



CommercialComplete™ Wall Systems Fire Performance

Wall System Fire Performance

To meet energy efficiency standards, commercial buildings often incorporate foam plastic insulation in the building envelope. All foam plastic insulation is combustible including XPS, expanded polystyrene (EPS), polyisocyanurate (iso), and spray polyurethane (SPF). Commercial buildings, because of their area, height, proximity to property lines or the nature of their use, are often required to be constructed in whole or in part of non-combustible materials. Non-combustible construction "Types" are defined in Section 602 of the IBC. Types I and II are defined as essentially all building elements consisting of non-combustible materials. Types III and IV are defined as the exterior walls being constructed of non-combustible materials. Type V is wholly combustible construction.

Limiting Fire Spread, NFPA 285

The IBC requires the exterior walls of most commercial buildings to be constructed of non-combustible materials, as is the case in Types I, II, III and IV construction. The ASHRAE 90.1 energy standard for commercial buildings prescribes the use of continuous insulation (ci) over steel framing to minimize energy inefficient thermal bridging. As explained earlier, ci is typically combustible foam plastic insulation. To address the dual requirements of non-combustible walls containing combustible foam plastics, the IBC requires all wall assemblies of any height, that are required to be Type I, II, III or IV construction, be tested and comply with the acceptance criteria of NFPA 285.² See IBC Section 2603.5.5.

To pass the NFPA 285 test, a wall assembly must demonstrate limited fire spread vertically and horizontally away from the area of fire exposure. The IBC imposes two additional criteria for NFPA 285 tested wall assemblies:



- **Potential Heat:** The potential heat of foam plastic in walls, expressed in Btu per square foot, is limited to the amount that has been successfully tested in the required NFPA 285 full scale wall test. (IBC Section 2603.5.3)
- **Ignition:** Exterior walls shall not exhibit sustained flaming when tested in accordance with NFPA 268.³ Walls that are protected on the outside with a minimum of 1" thick masonry, concrete, or a minimum of 7/8" thick stucco, are not required to be tested for ignition. (IBC Section 2603.5.7)

NFPA 285 Tested CommercialComplete™ Wall Systems

Owens Corning™ CommercialComplete™ Wall Systems with FOAMULAR® XPS ci sheathing, and with or without EcoTouch® FIBERGLAS™ Insulation, using steel stud frame or masonry back-up walls, with a variety of masonry veneer exterior finishes, have successfully passed NFPA 285. For complete wall system specification details see the Owens Corning publication entitled "NFPA 285 Tested Wall Assemblies."



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NFPA 285 test wall under construction.



Fire emitting from the NFPA 285 test window.



FOAMULAR® XPS with brick veneer stripped away above the test window showing limited damage and minimal fire spread after the NFPA 285 fire test.



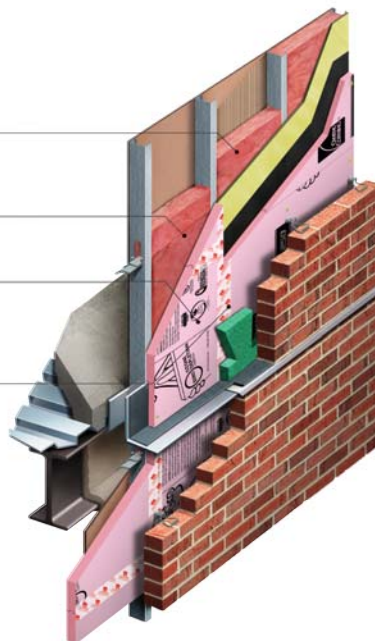
CommercialComplete™ Wall Systems for Steel Stud and Masonry Veneer

ECOTOUGH® FLAME SPREAD 25 INSULATION
(25 flame spread facer for exposed use or for Types I or II construction)

ECOTOUGH® THERMAL BATT FIBERGLAS™ INSULATION
(unfaced)

FOAMULAR® XPS ci sheathing
(directly over steel studs or over exterior gypsum sheathing)

JOINTSEALR® FOAM JOINT TAPE
(optional joint seal)



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