Product Testing

Master Wall Products and Systems

Master Wall Inc. continuously tests our products and systems to meet the most current building codes.

Fire Testing

TEST	TEST METHOD	CRITERIA	RESULTS
Fire Resistance	ASTM E119	No effect on the fire resistance of a rated wall assembly	See Technical Bulletin MW#168-030111 for assemblies
Ignitability	NFPA 268 (BOCA 99/1407.0)	No ignition at 12.5 kw/m² at 20 minutes	Pass
Intermediate Multi-Story Fire Test	NFPA 285 (UBC 26-9)	1. Resist flame propagation over the exterior surface 2. Resist vertical spread of flame within combustible core/ component of panel from one story to the next 3. Resist vertical spread of flame over the interior surface from one story to the next 4. Resist lateral spread of flame from the compartment of fire origin to adjacent spaces	Pass
Surface Burning Characteristics—Base Coat, Mesh and Finish	ASTM E84	All components shall have a: Flame Spread ≤ 25 Smoke Developed ≤ 450	Flame Spread = 0 Smoke Developed = 0
Surface Burning Characteristics—Rollershield	ASTM E84	All components shall have a: Flame Spread ≤ 25 Smoke Developed ≤ 450	Flame Spread = 5 Smoke Developed = 5

Meshes & Insulation Board

TEST	TEST METHOD	CRITERIA	RESULTS
Reinforcing Mesh			
Alkali Resistance of Reinforcing Mesh	ASTM E2098 (formerly EIMA 105.01)	> 21dN/cm (120 pli) retained tensile strength after exposure	Pass
EPS (Physical Properties)			
Density	ASTM C303, D1622	15.2-20.0 kg/m³ (0.95-1.25 lb/ft³)	Pass
Thermal Resistance	ASTM C177, C518	4.0 @ 4.4 °C (40 °F) 3.6 @ 23.9 °C (75 °F)	Pass Pass
Water Absorption	ASTM C272	2.5 % max. by volume	Pass
Oxygen Index	ASTM D2863	24% min. by volume	Pass
Compressive Strength	ASTM D1621 Proc. A	69 kPa (10 psi) min.	Pass
Flexural Strength	ASTM C203	172 kPa (25 psi) min.	Pass
Flame Spread	ASTM E84	25 max.	Pass
Smoke Developed		450 max.	Pass

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Product Testing

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EIFS & Coatings

TEST	TEST METHOD	CRITERIA	RESULTS
Abrasion Resistance	ASTM D968	No deleterious effects after 500 liters (528 quarts)	Pass
Accelerated Weathering	ASTM G155 Cycle 1	No deleterious effects after 2000 hours	Pass
Accelerated Weathering	ASTM G23 (G152 & 153)		Pass
Accelerated Weathering	ASTM G53	No deleterious effects after 2000 hours (QUV)	Pass
Freeze-Thaw	ASTM E2485 (formerly EIMA 101.01)	No deleterious effects after 60 cycles	Pass
Freeze-Thaw	ASTM C67 modified/ICBO AC24	No deleterious effects after 10 cycles	Pass
Freeze-Thaw	ASTM E2485/ICC-ES Proc. ICC ES (AC 235)***	No deleterious effects after 10 cycles	Pass
Mildew Resistance	ASTM D3273	No growth during 28 day exposure period	Pass
Water Resistance	ASTM D2247	No deleterious effects after 14 days exposure	Pass
Impact	ASTM D5420	Gardner Impact Falling Weight	Pass
Salt Spray Resistance	ASTM B 117	No deleterious effects after 300 hours exposure	Pass
Water Penetration	ASTM E331 ICC ES (AC 235)***	No water penetration beyond the innermost plane of the wall after 15 minutes at 137 Pa (2.86 psf)	Pass at 2.86 psf (137 Pa), 6.24 psf (299 Pa), and 12.0 psf (575 Pa) consecutively
Water Vapor Transmission	ASTM E 96 Water Method	Vapor permeable perm (ng/Pa.s.m^2)	EPS 5 perm-inch (114) Base Coat* 12 (679) Finish** 12 (674)
Component-Specific Weather Protection	IBC 1403	2-hour water test of EIFS and specific components	Pass
Drainage Efficiency	ASTM E 2273 ICC ES (AC 235)***	Minimum Drainage Efficiency of 90%	Aggre-flex Drainage 97.8%, Rollershield Drainage 99.2%, Commercial Drainage 97.8%, QRW1 Drainage 97.8%

* Base Coat perm value based on Master Wall F&M
** Finish perm value based on Master Wall Perfect Texture
*** AC 235 (ASTM E 2568) – Acceptance Criteria for EIFS Clad Drainage Wall Assemblies

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EIFS & Coatings

TEST	TEST METHOD	CRITERIA	RESULTS
Tensile Bond	ASTM C297/E2134	Minimum 15 psi (104 kPa) – substrate or insulation failure	Plywood/EPSA 67 psi (464) OSB/EPSA 22 psi (152) Brick/F&M 105 psi (728) Concrete/F&M 94 psi (651) Gypsum/F&M 30 psi (208)
Tensile Bond	ASTM D897	Bond strength before and after 2000 hours florescent UV condensation weathering.	Before 24.6 psi After 22.7 psi
Transverse Wind Load	ASTM E330	Withstand positive and negative wind loads as specified by the building code	Pass. Assemblies vary from 68-287 psf*
* Ultimate wind loads – contact Master Wall for specific assemblies.			

Impact Resistance (ASTM E2486/EIMA 101.86)

DESCRIPTION	OZ/SY	IN-LB RESULTS	JOULES	EIMA CLASSIFICATION
Standard Mesh	4.5	50-89	6-10	Medium
Hi-Tech Mesh	6.0	50-89	6-10	Medium
Medium Mesh	10.4	50-89	10-17	Medium
Medium & Standard Mesh	10.4 & 4.5	90-150	10-17	High Impact
Strong & Standard Mesh	15.0 & 4.5	Over 150	>17	Ultra High Impact
Ultra & Standard Mesh	21.0 & 4.5	Over 150	>17	Ultra High Impact

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Product Testing

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Rollershield LAB (Liquid Applied Air/Water Barrier)

TEST	TEST METHOD	CRITERIA	RESULTS
Tensile Bond	ASTM C297/E2134 ICC ES (AC 212)*	Minimum 15 psi (104 kPa)	Dens Glass Gold 31 (215), Exterior Gypsum 28 (194), OSB 40 (277), Plywood 79 (563), Cement Board 70 (485), Copper 185 (1282), Galvanized steel 180 (1248), PVC 168 (1165), Aluminum 184 (1275), Coated Aluminum 203 (1407), Stainless Steel 183 (1269)
Freeze-thaw	ASTM E2485/ICC-ES Proc. ICC ES (AC 212)*	No deleterious effects after 10 cycles	Pass: Plywood, Cement Board, OSB, Exterior Gypsum (ASTM C79/C1396) and Dens Glass Gold (ASTM C1377) substrates
Water Resistance	ASTM D2247 ICC ES (AC 212)*	No deleterious effects after 14 days exposure[1]	Pass: Plywood Cement Board, OSB, Exterior Gypsum (ASTM C79/C1396) and Dens Glass Gold (ASTM C1377) substrates
Water Vapor Transmission	ASTM E96 Proc. B ICC ES (AC 212)*	Vapor Permeable	30 perms (Rollershield)[2] 12 perms (Trowelshield)
Water Vapor Transmission	ASTM E96	Vapor Impermeable, Class 1 Vapor Barrier	0.07 perms, Method A (Rollershield-VB) 1.35 perms, Method B (Rollershield-VB)
Air Permeance	ASTM E2178	No ICC or ANSI/EIMA Criteria	0.00002 cfm/ft^2
Air Leakage Resistance	ASTM E2357	0.02L/s·m^2 @ 75 Pa	0.003 L/s·m^2 @ 75 Pa 0.02 L/s·m^2 @ 300 Pa
Structural Performance	ASTM E1233 Proc. A ICC ES (AC 212)*	Minimum 10 positive cycles at 1/240 deflection; No cracking in field, at joints or interface with flashing	Pass
Racking	ASTM E72 ICC ES (AC 212)*	No cracking in field, at joints or interface with flashing at net deflection of 3.2 mm (1/8 inch)	Pass
Restrained Environmental	ICC-ES Procedure ICC ES (AC 212)*	5 cycles; No cracking in field, at joints or interface with flashing	Pass
Water Penetration	ASTM E331 ICC ES (AC 212)*	No water penetration beyond the inner-most plane of the wall after 15 minutes at 137 Pa (2.86 psf)	Pass
UV Exposure	ICC ES Proc. ICC ES (AC 212)*	210 hours of exposure	Pass
Accelerated Aging	ICC ES Proc. ICC ES (AC 212)*	25 cycles of wetting and drying	Pass
Hydrostatic Pressure Test	AATCC 127 ICC ES (AC 212)*	ICC: 549 mm (21.6 in) water column for 5 hours	Pass
Surface Burning Characteristics	ASTM E84	Flame Spread < 25 Smoke Developed < 450	Pass
Intermediate Multi-Story Fire Test	NFPA 285 (UBC 26-9)	No flame Propagation	Pass

* (AC212 – Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing, also referred to as ASTM E 2570

1. No cracking, checking, rusting, crazing, erosion, blistering, peeling, or delamination when viewed under 5x magnification
2. Defined as a Class III vapor retarder per the 2009 IBC and IRC

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Product Testing

Master Wall Products and Systems

One Coat Stucco

TEST	TEST METHOD	CRITERIA	RESULTS
Finishes & Coatings	Varies		Reference EIFS & Coatings Data
Accelerated Weathering	ASTM G26/G155	No deleterious effects after 2000 hours	Pass
Freeze-Thaw	ICC AC11	No deleterious effects after 10 cycles	Pass
Compressive Strength	ASTM C109	Average load for cured sample	1910 psi
Transverse Load	ICC AC11/ASTM E330	Withstand positive and negative wind loads as specified by the building code	Pass. Assemblies vary from 81-124 psf*
Fire Resistance	ASTM E119	No effect on the fire resistance of a rated wall assembly	See Technical Bulletin MW#168-030111 for assemblies
* Ultimate wind loads – contact Master Wall for specific assemblies.			

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