

## Structural Fire Resistance

### ASTM E119

#### ASTM E119

ASTM E119, Standard Test Methods for Fire Tests of Building Construction and Materials<sup>1</sup>, evaluates the duration for which building elements such as the CavityComplete<sup>®</sup> Concrete Masonry Unit (CMU) with Masonry Veneer Wall System will contain a fire and retain its structural integrity during a fire test exposure. The test exposes a wall assembly to a controlled time/temperature fire exposure for a specified time period. The timed fire exposure is followed by the application of a fire hose stream to evaluate the ability of the fire weakened assembly to withstand both the thermal shock of a sudden cold water stream, and its retained structural integrity. The test standard measures the transmission of heat and hot gases through the wall assembly. For load bearing walls the standard also measures the load carrying ability of the wall assembly during the test exposure.

#### Types of Construction and Fire Resistance Ratings

The International Building Code<sup>2</sup> (IBC), Section 602, identifies building construction classifications. Some classifications require exterior wall fire resistance ratings of 1, 2 or 3 hours depending on building characteristics, including use and occupancy classification, height and area, fire separation distances, and other details.

#### Testing Fire Resistance Ratings

IBC Section 703 specifies that the fire resistance rating of building walls be determined in accordance with one of several alternative methods including ASTM E119 testing or engineering analysis (Section 703.3.4).

#### CavityComplete<sup>®</sup> Wall System Fire Resistance Rating

The CavityComplete<sup>®</sup> CMU with Masonry Veneer Wall System is fire resistance rated for 2, 3 or 4 hours depending on the type of concrete masonry unit. See the table for additional details, and Underwriters Laboratories OnLine Certifications Directory, Fire Resistance Rated Design No. U938 for complete UL specifications.

#### CavityComplete<sup>®</sup> CMU Wall System, Fire Resistance Rated System Summary

Extruded Polystyrene (XPS) Insulation	
Exterior Fire Rating	2, 3 or 4 hours
Interior Fire Rating	2, 3 or 4 hours
Structural	Bearing
Concrete Masonry Unit	Various designs. See UL Classifications.
Horizontal Joint Reinforcement	Heckmann #1300 Hook & Ladder joint reinforcement with eyes to receive wire tie pintles. 16" o.c. vertically.
Wire Ties	Heckmann #1300 pintle style masonry wire ties, 16" o.c. horizontally
Air/Water Resistive Barrier	PROSOCO R-Guard <sup>®</sup> Cat-5
Continuous Insulation	4" max., FOAMULAR <sup>®</sup> CW25 XPS
Air Space	Varies 1" to 2"
Mortar Droppings Protection	MortarNet <sup>®</sup>
Through Wall Flashing	TotalFlash <sup>®</sup>
Masonry Anchor Spacing	24" max.*
Exterior Finish	4" face brick (nominal)

Mineral Wool Insulation	
Exterior Fire Rating	2, 3 or 4 hours
Interior Fire Rating	2, 3 or 4 hours
Structural	Bearing
Concrete Masonry Unit	Various designs. See UL Classifications.
Horizontal Joint Reinforcement	Heckmann #1300 Hook & Ladder joint reinforcement with eyes to receive wire tie pintles. 16" o.c. vertically.
Wire Ties	Heckmann #1300 pintle style masonry wire ties, 16" o.c. horizontally
Air/Water Resistive Barrier	PROSOCO R-Guard <sup>®</sup> Cat-5
Continuous Insulation	Owens Corning <sup>®</sup> Thermafiber <sup>®</sup> RainBarrier 45 secured with Owens Corning <sup>®</sup> Thermafiber <sup>®</sup> RainBarrier Clips
Air Space	Varies 1" to 2"
Mortar Droppings Protection	MortarNet <sup>®</sup>
Through Wall Flashing	TotalFlash <sup>®</sup>
Masonry Anchor Spacing	24" max.*
Exterior Finish	4" face brick (nominal)

\* Building code requirements for brick support may differ. See UL online certifications directory Design No. U938 for complete details. See additional system details on Page 3.

#### References

- 1 ASTM E 119-12a, Standard Test Methods for Fire Tests of Building Construction and Materials; ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959
- 2 International Building Code; International Code Council, Inc.; 4051 West Flossmoor Road, Country Club Hills, IL 60478-5795



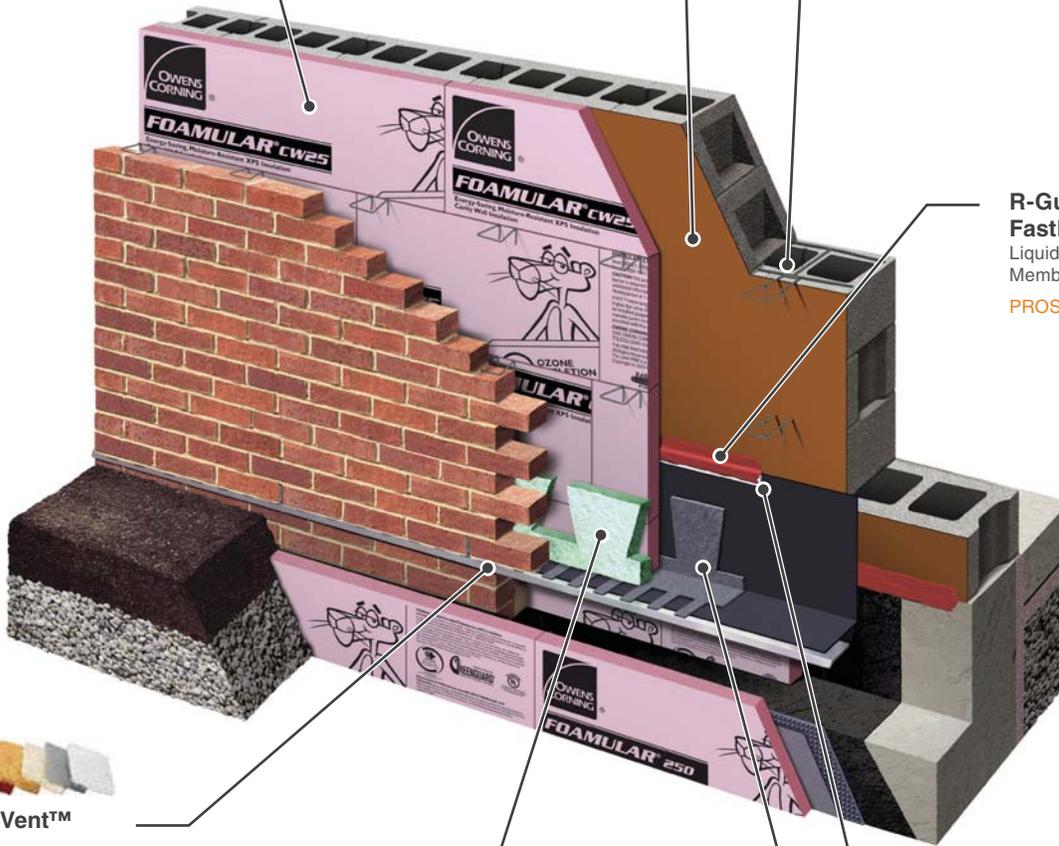
**FOAMULAR® CW25**  
Extruded Polystyrene (XPS)  
Rigid Foam Insulation  
Owens Corning®



**R-GUARD® CAT 5®**  
Air and Waterproof Barrier  
PROSOCO®



**#1300 Hook & Ladder Joint Reinforcement and #1300 Pintle Wire tie**  
Masonry Anchorage  
Heckmann Building Products, Inc.



**WeepVent™**  
Mortar Net Solutions™



**MortarNet®**  
Mortar Droppings Protection  
Mortar Net Solutions™



**TotalFlash®**  
Cavity Wall Drainage Solution  
Mortar Net Solutions™



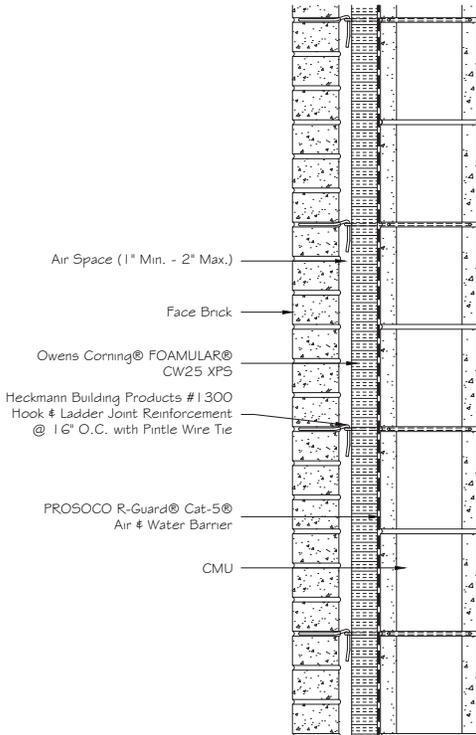
**BTL-1™**  
Sealant  
Mortar Net Solutions™



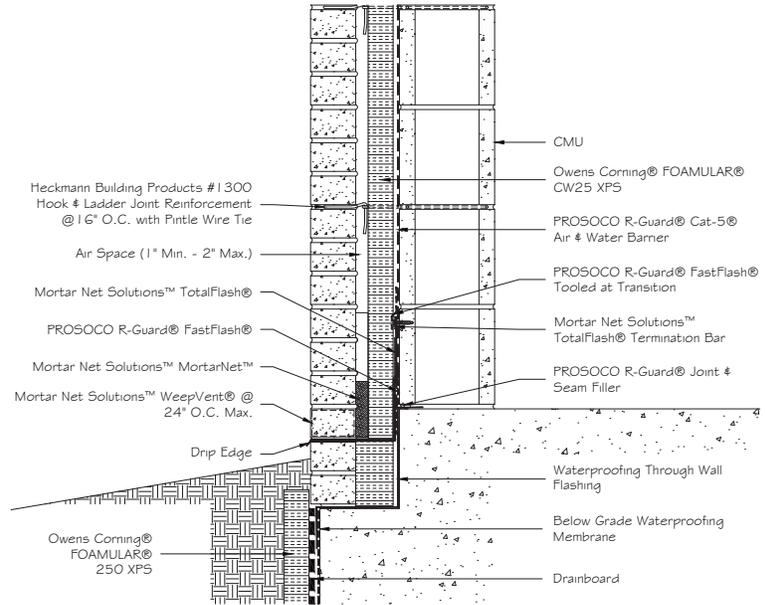
ASTM E119 Test Assembly, Exterior Side



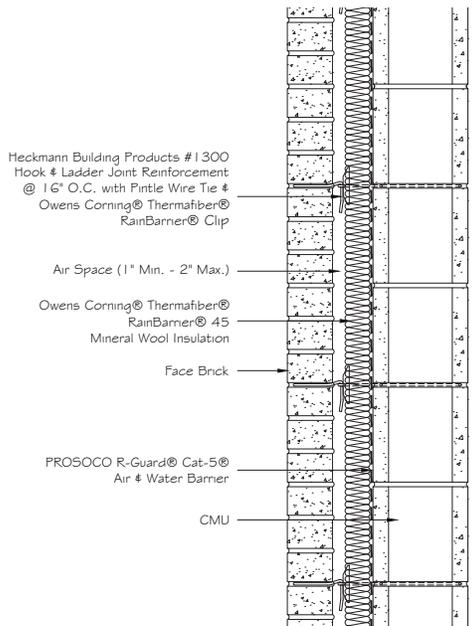
Fire Exposure Inside ASTM E119 Furnace



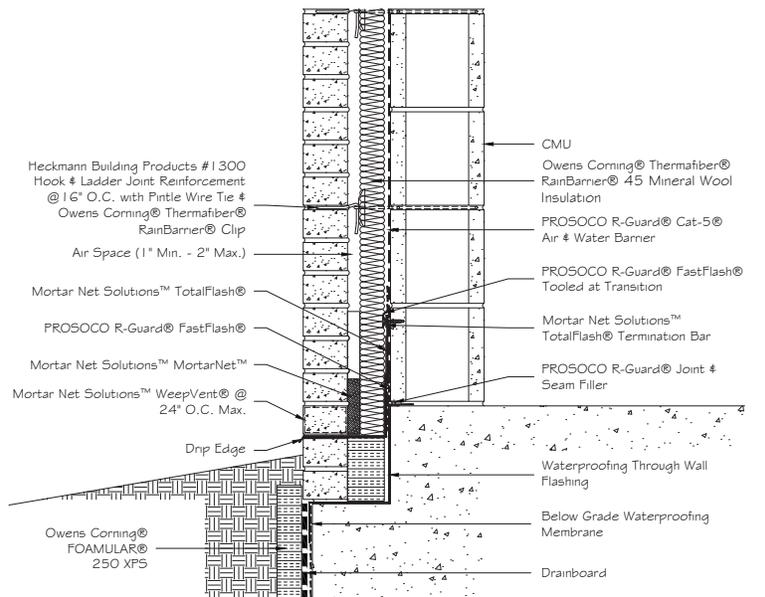
**CavityComplete<sup>®</sup> CMU, Wall Section with Extruded Polystyrene (XPS) Insulation**



**CavityComplete<sup>®</sup> CMU, Base of Wall Section with Extruded Polystyrene**



**CavityComplete<sup>®</sup> CMU, Wall Section with Mineral Wool Insulation**



**CavityComplete<sup>®</sup> CMU, Base of Wall Section with Mineral Wool Insulation**

The CavityComplete<sup>®</sup> Concrete Masonry Unit (CMU) Wall System excludes the masonry veneer and concrete masonry units. A detailed list of the components is available at [www.CavityComplete.com](http://www.CavityComplete.com).

**CavityComplete.com | 844-CAV-COMP**

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