CavityComplete®
Steel Stud Wall System

Technical Bulletin SS-04

Structural Fire Resistance
ASTM E119

ASTM E119
ASTM E119, Standard Test Methods for Fire Tests of Building Construction and Materials[1], evaluates the duration for which building elements such as the CavityComplete® 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[2] (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 ASTM E119 testing or engineering analysis (Section 703.3.4).

CavityComplete® Wall System Fire Resistance Rating
The CavityComplete® Wall System is fire resistance rated for interior fire exposure, one and three hours, depending on the type of interior gypsum board installed and if it is load bearing or non-bearing. It is rated for a one hour exterior exposure. See the table for additional details, and Underwriters Laboratories OnLine Certifications Directory, Fire Resistance Rated Design No. W429 for complete UL specifications.

CavityComplete® Wall System, Fire Resistance Rated System Summary

Extruded Polystyrene (XPS) Insulation	Non-bearing	Bearing
Exterior Fire Rating	1 hour	1 hour
Interior Fire Rating	3 hour	1 hour
Structural	Nonbearing	Bearing
Steel Stud Spacing	16" max. oc.	24" max. oc.
Steel Stud Depth (minimum)	3-5/8"	3-1/2"
Interior Gypsum Board	5/8", type C	5/8", type X
Batt Insulation	EcoTouch® Fiberglas, faced or unfaced	EcoTouch® Fiberglas, faced or unfaced
Exterior Gypsum Board	5/8", type X	5/8", type X
Air/Water Resistive Barrier	ExoAir® 230	PROSOCO R-Guard® Cat-5
Continuous Insulation	4" max., FOAMULAR® 250 XPS	4" max., FOAMULAR® 250 XPS
Air/Water Sealing Washers	Thermal-Grip®	Thermal-Grip®
Air Space	Varies 1" to 2"	Varies 1" to 2"
Mortar Droppings Protection	MortarNet®	MortarNet®
Through Wall Flashing	TotalFlash®	TotalFlash®
Masonry Anchor	Pos-I-Tie® with ThermalClip®	Pos-I-Tie® with ThermalClip®
Masonry Anchor Spacing	16" max.*	24" max.*
Exterior Finish	4" face brick (nominal)	4" face brick (nominal)

Mineral Wool Insulation"	Non-bearing	Bearing
Exterior Fire Rating	1 hour	1 hour
Interior Fire Rating	3 hour	1 hour
Structural	Nonbearing	Bearing
Steel Stud Spacing	16" max. oc.	24" max. oc.
Steel Stud Depth (minimum)	3-5/8"	3-1/2"
Interior Gypsum Board	5/8", type C	5/8", type X
Batt Insulation	EcoTouch® Fiberglas, faced or unfaced	EcoTouch® Fiberglas, faced or unfaced
Exterior Gypsum Board	5/8", type X	5/8", type X
Air/Water Resistive Barrier	ExoAir® 230	PROSOCO R-Guard® Cat-5
Continuous Insulation	Owens Corning® Thermafiber® RainBarrier® 45	Owens Corning® Thermafiber® RainBarrier® 45
Air/Water Sealing Washers	Thermal-Grip®	Thermal-Grip®
Air Space	Varies 1" to 2"	Varies 1" to 2"
Mortar Droppings Protection	MortarNet®	MortarNet®
Through Wall Flashing	TotalFlash®	TotalFlash®
Masonry Anchor	Pos-I-Tie® with ThermalClip®	Pos-I-Tie® with ThermalClip®
Masonry Anchor Spacing	16" max.*	24" max.*
Exterior Finish	4" face brick (nominal)	4" face brick (nominal)

* Building code requirements for brick support may differ.
See UL online certifications directory Design No. W429 for complete details.

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

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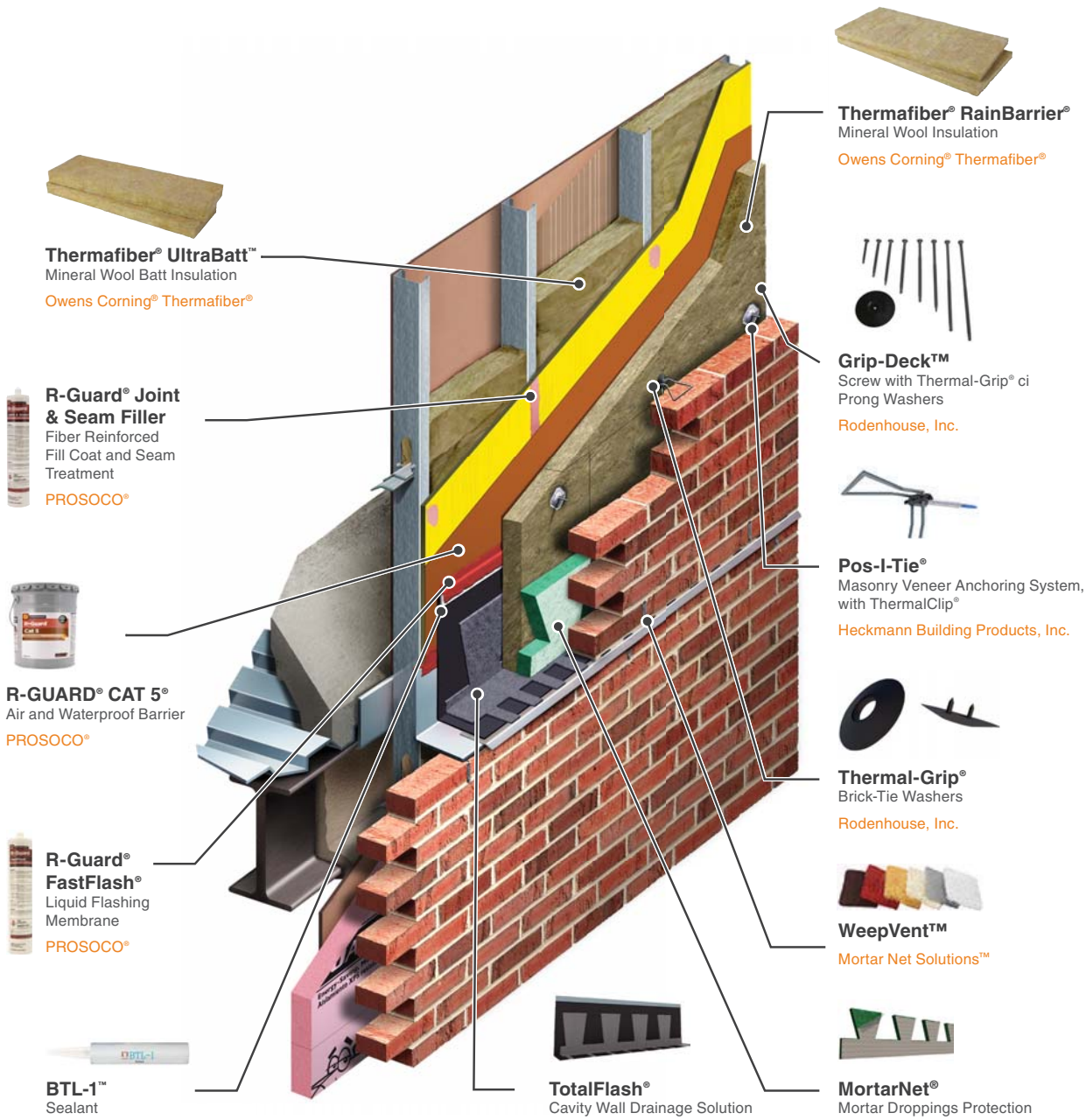

Thermafiber® RainBarrier®
Mineral Wool Insulation
Owens Corning® Thermafiber®

Thermafiber® UltraBatt™
Mineral Wool Batt Insulation
Owens Corning® Thermafiber®

Grip-Deck™
Screw with Thermal-Grip® ci Prong Washers
Rodenhouse, Inc.

R-Guard® Joint & Seam Filler
Fiber Reinforced Fill Coat and Seam Treatment
PROSOCO®

Pos-I-Tie®
Masonry Veneer Anchoring System, with ThermalClip®
Heckmann Building Products, Inc.

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

Thermal-Grip®
Brick-Tie Washers
Rodenhouse, Inc.

R-Guard® FastFlash®
Liquid Flashing Membrane
PROSOCO®

WeepVent™
Mortar Net Solutions™

BTL-1™
Sealant
Mortar Net Solutions™

TotalFlash®
Cavity Wall Drainage Solution
Mortar Net Solutions™

MortarNet®
Mortar Droppings Protection
Mortar Net Solutions™

†This CavityComplete® Wall System excludes the masonry veneer, steel studs and interior and exterior gypsum board. A detailed list of the components is available at www.CavityComplete.com.

ASTM E119 Test Assembly, Exterior Side

Fire Exposure Inside ASTM E119 Furnace

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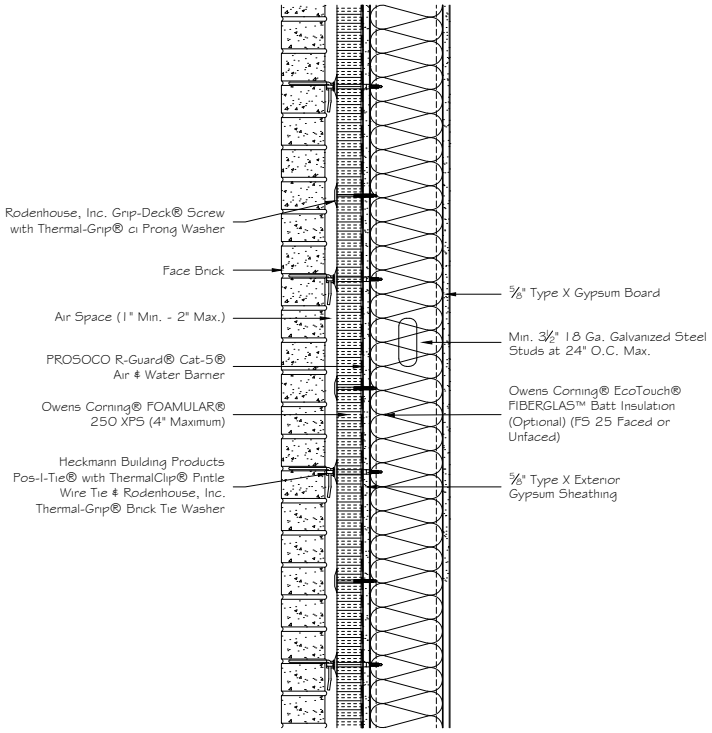
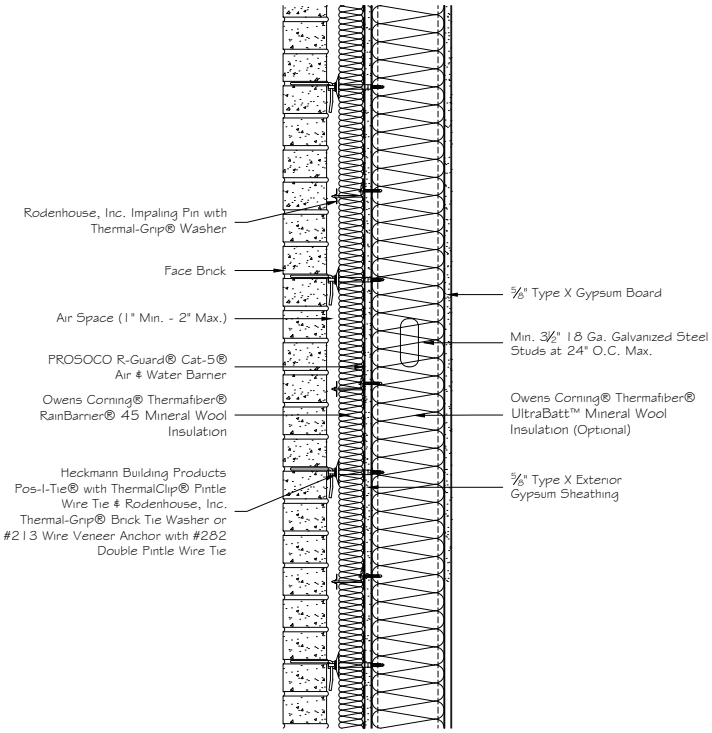


CavityComplete® Steel Stud, Wall Section with Extruded Polystyrene (XPS) Insulation



CavityComplete® Steel Stud, Wall Section with Mineral Wool Insulation

The CavityComplete® Wall System excludes the masonry veneer, steel studs and interior and exterior gypsum board. A detailed list of the components is available at www.CavityComplete.com.

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