

Tech Hotline

No. 0906-S

StoPowerwall® Stucco Wind Load Resistance of Assemblies Listed in ICC-ES ESR-2323

Sto Corp. has tested several assemblies of StoPowerwall® stucco in accordance with ASTM E 330 to measure ultimate uniformly distributed load capacity (resistance to wind loads). The following table summarizes the wall assemblies and the ultimate loads achieved.

Assembly No.	1	2	3	4	5	6
Interior wallboard	None	½-inch gypsum	None	None	None	½-inch gypsum
Framing type	18 ga. Steel 1.25" x 3.5"	18 ga. Steel 1.25" x 3.5"	2 x 4 SYP wood studs	2 x 4 SYP wood studs	2 x 4 SYP wood studs	18 ga. Steel 1.625" x 3.625"
Stud Spacing	16-in., o.c.	16-in., o.c.	24-in., o.c.	24-in., o.c.	24-in., o.c.	16-in., o.c.
Framing Fasteners	No. 6 x 7/16" Pan Head	No. 6 x 7/16" Pan Head	16d Cement Coated Sinkers	16d Cement Coated Sinkers	16d Cement Coated Sinkers	No. 6 x 7/16" Pan Head
Sheathing	7/16" OSB	1/2" ASTM C 79 Exterior Gypsum	1-inch, 1.0 pcf Expanded Polystyrene (EPS)	1/2" ASTM C 79 Exterior Gypsum	7/16" OSB	5/8-in G-P Gypsum Dens- Glass® Gold
Sheathing fasteners	No. 6 x 1-5/8" Bugle head 8-in., o.c perimeter, 12-in., o.c. along studs	No. 6 x 1-5/8" Bugle head 8-in., o.c perimeter, 8-in., o.c. along studs	Tacked at corners, held in place by lath fasteners	No. 6 x 1-5/8" Bugle head 4-in., o.c perimeter, 8-in., o.c. along studs	No. 6 x 1-5/8" Bugle head 8-in., o.c perimeter, 12-in., o.c. along studs	No. 8 x 1-5/8" Bugle head 8-in., o.c. perimeter and along studs
Building Paper	No. 15	No. 15	No. 15	No. 15	No. 15	No. 15
Lath	20-ga stucco wire	20-ga stucco wire	20-ga stucco wire	20-ga stucco wire	20-ga stucco wire	2.5-lb/yd² galv. expanded metal lath
Lath Fasteners	No. 8 x 1-5/8" wafer head, 6- in., o.c., perimeter and along studs	No. 8 x 1-5/8" wafer head, 6- in., o.c., perimeter and along studs	2-inch roofing nails, 6-in., o.c., perimeter and along studs	2-inch roofing nails, 6-in., o.c., perimeter and along studs	2-inch roofing nails, 6-in., o.c., perimeter and along studs	No. 6 x 1-5/8" wafer head, 7- in., o.c., perimeter and along studs
StoPowerwall® Stucco (Note 5)	½-inch	½-inch	½-inch	½-inch	½-inch	5/8-inch
Ultimate Positive Uniformly Distributed Load	176.8 psf	176.8 psf	145.6 psf	145.6 psf	260.0 psf	196.6 psf
Positive Loading Mode of Failure	Stud Failed in bending	Stud Failed in bending	Stud Failed in bending	Stud Failed in bending	Stud Failed in bending	Stud Failed in bending
Ultimate Negative Uniformly Distributed Load	62.4 psf	72.8 psf	52.0 psf	93.6 psf	52.0 psf	144.6 psf
Negative Loading Mode of Failure	Stud Failed in bending	Stud Failed in bending	Fastener Failure	Fastener Failure	Fastener Failure	Fastener pulled through lath

Notes:

- 1) Reference Cerny & Ivey Engineers report 26103 for assemblies 1 – 5, Cerny & Ivey Engineers Report 26104 for assembly No. 6.
- 2) Loads reported are the lowest measured result for 3 specimens that were tested for each assembly.
- 3) Assemblies 1 – 5 test specimens were 48" x 96"; assembly No. 6 specimens were 48" x 100".
- 4) Wood frame specimens include 2 x 4 cross bracing at 24-inches, o.c.
- 5) The data presented in this Tech Hotline are for assemblies constructed with StoPowerwall® Stucco produced under ICC-ES ESR-2323. This data is not necessarily applicable for assemblies constructed with other stucco products, and testing or analysis should be done by a qualified design professional to establish ultimate loads for alternate stucco products. Ultimate loads do not include safety factors which must be applied by the design professional in accordance with applicable local codes.