



Tech Hotline

No. 0111-BSc

Fire Safety and Testing of Air Barriers

Important fire performance characteristics of air barriers are low flame spread and smoke development. Also important is their ability to demonstrate performance in full scale fire tests of wall assemblies, particularly when foam plastic insulation is in the assembly.

StoGuard® waterproof air barrier has been tested separately, and as a component in full scale wall assemblies with continuous foam plastic insulation, in accordance with standard fire test methods. It is the only fluid applied air barrier with evaluation reports in both the United States and Canada that recognize it for use on all types of wall construction. Acceptance is based on independent laboratory testing and evaluation which confirm that StoGuard:

- Is a Class A building material with low flame spread and smoke development (ICC ESR 1233)
- Can be approved for use on noncombustible type construction with continuous foam plastic insulation on buildings of any height when used in accordance with ICC ESR 1748 (United States) or CCMC ER 13120-R (Canada)
- Does not have any set-back requirements when used with continuous foam plastic insulation when used in accordance with ICC ESR 1748
- Does not detract from (nor add to) the rating of an existing hourly rated fire-resistive wall assembly (HAI Project No. 1JJB05184.001)

Table 1 on page 2 lists standard test methods and results of fire tests with StoGuard waterproof air barrier. Many air barriers commonly used in wall construction do not meet these criteria or have not been independently evaluated in accordance with these test methods. When specifying or choosing an air barrier, evidence of building code compliance, including successful performance in full scale fire tests, should be part of the overall product evaluation and basis of acceptance on projects.

Table 1: Fire Testing of StoGuard Waterproof Air Barrier

Description of Test	Method	Criteria	StoGuard Test Results ¹
Flame spread and smoke developed	ASTM E 84 <i>Standard Test Method for Surface Burning Characteristics of Building Materials</i>	Flame Spread: ≤ 25 Smoke Developed: ≤ 75	Flame Spread: 5 Smoke Developed: 10 Class A Building Material
Vertical and lateral flame spread - multi-story construction	NFPA 285 <i>Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components</i>	<ul style="list-style-type: none"> Resistant to flame propagation over the exterior face of the assembly Resistant to vertical flame spread within core from one story to the next Resistant to vertical flame spread over the interior surface of the assembly from one story to the next Resistant to lateral flame spread to adjacent compartment 	Pass, suitable for use on all types of construction with up to 12 inches (305 mm) of code compliant continuous EPS foam plastic insulation, no height restrictions
Radiant Heat Ignitibility	NFPA 268 <i>Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source</i>	<ul style="list-style-type: none"> No sustained flaming when exposed to radiant heat flux of 12.5 kW/m² for 20 minutes 	Pass with up to 12 inches (305 mm) of code compliant continuous foam plastic insulation, no setback requirements
Fire Resistance	ASTM E 119 <i>Standard Test Methods for Fire tests of Building Construction and Materials</i>	Endure fire exposure without: <ul style="list-style-type: none"> Passage of flame or gasses hot enough to ignite cotton waste Exceeding allowable temperature increase of 250° F (139° C) on unexposed face No passage of water to unexposed side when exposed to impact, erosion, and cooling effects of hose stream 	Pass, meets requirements for a one hour fire-resistive rating with up to 4 inches (101 mm) of code compliant continuous foam plastic insulation
Vertical and lateral flame spread	CAN/ULC - S 134 <i>Standard Method of Fire Test of Exterior Wall Assemblies</i>	Wall assembly: <ul style="list-style-type: none"> Restricts flaming on or in the wall assembly within prescribed limits Restricts heat flux to no more than 35 kW/m² at prescribed height 	Complies with requirements of the NBC for combustible exterior wall cladding. Acceptable for use on buildings required to be of noncombustible construction.
Fire Endurance	CAN/ULC - S 101 <i>Standard Methods of Fire Endurance Tests of Building Construction and Materials</i>	<ul style="list-style-type: none"> Wall assembly coating remains in place after 15 minute fire exposure 	Meets requirements for fire resistance and protection of foam plastic insulation [StoGuard has no adverse effect on the protection afforded by the coating in the assembly]

1. Details of listed assemblies can be found in ICC ESR 1748 (United States) or CCMC ER 13120-R (Canada). Evidence of compliance with requirements of the code as a Class A building material can be found in ICC ESR No. 1233. Reports are available at www.stocorp.com.