b limit; nonstructural stucco/siding segments excluded	13.00 ft
Nonstructural / transfer-warning segments	Clicked nonstructural segments are excluded; unstacked upper-story segments are calculated for straps and flagged as transfer/collector required	0 excluded; 0 transfer-warning segment(s)
Total parallel full-height sheathing	Σ valid FHS for all same-direction wall lines	23.00 ft
Average shear demand	v = Vwall / FHS	3711.44 / 13.00 = 285.50 plf
Critical story drift	Cd × Δe using story shear and wall-line stiffness proxy	Story 1 X / E-W force = 1.016 in. / allowable 2.160 in.
Critical hold-down segment	Segment with maximum combined hold-down demand	W3__S1-2
Critical segment shear	Vseg = v × segment length, where v = Vwall / ΣFHS	1594.01 lb
Critical segment beff	beff = segment length - tension stud width - HD offset - 0.5 × compression stud width	4.96 ft
Raw overturning tension	T = Vseg × h / beff	1594.01 × 9.00 / 4.96 = 2893.34 lb
Dead-load counteraction	0.6D counteracting chord tension	111.56 lb
Vertical seismic effect	Ev = 0.233 × SDS × tributary dead load at chord	69.36 lb
Required hold-down tension	HD = max(0, T - 0.6D + Ev)	2851.14 lb
Critical segment aspect ratio	h / b compared with user-selected limit	1.61 vs. limit 2.00

Parallel / Opposing Wall-Line Distribution

Parallel / Opposing Wall-Line Distribution

Walls with the same force axis are treated as lateral-resisting lines. Angled walls are resolved into X/Y components. Rigid demand is distributed by an effective rigidity proxy: Σ(full-height segment length × panel capacity × axis-factor²).

Wall	Story	Direction	Line Loc. (ft)	Structural FHS (ft)	Rigidity Proxy	Share	Flexible V (lb)	Upper Transfer (lb)	Rigid V (lb)	Used V (lb)	Status
W1	1	E-W	0.00	10.00	5620	43.5%	3283.20	0.00	2854.96	3283.20	STRUCTURAL
W3	1	E-W	16.00	13.00	7306	56.5%	3283.20	0.00	3711.44	3711.44	STRUCTURAL

All Shear-Wall Line Calculation Summary

All Shear-Wall Line Calculation Summary

This table calculates all wall lines currently drawn or entered. Nonstructural stucco/siding segments are excluded from structural capacity, rigidity, shear, and hold-down demand.

Wall	Story	Direction	Line Location	Length (ft)	Structural FHS (ft)	Used Shear (lb)	Avg. Shear (plf)	Max Connector Req'd (lb)	Connector Type	Status
W1	1	E-W	0.00 ft	18.00	10.00	3283.20	328.32	3387.75	First-floor hold-down	OK
W2	1	N-S	18.00 ft	16.00	12.00	2918.40	243.20	2508.85	First-floor hold-down	OK
W3	1	E-W	16.00 ft	18.00	13.00	3711.44	285.50	2851.14	First-floor hold-down	OK
W4	1	N-S	0.00 ft	16.00	16.00	3335.31	208.46	1821.52	First-floor hold-down	OK

Story Drift Check

Story Drift Check

This checks Story 1 and Story 2 drift in the X and Y force directions using the same wall-line demands, panel capacity, full-height sheathing, and stiffness proxy used for lateral force distribution. Story 1 demand includes the upper-story transfer when 2-story mode is selected.

Story	Force Axis	Story Height	Story Shear V (lb)	EK Proxy (lb/in)	Elastic Drift Δe (in.)	Amplified Drift Cd·Δe (in.)	Allowable Drift (in.)	Drift Ratio	Status
1	X / E-W force	9.00 ft	6566.40	25852	0.254	1.016	2.160	1/106	OK
1	Y / N-S force	9.00 ft	5836.80	31472	0.185	0.742	2.160	1/146	OK

Segment Calculations - All Walls

Segment Calculations

Segment	Length (ft)	Aspect h/b	Aspect Factor	V _{seg} (lb)	v (lb/ft)	b _{eff} (ft)	T = Vh/b _{eff} (lb)	0.6D Counteract (lb)	E _v (lb)	HD Req'd (lb)	Status
W1 - Story 1 - E-W / Seg 2	4.58	1.96	1.00	1504.79	328.32	3.96	3421.44	89.06	55.37	3387.75	OK
W1 - Story 1 - E-W / Seg 3	5.42	1.66	1.00	1778.41	328.32	4.79	3340.30	107.81	67.03	3299.51	OK
W2 - Story 1 - N-S / Seg 1	7.50	1.20	1.00	1824.00	243.20	6.88	2387.78	154.69	96.17	2329.27	OK
W2 - Story 1 - N-S / Seg 2	4.50	2.00	1.00	1094.40	243.20	3.88	2541.83	87.19	54.21	2508.85	OK
W3 - Story 1 - E-W / Seg 1	7.42	1.21	1.00	2117.44	285.50	6.79	2805.91	152.81	95.01	2748.11	OK
W3 - Story 1 - E-W / Seg 2	5.58	1.61	1.00	1594.01	285.50	4.96	2893.34	111.56	69.36	2851.14	OK
W4 - Story 1 - N-S / Seg 1	16.00	0.56	1.00	3335.31	208.46	15.38	1952.38	345.94	215.08	1821.52	OK

Nonstructural / Transfer-Warning Segments

Non-Structural Exterior Wall Segments

These segments are listed separately and are not included in the shear-wall line capacity, rigidity distribution, segment shear, or hold-down calculations.

Wall Segment	Story	Length (ft)	Framing Material	Finish System	Wall Capacity	Structural Capacity Used	Reference / Note
W1 - Story 1 - E-W / Seg 1	1	3.00	2x4 studs @ 16 in. o.c.	Exterior stucco system	180 plf reference only	0 plf used for LFRS	Wall capacity is shown for reference only. Because this segment is marked nonstructural, the calculator uses 0 plf and excludes it from shear and hold-down design.

Suggested Simpson Hold-Downs - First Floor / Lower Level

Suggested Simpson Hold-Downs - First Floor / Lower Level

Model No.	Ga.	W (in.)	H (in.)	B (in.)	CL (in.)	SO (in.)	Anchor Bolt Dia.	Wood Fasteners	Min Member Size	DF/SP (lb)	SPF/HF (lb)	Defl (in.)	Code Ref.	Hold-Down Req'd (lb)	Capacity (lb)	Status
DTT1Z	14	1½	7½	1½	¾	¾	¾"	(6) #9×1½" SD	1½×3½	840	840	0.17		3387.75	840	X FAILED
DTT2Z	14	3¼	6¼	1½	¾	½	½"	(8) ¼×1½ SDS	1½×3½	1825	1800	0.105		3387.75	1825	X FAILED
DTT2Z-SDS2.5	14	3¼	6¼	1½	¾	½	½"	(8) ¼×2½ SDS	3×3½	2145	2105	0.128	IBC®, FL, LA	3387.75	2145	X FAILED
HDU2-SDS2.5	14	3	8¼	3¼	1½	¾	¾"	(6) ¼×2½ SDS	3×3½	3075	2215	0.088	IBC®, FL, LA	3387.75	3075	X FAILED
HDU4-SDS2.5	14	3	10¼	3¼	1½	¾	¾"	(10) ¼×2½ SDS	3×3½	4565	3285	0.114	IBC®, FL, LA	3387.75	4565	✓ OK
HDU5-SDS2.5	14	3	13¼	3¼	1½	¾	¾"	(14) ¼×2½ SDS	3×3½	5645	4340	0.115	IBC®, FL, LA	3387.75	5645	✓ OK
HDU8-SDS2.5	10	3	16¾	3½	1½	¾	¾"	(20) ¼×2½ SDS	3¼×3½	6765	5820	0.11	—	3387.75	6765	✓ OK
HDU11-SDS2.5	10	3	22¼	3½	1½	1	1"	(30) ¼×2½ SDS	3¼×5½	9535	8030	0.137	—	3387.75	9535	✓ OK

Model No.	Ga.	W (in.)	H (in.)	B (in.)	CL (in.)	SO (in.)	Anchor Bolt Dia.	Wood Fasteners	Min Member Size	DF/SP (lb)	SPF/HF (lb)	Defl (in.)	Code Ref.	Hold-Down Req'd (lb)	Capacity (lb)	Status
HDU14-SDS2.5	7	3	25 ¹ / ₁₆	3 ¹ / ₂	1 ⁵ / ₈	1	1"	(36) 1/4"x2 1/2" SDS	5 1/2"x5 1/2"	14390	12375	0.177	IBC®, FL, LA	3387.75	14390	✓ OK

Recommended Shear Panel Table

Recommended Shear Panel

Panel ID	Sheathing	Framing Size	Edge Nailing	Intermediate	Sill	SDS Screws	A35s Spacing	Anchor Bolting	Shear/ft (lb/ft)	Capacity (lb/ft)	Status
WW-1	15/32" Struct I OSB, blocked	2x DFL	10d common @ 6" OC	10d @ 6" OC	per detail	N/A	as required	5/8" DIA, spacing by design	285.50	437	✓ OK
WW-1 + GWB	15/32" Struct I OSB + 1/2" GWB	2x DFL	10d common @ 6" + 5d cooler @ 7"	6" / 7"	per detail	N/A	as required	5/8" DIA, spacing by design	285.50	562	✓ OK
A	15/32" Struct I Plywood	2x	8d @ 6" OC	8d @ 12" OC	16d @ 6" OC	12" OC	24" OC	5/8" DIA @ 48" OC	285.50	258	X FAILED
B	15/32" Struct I Plywood	4x post	10d @ 6" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	12" OC	16" OC	5/8" DIA @ 48" OC	285.50	313	✓ OK
C	15/32" Struct I Plywood	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	8" OC	12" OC	5/8" DIA @ 32" OC	285.50	469	✓ OK
D	15/32" Struct I Plywood	4x post	10d @ 3" OC	10d @ 12" OC	5/8"Ø lag screws @ 16" OC	6" OC	8" OC	5/8" DIA @ 32" OC	285.50	612	✓ OK
E	15/32" Struct I Plywood	4x post	10d @ 2" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	4" OC	8" OC	5/8" DIA @ 24" OC	285.50	800	✓ OK
F	15/32" Struct I Plywood (each face)	4x post	10d @ 4" OC	10d @ 12" OC	5/8"Ø lag screws @ 8" OC	(2) @ 8" OC	6" OC	5/8" DIA @ 16" OC	285.50	938	✓ OK
G	15/32" Struct I Plywood (each face)	4x post	10d @ 3" OC	10d @ 8" OC	5/8"Ø lag screws @ 8" OC	(2) @ 6" OC *	3/4 @ 4" OC	5/8" DIA @ 16" OC	285.50	1224	✓ OK
H	15/32" Struct I Plywood (each face)	4x post	10d @ 2" OC	10d @ 6" OC	5/8"Ø lag screws @ 6" OC	(2) @ 4" OC *	1/2" P4 @ 4" OC	5/8" DIA @ 8" OC	285.50	1601	✓ OK

SAMPLE