

## EIFS & Coatings Test Results

TECHNICAL BULLETIN

### TECHNICAL INFORMATION

Consult the Technical Services Department for specific recommendations concerning all other applications. Consult the Acrocrete website, [www.acrocrete.basf.com](http://www.acrocrete.basf.com), for additional information about products and systems and for updated literature.

Acrocrete <sup>®</sup> Wall System Coatings	
Test	Result
<b>Fire Tests:</b>	
<b>UL 723/ASTM E84</b> Surface burning characteristics of ACROWALL <sup>™</sup> Coatings	Flame spread < 25 Smoke developed < 450
<b>Physical Tests:</b>	
<b>ASTM E96 Method B</b> Perms water vapor transmission of ACROWALL <sup>™</sup> Coatings	ACROTEXSIL <sup>™</sup> T15 Finish with ACROBASE <sup>®</sup> NC/ACROMESH <sup>™</sup> 4: 6.53 Perms ACROTEX <sup>™</sup> T15 Finish with ACROBASE <sup>®</sup> NC/ACROMESH <sup>™</sup> 4: 7.3 Perms ACROTEXSIL <sup>™</sup> T15 Finish with ACROBASE 60 BASE COAT/ ACROMESH <sup>™</sup> 4 & HI-IMPACT 20: 11 Perms ACROTEX <sup>™</sup> T15 Finish with ACROBASE <sup>®</sup> 60 BASE COAT/ ACROMESH <sup>™</sup> 4 & HI-IMPACT 20: 11.7 Perms ACROTEX <sup>™</sup> S15 Finish with ACROBASE <sup>®</sup> 60 BASE COAT/ ACROMESH <sup>™</sup> 4: 15.1 Perms ACROTEXSIL <sup>™</sup> S15 Finish with ACROBASE <sup>®</sup> 60 Base Coat/ ACROMESH <sup>™</sup> 4: 16 Perms ACROQUARTZ <sup>™</sup> Finish with ACROBASE <sup>®</sup> 60 Base Coat/ ACROMESH <sup>™</sup> 4: 16.2 Perms ACROCOTE <sup>®</sup> T/ACROTEX <sup>™</sup> T15 Finish With ACROBASE <sup>®</sup> 60 Base Coat/ACROMESH <sup>™</sup> 4: 17 Perms ACROTEXSIL <sup>™</sup> T15 Finish with ACROBASE <sup>®</sup> 60 Base Coat/ ACROMESH <sup>™</sup> 4: 18.4 Perms ACROCOTE <sup>®</sup> T with ACROBASE <sup>®</sup> 60 Base Coat/ACROMESH <sup>™</sup> 4: 19.5 Perms ACROCOTE <sup>®</sup> T with ACROBASE <sup>®</sup> 60 Base Coat/ACROMESH <sup>™</sup> 4: 19.5 Perms ACROTEXSIL <sup>™</sup> T15 Finish With ACRODRY <sup>™</sup> Base Coat/ ACROMESH <sup>™</sup> 4: 21.4 Perms ACROTEX <sup>™</sup> T15 Finish with ACRODRY <sup>™</sup> BASE COAT/ ACROMESH <sup>™</sup> 4: 22.4 Perms
<b>ASTM D2247</b> Water resistance of Coatings in 100% R.H.	No deleterious effects after 14 days exposure.

Test	Result
<b>ASTM B117</b> Salt fog resistance	No change after 300 hours.
<b>Mil. Std. 810B Method 508</b> Mildew resistance	No fungus growth after 28 days.
<b>Singapore Test— SS 345: 1990 (Appendix B)</b>	FINE Finish showed no algae growth after 8 weeks.
<b>Chemical Resistance</b> (Determined by spot testing the sample surface with turpentine, mineral spirits, and 10% hydrochloric acid for 4 hours).	Turpentine = slight softening Mineral spirits = slight softening 10% Hydrochloric acid = slight softening
<b>ASTM D968</b> Abrasion resistance	Finish Coat not worn through after 686 liters of falling sand.
<b>ASTM G53</b> Accelerated weathering	No significant deleterious effects after 7500 hours.
<b>ASTM G23</b> Accelerated weathering	No significant deleterious effects after 2000 hours.
<b>Acid Rain</b>	Finish Coat was slightly soft upon removal, but recovered upon overnight drying.

### Acrotexsil™ Finish

<b>ASTM E96 Method B</b> Water vapor transmission of ACROWALL Coatings with ACROTEXSIL Finish	Maximum average 21.4 perms
Hydrostatic water resistance of ACROWALL Coatings with ACROTEXSIL Finish	No water penetration with minimum 304 mm (12") head for more than 24 hours.

### Acroflex™ Coating

<b>ASTM D412</b> Ultimate elongation Elongation recovery Stormer viscosity Ultimate tensile strength	344% Elongation 97% 127 KU 396 psi
<b>ASTM D4541</b> Adhesion	210 psi
<b>ASTM 1653</b> Vapor permeability	10 Perms
<b>EN 062-6 CO<sub>2</sub></b> Diffusion resistance	1.99 10 <sup>5</sup>
<b>Flexibility</b>	1/8" mandrel at - 30°F
<b>ASTM C67</b> Freeze thaw resistance TT-C-555B - Wind driven rain	60 cycles Passes
<b>ASTM G53</b> Weathering	5000 hours

Test	Result
<b>ASTM D3273/ASTM D3274</b> Mildew resistance	No growth
<b>ASTM B117</b> Salt spray resistance Solids by volume Solids by weight	300 hours 50% 65%

## Acrowall-ES Wall System

Test	Result
<b>Fire Tests:</b> <b>Modified ASTM E108</b>	The Acrocrete® Finish Coat did not contribute significantly to the vertical or horizontal flame spread on the exterior of the wall. The intact Finish Coat and Reinforcing Mesh layers were capable of preventing flame intrusion into the wall cavity. The Finish Coat did not produce significant amounts of smoke during either of the tests. The removal of the Finish Coat and fiberglass mesh layer to expose the foam core did not adversely affect the fire performance of the ACROWALL-ES Wall System.
<b>UBC Standard 26-4/NFPA 285</b> <b>Full Scale Multi-Story Fire Test</b>	The ACROWALL-ES Wall System successfully met all of the following criteria: <ol style="list-style-type: none"> <li>1. Self-propagating flame did not occur over the exterior facings of the panels.</li> <li>2. Flame propagation did not occur vertically or laterally through the core insulation to the limits of the test panels.</li> <li>3. Flame propagation did not occur to the first floor wall panels that simulate adjacent lateral spaces either through core insulation or over exterior or interior test panel surfaces.</li> <li>4. Temperatures measured 25 mm (1") from the interior surface of test panels within the second story did not exceed 177°C (350°F).</li> <li>5. Flames did not penetrate the second floor either through the wall/floor intersection or on the interior face of the test panels.</li> </ol>
<b>UBC Standard 26-9/NFPA 285</b> <b>Intermediate Scale Fire Test</b>	Successfully met all of the following criteria using 13" thick EPS insulation boards. <ol style="list-style-type: none"> <li>1. Self-propagation flame did not occur over the exterior facings of the panels.</li> <li>2. Flame propagation did not occur vertically or laterally through the core insulation to the limits of the test panels.</li> <li>3. Flame propagation did not occur to the first floor wall panels that simulate adjacent lateral spaces either through core insulation or over exterior or interior test panel surfaces.</li> <li>4. Temperatures measured 25 mm (1") from the interior surface of test panels within the second story did not exceed 177°C (350°F).</li> <li>5. Flames did not penetrate the second floor either through the wall/floor intersection or on the interior face of the test panels.</li> </ol>
<b>ASTM E119</b> Method for fire tests of building and construction materials	The ACROWALL-ES Wall System did not reduce the fire resistance of the basic wall assembly.
<b>NFPA 268</b> Radiant heat exposure	Satisfied conditions of acceptance for 13" thick EPS insulation. No ignition upon 20 minute radiant heat exposure at 1.25 w/cm <sup>2</sup> .

Test	Result
<p><b>CAN/ULC-S101-M</b> Standard methods of fire endurance tests of building construction and materials</p>	<p>The ACROWALL-ES Wall System with ACROBASE<sup>®</sup> 60/ ACRODRY<sup>™</sup> satisfied conditions of acceptance.</p>
<p><b>CAN4-S114-M</b> Standard test for determination of non-combustibility in building materials</p>	<p>ACRODRY<sup>™</sup> satisfied conditions of acceptance.</p>
<p><b>Impact Tests:</b> <b>ASTM E695</b> Impact resistance</p>	<p>No cracks in the exterior insulation and finish system from a drop height of 1.83 m (6'). Maximum cumulative indentation did not exceed 8.5 mm (0.33").</p>
<p><b>EIMA Impact Standard 101.86</b></p>	<p>ACROMESH<sup>™</sup> 4/ACROBASE<sup>®</sup> 60 Base Coat: standard impact resistance INTERMEDIATE 6/ACROBASE<sup>®</sup> 60 Base Coat: standard impact resistance INTERMEDIATE 12/ACROBASE<sup>®</sup> 60 Base Coat: medium impact resistance INTERMEDIATE 12 &amp; ACROMESH<sup>™</sup> 4/ACROBASE<sup>®</sup> 60 Base Coat: high impact resistance HI-IMPACT 20 &amp; ACROMESH<sup>™</sup> 4/ACROBASE<sup>®</sup> 60 Base Coat: ultra high impact resistance</p>
<p><b>Physical Tests:</b> <b>EIMA 101.01 (Modified ASTM C67)</b> Freeze/thaw resistance</p>	<p>No deleterious effects after 60 cycles</p>
<p><b>Fed. Spec. TT-C-555B</b> Wind driven rain</p>	<p>An average weight gain of 24 grams was sustained without back dampness or leaking through. Tested in full-scale configuration to positive and negative pressures.</p>
<p><b>ASTM E330</b> Wind-load</p>	<p>In excess of 7182 Pa (150psf) without bond failure</p>
<p><b>ASTM E331</b> Water penetration of exterior windows, curtain walls, and doors by uniform static air pressure difference</p>	<p>No water penetration to the innermost face of the test specimens occurred at 574 Pa (12 psf) pressure differential</p>
<p><b>ASTM C297</b> Tensile Bond Strength</p>	<p>Exceeds 69 kPa (10 psi) on various substrates, including masonry, gypsum sheathing, and wood-based sheathing.</p>
<p><b>Absorption-Freeze Resistance</b> (Sample subjected to 4 days of water soakage to 60 cycles of 2 hours each at - 10°C and + 20°C)</p>	<p>A weight gain of 0.38 grams was sustained without any visible damage.</p>
<p><b>Singapore Test—</b> <b>SS 345: 1990 (Appendix B)</b></p>	<p>FINE Finish showed no algae growth after 8 weeks.</p>

## Acrowall-ES WB

Test	Result
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**Physical Tests:**

**ASTM C297**

Tensile bond strength

ACROSTOP™ T/Base Coat/EPS on:

Cement-board

Dens-Glass Gold

Exterior gypsum sheathing

30.1 psi

34.5 psi

24.0 psi

## Acrowall-ES PLus

**Fire Tests:**

**CAN/ULC S101-M89**

ACROWALL-ES PLUS met test criteria.

**UBC Standard 26-9/NFPA 285**

**Intermediate Scale Multi-story Fire Test**

Met test criteria.

**Physical Tests:**

**Modified ASTM E331**

Pass. No signs of leakage and no significant amount of water on interior of the specimen.

**ASTM E330 Wind-load**

Assembly description:

Steel stud framing (20 gauge) gypsum sheathing, DWS 4" SHEATHING FABRIC over sheathing joints, ACROSTOP R, Acrocrete® Adhesive, 1" expanded polystyrene insulation board, Acrocrete® Base Coat, ACROMESH 4 REINFORCING MESH, Acrocrete® Finish.

Average ultimate loads:

- 3126 Pa (- 65 psf)

+ 2633 Pa (+ 55 psf) not taken to failure

Assembly description:

Wood assembly (2' x 4') 16"o.c., 7/16" Exposure 1 OSB, DWS 4" SHEATHING FABRIC over sheathing joints, ACROSTOP R, Acrocrete® Adhesive, 1" expanded polystyrene insulation board, Acrocrete® Base Coat, ACROMESH 4 REINFORCING MESH, Acrocrete® Finish.

Average ultimate loads:

- 8379 Pa (- 175 psf)

+ 3591 Pa (+ 75 psf) not taken to failure

## Acrowall-ESV I

**Physical Tests:**

**EIMA 200.03 (Modified ASTM E331)**

Test method for determining the drainage performance and drying potential of Class PB Exterior Insulation and Finish Systems

No signs of leakage and no significant amount of water on the interior of the specimen.

Average residual moisture = 0.4004 oz/ft<sup>2</sup>

Test	Result
<b>Physical Tests:</b>	
<b>ASTM E330 Wind-load</b>	
Assembly description: steel stud framing (3 5/8" studs, 18 gauge) 406 mm (16") o.c., 15/32" exterior grade, exposure 1 plywood, housewrap, EPS insulation board with 8 Wind Devil 2 plates per board.	Average ultimate loads: 25 mm (1") EPS: - 4166 Pa (- 87 psf), + 3016 Pa (+ 63 psf) 38 mm (1 1/2") EPS: - 6224 Pa (- 130 psf), + 3926 Pa (+ 82 psf) 50 mm (2") EPS: - 6272 Pa (- 131 psf), + 3974 Pa (+ 83 psf)
Same as above assembly but with 9 Wind Devil 2 plates per board.	25 mm (1") EPS: - 4261 Pa (- 89 psf), + 3782 Pa (+ 79 psf) 38 mm (1 1/2") EPS: - 5458 Pa (- 114 psf), + 3782 Pa (+ 79 psf)

## Acrowall-ESV II

### Physical Tests:

#### EIMA 200.03 (Modified ASTM E331)

Test method for determining the drainage performance and drying potential of Class PB Exterior Insulation and Finish Systems

No signs of leakage and no significant amount of water on the interior of the specimen.  
Average residual moisture = 0.2075 oz/ft<sup>2</sup>

#### ASTM E330 Wind-load

Assembly description:  
2" x 4" wood framing 406 mm (16") o.c., 7/16" OSB sheathing, 37 mm (1 1/2") channeled insulation with 8 Wind Devil  
2 plates per board.

Average ultimate loads:  
- 4022 Pa (- 84 psf), + 7373 Pa (+ 154 psf)

## Acrowall-ESV III

### Fire Tests:

#### UBC Standard 26-9/NFPA 285

Intermediate scale fire test

Successfully met all of the following criteria:

1. Self-propagation flame did not occur over the exterior facings of the panels.
2. Flame propagation did not occur vertically or laterally through the core insulation to the limits of the test panels.
3. Flame propagation did not occur to the first floor wall panels that simulate adjacent lateral spaces either through core insulation or over exterior or interior test panel surfaces.
4. Temperatures measured 25 mm (1") from the interior surface of test panels within the second story did not exceed 177°C (350°F).
5. Flames did not penetrate the second floor either through the wall/floor intersection or on the interior face of the test panels.

#### NFPA 268

#### Radiant Heat Exposure

Satisfied conditions of acceptance. No ignition upon 20 minute radiant heat exposure 1.25 W/cm<sup>2</sup>.

### Physical Tests:

#### EIMA 200.03 (Modified ASTM E-331)

Test method for determining the drainage performance and drying potential of Class PB Exterior Insulation and Finish Systems

No signs of leakage and no significant amount of water on the interior of the specimen.  
Average residual moisture = 0.125 oz/ft<sup>2</sup>

#### ASTM E330 Wind-load

Assembly description:  
2" x 4" Wood framing 406 mm (16") o.c., 7/16" OSB sheathing, expanded polystyrene insulation board with 8 Wind Devil 2 plates per board.

Average ultimate loads:  
25 mm (1") EPS: - 5123 Pa (- 107 psf), + 3974 Pa (+ 80 psf)  
50 mm (2") EPS: - 5841 Pa (- 122 psf), + 4021 Pa (+ 84 psf)

Generally accepted engineering and design practice dictates a safety factor be applied to Ultimate Wind Loads.  
A safety as factor of 2 to 3 is generally utilized but varies based on design considerations, local code requirements, etc.

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**NOTE**

BASF Wall Systems is an operating unit of BASF Construction Chemicals, LLC. (herein after referred to as "BASF Wall Systems")

**RESIDENTIAL POLICY**

On one and two-family residential framed construction, BASF Wall Systems requires that the wall system selected be one that includes provisions for management of incidental moisture. The choices include water-managed EIFS, Acrowall-CP, and Acrowall-CBS. Acrowall Surfacing Systems for insulating concrete forms are also acceptable. There are no exceptions to this policy. Under no circumstances will BASF Wall Systems warrant the use of any other system on this type of construction without expressed written permission from BASF Wall Systems [Residential construction using EIFS on masonry (CMU) or poured concrete does not require the additional water management provisions described above.] Consult BASF Wall Systems' Technical Services Department for specific recommendations concerning all other applications. Consult the Acrocrete website, [www.acrocrete.basf.com](http://www.acrocrete.basf.com) for additional information about products and systems and for updated literature.

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