

1.0 - INTRODUCTION

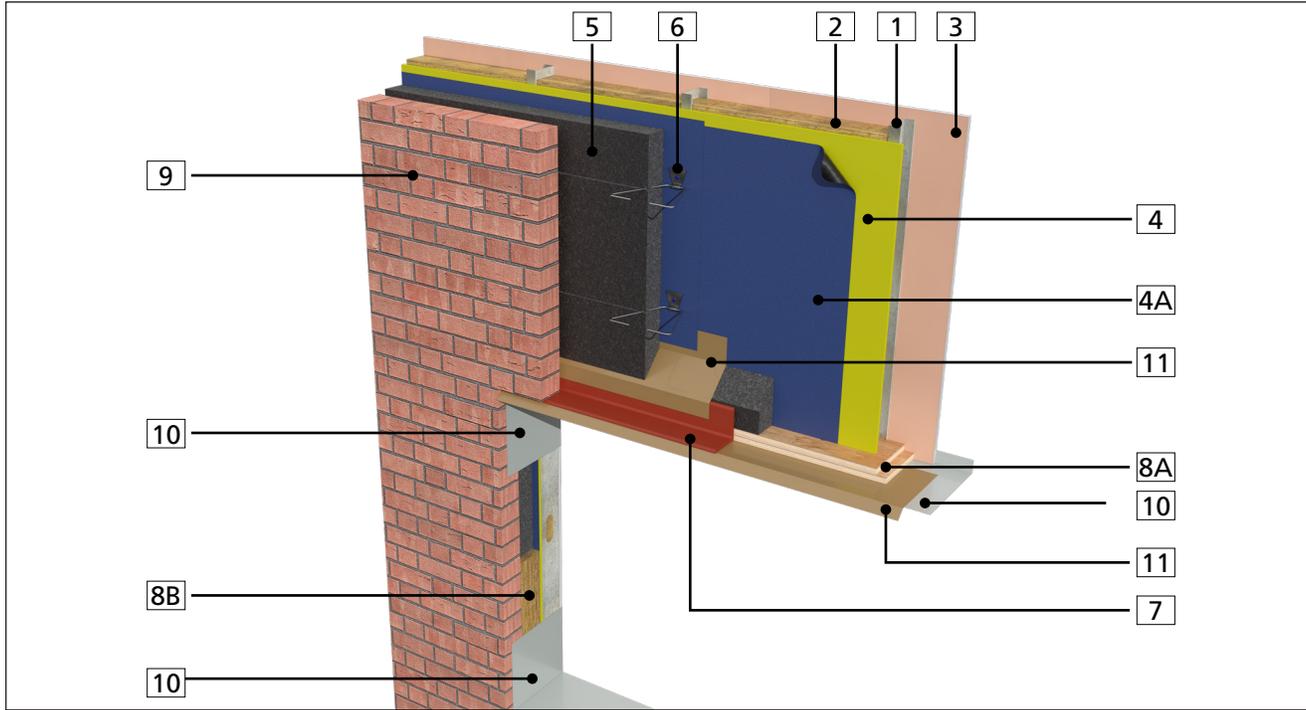
The NFPA 285¹ fire tests is designed to test the flame spread properties of multi-story, full scale, exterior walls containing combustible components. This test is typically required in the US for multi-story commercial and residential buildings where exterior walls may contain combustible components, such as rigid foam insulation.

BASF has passed several NFPA 285 fire tests with Neopor GPS, and has been independently certified under UL Evaluation Report 5817. Since Chrome GPS insulation is manufactured using Neopor by BASF, accepted wall assemblies calling out Chrome GPS, as opposed to Neopor GPS, is permitted.

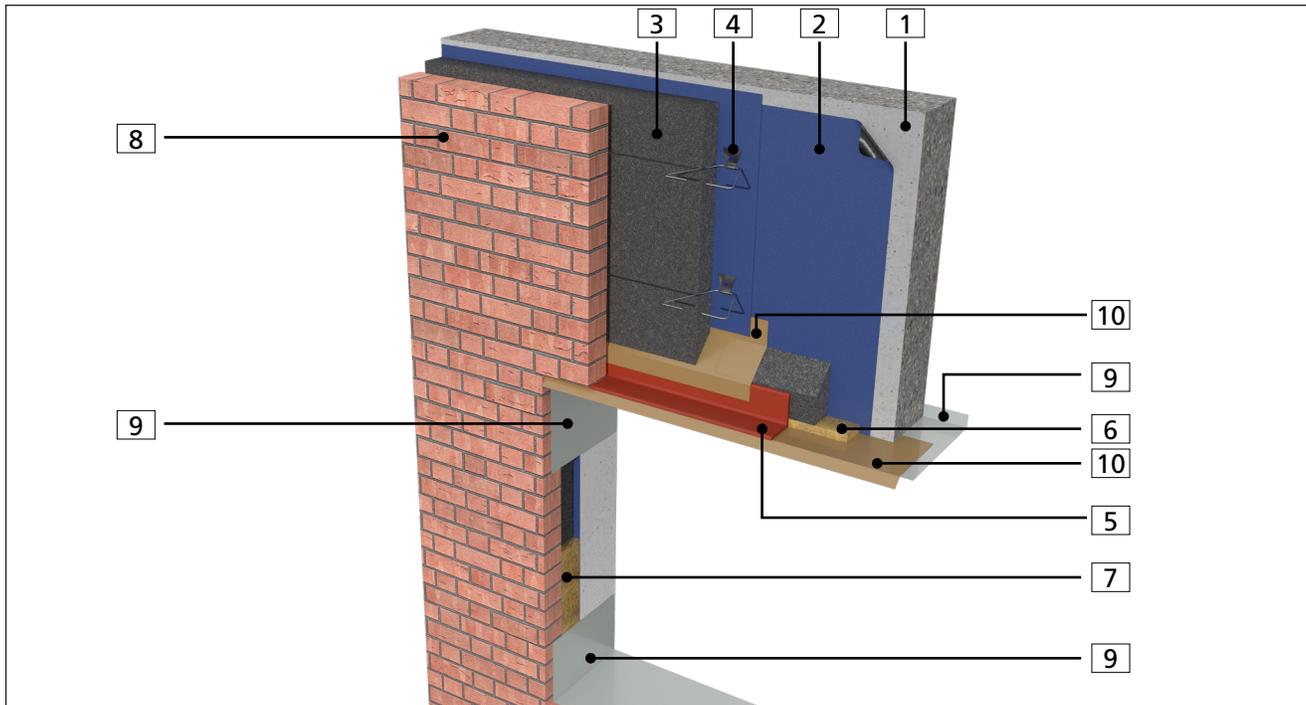
This document summarizes the various accepted wall assemblies tested under NFPA 285 showing Chrome GPS as the exterior insulation. The wall assemblies include steel stud, concrete or CMU as the base wall for the assemblies.

1. NFPA 285, Standard Fire Test for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Assemblies Containing Combustible Components

Steel Stud Base Wall Assembly



Concrete or CMU Base Wall Assembly



Steel Stud Base Wall Assembly Cont'd

- 1 Steel studs - min. 3-5/8 in. deep, max. 6 in. deep, formed of min. 20 ga. galvanized steel spaced max. 24 in. on center.
- 2 Stud cavity insulation - Max. 2.3 lb/ft² density spray applied foam plastic insulation applied onto the interior surface of the exterior gypsum board (Item 4) up to full or partial thickness of stud. When installed for partial stud cavity, an air gap between interior drywall (Item 3) and insulation shall be max. 1 in.

Alternate cavity insulation - 4 in. mineral wool in lieu of foamed plastic stud cavity insulation (Item 2). Install with slight compression into the stud cavity, if necessary, to complete fill the stud cavity.

NOTE: When mineral is used in lieu of foamed plastic insulation (Item 2), exterior-grade gypsum board (Item 4) is an optional component.

Refer to Table 1 for acceptable cavity insulation options.

- 3 Interior gypsum board - Min. 5/8 in. thick, 4 ft wide. Attach to steel studs (Item 1) with 1-1/4 in. long Type S screws spaced max. 8 in. on center. Joints oriented vertically and covered with paper tape and joint compound. Screws heads shall be covered with joint compound.
- 4 Exterior gypsum board - Min. 1/2 in. thick exterior-grade glass mat gypsum board. Attach to steel studs (Item 1) with 1-1/4 in. long Type S steel screws spaced max. 8 in. on center. Joints oriented either vertically or horizontally.

NOTE: Exterior gypsum board is an optional component only when mineral wool is used in the stud cavities (see Item 2). If spray applied foam plastic insulation (Item 2) is used in the stud cavities, then the exterior-grade glass mat gypsum board (Item 4) is required.

- 4A Air/water resistive barrier over exterior gypsum board (Item 4) - Sealant applied to completely cover the exterior surface of the exterior gypsum sheathing (Item 4) at a max. wet thickness of 46 mil.

Refer to Table 2 for acceptable air/water resistive barriers over exterior gypsum board (Item 4).

Air/water resistive barrier applied over Chrome GPS (Item 5) - in lieu of air/water resistive barrier over exterior gypsum board (Item 4), 1 layer of Tyvek Commercial wrap (not shown) may be installed over Chrome GPS (Item 5).

- 5 Chrome GPS, Exterior foamed plastic insulation - nominal 4 ft by 8 ft sheets of Chrome GPS. Secure to steel studs (Item 2) with self-tapping screws that are min. 1 in. longer than the combined thickness of the Chrome GPS sheet and exterior gypsum board

(Item 4). Insulation fasteners used in conjunction with 2 in. diameter, 0.2 in thick plastic pronged continuous insulation washers, spaced 16 in. on center max.

Refer to Table 3a and Table 3b for approved density and thickness ranges of Chrome GPS and Chrome GPS FR, respectively.

- 6 Masonry Veneer Anchors - screw anchors with min. 1 in. long self-drilling tip attached into steel studs. Length of masonry veneer anchor, not including self-drilling tip, shall be equal to the thickness of Chrome GPS boards (Item 5). Includes flanged head/integral zinc/EPDM washer. Install on each stud spaced 16 in. vertically.
- 7 Steel Lintel - nom. 4 by 4 in. by min. 3/8 in. thick steel angle supporting brick veneer at header at top of window opening and extending min. 8 in. beyond each side of the window opening into the brick veneer mortar joints.

- 8A Plywood Header Protection - two layers of 3/4 in. thick plywood secured to header stud framing with min. No. 6 by 3 in. self-tapping steel screws. Plywood sheets span from interior gypsum board (Item 3) to back face of steel lintel (Item 7).

Alternate Header Protection - nom. 1 in thick mineral wool, in lieu of plywood, may be used in the same manner as the jamb protection (Item 8B). Provide a friction fit between the exterior surface of exterior gypsum board (Item 4) to interior surface of steel lintel (Item 7).

- 8B Mineral Wool Jamb Protection - nom. 1 in. thick mineral wool piece inserted between exterior surface of exterior gypsum board (Item 4) to interior surface of exterior cladding (Item 9) with slight compression. Chrome GPS shall be cut back 1 in. to accommodate installation of mineral wool.
- 9 Exterior Cladding - Nom. 3-5/8 in thick clay brick offset to provide a nom. 2 in. air gap between Chrome GPS (Item 5) and brick veneer.

Refer to Table 4 for further details and additional acceptable cladding options.

- 10 Metal Flashing - Min. 25 ga. thick steel to cover all inner surfaces of window perimeter and conceal plywood (Item 8A) and/or mineral wool (Item 8B).
- 11 Metal flashing for moisture drainage control - example detail shown, flashing details may vary.

Concrete or CMU Base Wall Assembly Cont'd

- 1 Cast Concrete or Concrete Masonry Units (CMU) Walls.
- 2 Air/water resistive barrier over Concrete or CMU Wall (Item 1) - Sealant applied to completely cover the exterior surface of the concrete or CMU wall (Item 1) at a max. wet thickness of 46 mil.

Refer to Table 2 for acceptable air/water resistive barriers over concrete or CMU walls (Item 1).

Air/water resistive barrier applied over Chrome GPS (Item 3) - in lieu of air/water resistive barrier over concrete or CMU wall (Item 1), 1 layer of Tyvek Commercial wrap (not shown) over Chrome GPS (Item 3) may be installed..
- 3 Chrome GPS, Exterior foamed plastic insulation - nominal 4 ft by 8 ft sheets of Chrome GPS. Use appropriate fasteners that are min. 1 in. longer than the combined thickness of the Chrome GPS sheet with 2 in. diameter, 0.2 in thick plastic pronged continuous insulation washers, spaced 16 in. on center max.

Refer to Table 3a and Table 3b for approved density and thickness ranges of Chrome GPS and Chrome GPS FR, respectively.
- 4 Masonry Veneer Anchors - use appropriate fasteners min. 1 in. long with 16 in. min. spacing. Length of masonry veneer anchor, not including self-drilling tip, shall be equal to the thickness of Chrome GPS boards (Item 5). Includes flanged head/integral zinc/EPDM washer.
- 5 Steel Lintel - nom. 4 by 4 in. by min. 3/8 in. thick steel angle supporting brick veneer at header at top of window opening and extending min. 8 in. beyond each side of the window opening into the brick veneer mortar joints.
- 6 Mineral Wool Header Protection - nom. 1 in. thick mineral wool piece inserted between exterior surface of concrete or CMU wall (Item 1) to interior surface of steel lintel (Item 5) with slight compression. Chrome GPS shall be cut back 1 in. to accommodate installation of mineral wool. Provide a friction fit between the exterior surface of concrete or CMU wall (Item 1) to interior surface of steel lintel (Item 5).
- 7 Mineral Wool Jamb Protection - nom. 1 in. thick mineral wool piece inserted between exterior surface of concrete or CMU wall (Item 1) to interior surface of exterior cladding (Item 8) with slight compression. Chrome GPS shall be cut back 1 in. to accommodate installation of mineral wool.
- 8 Exterior Cladding - Nom. 3-5/8 in thick clay brick offset to provide a nom. 2 in. air gap between Chrome GPS (Item 3) and brick veneer.

Refer to Table 4 for additional acceptable cladding options.
- 9 Metal Flashing - Min. 25 ga. thick steel to cover all inner surfaces of window perimeter and conceal mineral wool (Items 6 and 7).
- 10 Metal flashing for moisture drainage control - example detail shown, flashing details may vary.

Table 1: Stud Cavity Options

<ol style="list-style-type: none"> 1. Mineral fiber insulation (full stud depth required when no exterior sheathing is used) 2. None 3. Any unfaced or faced fiberglass matt or non-combustible insulation 4. BASF Spray Foam Spraytite® 178 (up to full cavity depth) 5. BASF Walltite® HP+, Walltite® US, Walltite® US-N, Spraytite® 81206 spray applied foam plastic insulation, up to full cavity depth of partial fill with a maximum 1 in. air gap. <p>NOTE: Use options 2, 3, 4 or 5 only if exterior sheathing is used. Follow manufacturer installation instructions.</p>

Table 2: Air/Water Resistive Barrier Options Over Exterior Sheathing, Concrete or CMU Walls

<ol style="list-style-type: none"> 1. None 2. BASF Enershield HP or Enershield I 3. Tremco EXOAir 130 or EXOAir 230 4. Grace Perm-A-Barrier VPS, AWM, VPL, NPS, NPL, NPL 10, VPL LT 5. CCW Barritech NP, VP, VP LT, FireResist 705VP or FireResist 705FR-A 6. ProsoCo R-Guard Car-5, R-Guard VB, R-Guard Spraywrap MVP 7. Henry VP160, Air Bloc 21 FR, Air Bloc 33MR, or Air Bloc 31 MR 8. STO Emerald Coat 9. Hohmann & Barnard Enviro-Barrier VP or Enviro-Barrier <p>NOTE: Follow manufacturer installation instructions.</p>

Table 3a: Density and Thickness Options of CHROME GPS

	Chrome GPS 1000	Chrome GPS 1600	Chrome GPS 2000	Chrome GPS 2500	Chrome GPS 3000
Max. Density (lb/ft³)	0.90	1.35	1.80	1.80	1.80
Max. Thickness (in.)	10	8.75	5	5	5

Table 3b: Density and Thickness Options of CHROME GPS FR

Max. Density (lb/ft³)	0.90	1.15	1.80
Max. Thickness (in.)	10	8.75	5

Table 4: Cladding Options

<ol style="list-style-type: none"> 1. Brick – 4 in. (nominal) clay brick with brick ties spaced 24 in. (max) on center horizontally and 16 in. (max) on center vertically 2. Concrete – 2 in. (min) thick 3. Concrete Masonry Units – 2 in. (min) thick 4. Natural Stone Veneer – 2 in. (min) thick installed using any standard non-open joint installation technique 5. Terracotta Cladding – 1-¼ in. (min) thick installed using any standard non-open joint installation technique 6. Stucco – ¾ in. (min) thick exterior cement plaster lath <p>NOTE: Cladding items 1-5 may use maximum 2 in. air gap between cladding and exterior insulation.</p>
