

Mr. Jack Miller  
Commercial Building Plan Examiner & Product Reviewer  
WI Department of Safety and Professional Services  
2850 Midwest Dr Ste 107  
Onalaska, WI 54650-6750

March 11, 2021

Re: Uniform Code Acceptance - BASF NEOPOR® Foam Insulation Interior Basement Wall Use without Thermal Barrier

Dear Mr. Miller,

Tim O'Brien Homes is seeking approval for to use BASF NEOPOR® foam insulation as an interior basement wall covering without the use of a thermal barrier. The application is for residential structures built in accordance with the Wisconsin Uniform Dwelling Code.

Both the 2015 International Building Code (IBC) and the International Residential Code (IRC) allow the use of foam plastic insulation without the use of a thermal barrier provided the material in question has been tested in accordance with NFPA 286 and has met the acceptance criteria of IBC Section 803.1.2.1 [IRC Section R302.9.4 contains similar language].

**803.1.2.1 Acceptance criteria for NFPA 286.** The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m<sup>2</sup>.

This allowance is based on IBC Section 2603.9 Special Approval [IRC Section R316.6 contains similar language].

**2603.9 Special approval.** Foam plastic shall not be required to comply with the requirements of Section 2603.4 or those of Section 2603.6 where specifically approved based on largescale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.2), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall also conform to the flame spread and smoke-developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

This exemption from the thermal barrier requirement is provided because testing to NFPA 286 and meeting the acceptance criteria defined in the code is deemed to be equivalent to or better than the fire performance provided by a thermal barrier. The Wisconsin Commercial Code has adopted the 2015 version of the IBC with no change to Chapter 26, meaning that this application is currently permitted in Wisconsin buildings constructed in accordance with the Wisconsin Commercial Building Code. The following is from the [dps.wi.gov](https://dps.wi.gov) website:

The rules for use with the Wisconsin Commercial Building Code were updated on May 1, 2018. The new rules include the adoption of the 2015 IBC, IECC, IMC, IFGC & IEBC as amended by Chapters 361-366 per SPS 361.05. Commercial plans submitted on or after May 1st need to comply with the updated rules. Rule changes associated with the adoption of the 2015 ICC may be accessed on the Legislative Reference Bureau's (LRB) website [here](https://dps.wi.gov/Pages/RulesStatutes/TradesProgram.aspx). A complete set of amendments for use with the adopted 2015 ICC codes may be viewed at <https://dps.wi.gov/Pages/RulesStatutes/TradesProgram.aspx>.

The pertinent sections of the IBC code language is as follows (the IRC contains similar language):

**2603.4 Thermal barrier.** Except as provided for in Section 2603.4.1 and 2603.9, foam plastic shall be separated from the interior of a building by an approved thermal barrier of ½ inch (12.7 mm) gypsum wallboard or a material that is tested in accordance with and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275. Combustible concealed spaces shall comply with Section 718.

Note that the reference to Section 803.2 from IBC Section 2603.9 above is an error in the IBC. The acceptance criteria of NFPA 286 is in Section 803.1.2



**803.1.2 Room corner test for interior wall or ceiling finish materials.** *Interior wall or ceiling finish* materials shall be permitted to be tested in accordance with NFPA 286. Interior wall or ceiling finish materials tested in accordance with NFPA 286 shall comply with Section 803.1.2.1.

**803.1.2.1 Acceptance criteria for NFPA 286.** The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shall not spread to the ceiling.
2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m<sup>2</sup>.

The allowance to leave the foam plastic exposed is further reinforced in Section 803.4

**803.4 Foam plastics.** Foam plastics shall not be used as *interior finish* except as provided in Section 2603.9. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

IBC Section 2603.9 also requires that foam plastics that are used as interior finish on the basis of special tests shall conform to the flame spread and smoke-developed requirements in Chapter 8.

**IBC Section 803.1 General.** Interior wall and ceiling finish materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections 803.2 through 803.13. **Materials tested in accordance with Section 803.1.2 (room corner test NFPA 286) shall not be required to be tested in accordance with Section 803.1.1** [Emphasis added]

**803.1.1 Interior wall and ceiling finish materials.** Interior wall and ceiling finish materials shall be classified in accordance with ASTM E 84 or UL 723. Such *interior finish* materials shall be grouped in the following classes in accordance with their flame spread and *smoke-developed indexes*.

Class A: = Flame spread index 0-25; smoke developed index 0-450.

Class B: = Flame spread index 26-75; smoke developed index 0-450.

Class C: = Flame spread index 76-200; smoke developed index 0-450.

**Exception:** Materials tested in accordance with Section 803.1.2.

DrJ Engineering has been provided with test reports showing that BASF NEOPOR® has been tested in accordance with NFPA 286 and has met the acceptance criteria of IBC Section 803.1.2.1. From a code requirement and code compliance point of view, BASF NEOPOR® is permitted to be used without a thermal barrier in any building constructed in accordance with the IBC, IRC, Wisconsin Commercial Building Code and in Wisconsin Uniform Dwelling Code (while not explicitly stated), as it is in every state in the US.

The reason for this point of view is that the referenced testing shows that walls constructed with BASF NEOPOR® as the finish material meet the performance criteria of the Wisconsin Commercial code for NFPA 286, where the Wisconsin Commercial code is generally intended to be more stringent than the Wisconsin Uniform Dwelling Code. Given this, it is presumed that Tim O'Brien Homes can use BASF NEOPOR® in these applications.

Please let us know where our code compliance evaluation logic fails or if you concur with this assessment. If you have any questions please call me at 608-310-6742. Thank you very much for your consideration.

Respectfully Submitted by:

Larry Wainright  
Vice President Product Certification  
608-310-6742