

SECTION R316

FOAM PLASTIC

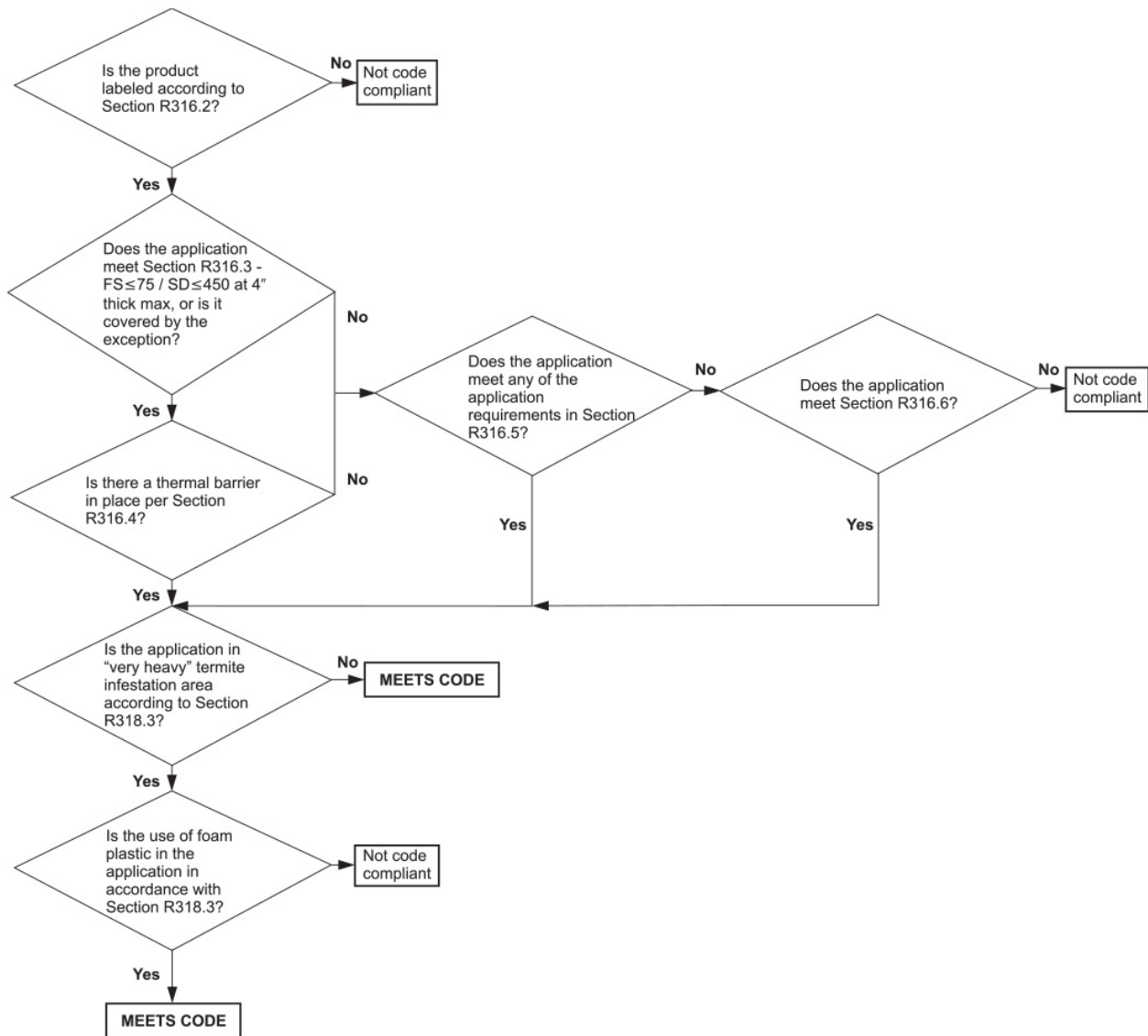
R316.1 General.

The provisions of this section shall govern the materials, design, application, construction and installation of foam plastic materials.

❖ [Section R316](#) covers several topics related to the use and installation of various types of foam plastic materials used for insulation, trim and finishes. These requirements cover the acceptable uses of this combustible product and the associated protection needed to use it in building construction.

[Section R316.1](#) lists the two basic issues that serve as the basis for foam plastic insulation requirements: the flame spread rating of the material and the separation of the foam plastic insulation from the interior of the building.

[Commentary Figure R316.1](#) shows a simple flowchart to help the code user more easily comply with the foam plastics sections of the code.



For SI: 1 inch = 25.4 mm.

Commentary Figure R316.1

USE AND INSTALLATION REQUIREMENTS OF FOAM PLASTIC IN BUILDING CONSTRUCTION

R316.2 Labeling and identification.

Packages and containers of foam plastic insulation and foam plastic insulation components delivered to the job site shall bear the label of an approved agency showing the manufacturer's name, the product listing, product identification and information sufficient to determine that the end use will comply with the requirements.

❖ Foam plastics or packages of foam plastics delivered to the construction site must be labeled. Also, labels are required on containers [usually two components in 55-gallon (208 L) drums] of ingredients delivered for the production of foam plastic at the construction site. The label must include the name of the manufacturer or distributor, the type of foam plastic, the performance characteristics required to show code compliance and the name of the approved testing agency. The label may reference documents, such as ICC-ES reports, approval agency certificates and other information, that can be used to determine code-required performance characteristics. [Note, although not required by the code, the Federal Trade Commission (FTC) also places specific labeling requirements regarding the insulation power or R-value on all insulations, including foam plastic insulation, used in residential applications.]

R316.3 Surface burning characteristics.

Unless otherwise allowed in [Section R316.5](#), foam plastic, or foam plastic cores used as a component in manufactured assemblies, used in building construction shall comply with [Section R316.3.1](#) or [R316.3.2](#). Loose-fill-type foam plastic insulation shall be tested as board stock for the flame spread index and smoke-developed index.

Exception: Spray foam plastic insulation more than 4 inches (102 mm) in thickness shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450 where tested at a thickness of 4 inches (102 mm) and at the density intended for use. Such spray foam plastic shall be separated from the interior of a building by 1/2-inch (12.7 mm) gypsum wallboard or by a material that has been tested in accordance with NFPA 275, and shall meet the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test.

❖ This section addresses surface burning characteristics. Unless otherwise allowed in [Section R316.5](#) or [R316.6](#), foam plastic or foam plastic cores used as a component must comply with [Section R316.3.1](#) or [R316.3.2](#). Loose-fill-type foam plastic insulation must be tested as board stock for the flame spread index and smoke-developed index.

The exception is based on multiple successful NFPA 286 tests with a variety of spray foam plastic insulations with a 25 or less flame spread index and thicknesses far exceeding 4 inches (102 mm). Those tests have demonstrated that any thickness will pass when covered with a prescriptive thermal barrier. Test thicknesses have been burned with as much as 16 inches (406 mm) of spray foam in the NFPA 286 assembly (approximate R-value over 100) and passed.

R316.3.1 Foam plastic insulation 4 inches thick or less.

Foam plastic insulation installed at 4 inches (102 mm) in thickness or less shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where

tested in the maximum thickness and density intended for use in accordance with ASTM E84 or UL 723.

❖ This section requires foam plastic insulation intended to be installed in thicknesses of 4 inches (102 mm) or less to be tested in the Steiner Tunnel (ASTM E84) in the maximum thickness and density intended for use. Foam plastic insulation or foam plastic cores used as a component in a manufactured assembly are combustible and must be assessed for flame spread (FS) and smoke-developed (SD) indices.

Where testing in accordance with ASTM E84 or UL 723 is required, the materials must be tested in the maximum thickness and density to be used [up to 4-inch (102 mm) thickness], with flame spread index results less than 75 and smoke-developed index results less than 450 SD, unless otherwise specified.

The maximum flame spread value of 75 was chosen on the basis that it was lower than untreated wood (which usually was 100 to 165). The maximum smoke-developed rating of 450 was selected because, at the time, the code permitted interior finish materials that gave off “smoke no more dense than that given off by untreated wood.” In selecting the maximum flame spread and smoke-developed values, it was believed that a conservative approach was being taken by requiring an insulation material to meet the same requirements as interior finish, even though the insulation was intended to be covered with an interior finish material. The requirements for surface-burning characteristics of foam plastic apply to foam plastics used as cores of manufactured assemblies.

R316.3.2 Foam plastic insulation more than 4 inches thick.

Foam plastic insulation installed at more than 4 inches (102 mm) in thickness shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested at a thickness of 4 inches (102 mm) in accordance with ASTM E84 or UL 723, provided that the end use is approved in accordance with [Section R316.6](#) using the thickness and density intended for use.

❖ This section allows foam plastic insulation intended to be installed in thicknesses greater than 4 inches (102 mm) to be tested in the Steiner Tunnel (ASTM E84) at a 4-inch (102 mm) thickness. This addresses the concern that Steiner Tunnels are generally physically limited to fire testing materials of not more than about 4 inches (102 mm) in thickness. This section specifies the flame spread index and smoke-developed index requirements. If thicker foam is going to be used, it must still be tested to ASTM E84 or UL 723 at 4-inch (102 mm) thickness with flame spread index results less than 75 and smoke-developed index results less than 450, as well as testing in accordance with [Section R316.6](#) that is done at the actual foam thickness and density.

R316.4 Thermal barrier.

Unless otherwise allowed in [Section R316.5](#), foam plastic shall be separated from the interior of a building by an approved thermal barrier of not less than 1/2-inch (12.7 mm) gypsum wallboard, 23/32-inch (18.2 mm) wood structural panel 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.

❖ The use of an approved thermal barrier to separate foam plastics from the interior of a building is a basic requirement for the use of foam plastic as shown in this section of the code. The job of a thermal barrier is to isolate the foam plastic. An approved thermal barrier is defined as minimum 1/2-inch (12.7 mm) gypsum wallboard, 23/32-inch (18.2 mm) wood structural panel or a material tested to NFPA 275. Before 1975, experience had shown that foam plastics covered with plaster or 1/2-inch (12.7 mm) gypsum wallboard had performed satisfactorily in building fires. For this reason, 1/2-inch (12.7 mm) gypsum wallboard was included in the code as a minimum requirement. It is recognized that specifying a single material is not desirable in a performance code; therefore, a material tested to NFPA 275 is permitted.

This section sets forth the test methods and performance criteria by which alternative thermal barriers are to be qualified. NFPA 275, Standard Method of Fire Tests for the Evaluation of Thermal Barriers Used Over Foam Plastic Insulation, was developed to specifically address the testing of materials to qualify as a thermal barrier. The test method provides specific sample construction, fire exposures and acceptance criteria to qualify a material to be a 15-minute thermal barrier. The test methods address both the capability of the material to retard heat transfer via a fire-resistance test and to remain in place via a full-scale fire test.

[Sections R316.5](#) and [R316.6](#) describe circumstances where the requirement for a thermal barrier is modified or eliminated.

R316.5 Specific requirements.

The following requirements shall apply to these uses of foam plastic unless specifically approved in accordance with [Section R316.6](#) or by other sections of the code or the requirements of [Sections R316.2](#) through [R316.4](#) have been met.

❖ This prescriptive section can be used as another path to code compliance for foam plastics. As the flow chart in the commentary to [Section R316.1](#) points out, if an application, including any listed below, meets the requirements in [Sections R316.2](#), [R316.3](#), [R316.4](#) and [R316.7](#), or [Sections R316.2](#), [R316.6](#) and [R316.7](#), that application is code compliant and the requirements spelled out below do not apply. It is only when the requirements of [Section R316.3](#) or [R316.4](#) are not met that the following applications can be used to show code compliance. Many of the

applications modify or remove the flame spread and smoke-developed requirements of [Section R316.3](#) or modify or remove the need for the thermal barrier specified in [Section R316.4](#).

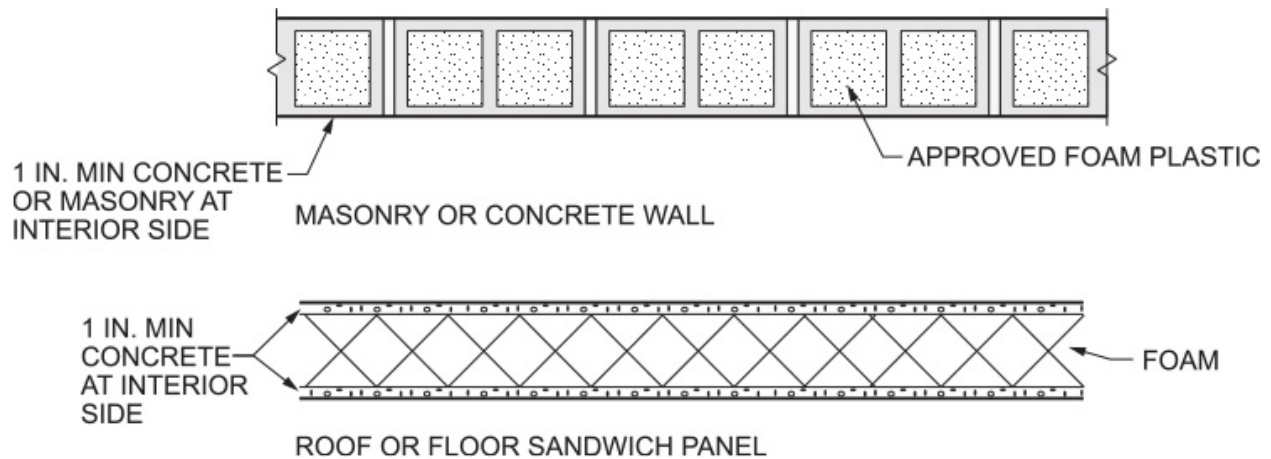
Two applications that have caused confusion in the past are foam backer board and foam insulation used in residential applications. These two applications, by definition, are examples of foam plastic insulation used on the exterior of a wall assembly. If the foam plastic being used meets the requirements of [Section R316.3](#) (requiring a flame spread index less than 75 and a smoke-developed index less than 450) and [Section R316.4](#) [thermal barrier of 1/2-inch (12.7 mm) gypsum board or an equivalent on the interior of the wall], the foam plastic insulation can be used up to the allowed thickness of 4 inches (102 mm), and [Sections R316.5.7](#) and [R316.5.8](#) do not apply.

R316.5.1 Masonry or concrete construction.

The thermal barrier specified in [Section R316.4](#) is not required in a masonry or concrete wall, floor or roof where the foam plastic insulation is separated from the interior of the building by not less than a 1-inch (25 mm) thickness of masonry or concrete.

❖ A thermal barrier is not required where 1 inch (25 mm) or more of masonry or concrete is placed between the foam plastic and the interior of the building. The intent is to accept 1 inch (25 mm) of masonry or concrete as adequate protection against ignition, even though the concrete does not necessarily meet the performance criteria for thermal barriers. This condition can arise when foam plastics are installed either within a wall or on one side of a wall. Some common examples are when foam plastics are installed:

- In the cavity of a hollow masonry wall.
- As the core of a concrete-faced panel.
- On the exterior face of a masonry wall and covered with an exterior finish.
- Within the cores of hollow masonry units.
- Encapsulated within a minimum 1-inch (25 mm) concrete or masonry wall, floor or roof system, as in insulated tilt-up or pour-in-place concrete panels (see [Commentary Figure R316.5.1](#)).



For SI: 1 inch = 25.4 mm.

Commentary Figure R316.5.1

ENCAPSULATED FOAM PLASTIC

R316.5.2 Roofing.

The thermal barrier specified in [Section R316.4](#) is not required where the foam plastic in a roof assembly or under a roof covering is installed in accordance with the code and the manufacturer's instructions and is separated from the interior of the building by tongue-and-groove wood planks or wood structural panel sheathing, in accordance with [Section R803](#), that is not less than $^{15}/_{32}$ inch (11.9 mm) thick bonded with exterior glue, identified as Exposure 1 and with edges supported by blocking or tongue-and-groove joints or an equivalent material. The smoke-developed index for roof applications shall not be limited.

❖ No thermal barrier is required where a foam plastic is incorporated into a roof assembly on the exterior side, over tongue-and-groove wood planks or wood structural panel sheathing, if the wood product meets all of the following:

- Complies with the roof sheathing requirements of [Section R803](#).
- Identified as Exposure 1.
- Manufactured with exterior grade glue.
- Minimum $^{15}/_{32}$ inch thick (12 mm).
- Installed according to manufacturer's instructions.
- Installed to provide adequate edge support (blocking where edges do not occur over framing members, tongue-and-groove joints or equivalent).

Also, the flame spread rating of the foam plastic used must comply with the requirements of [Section R316.3](#), but the smoke-developed rating of the foam plastic is not limited.

R316.5.3 Attics.

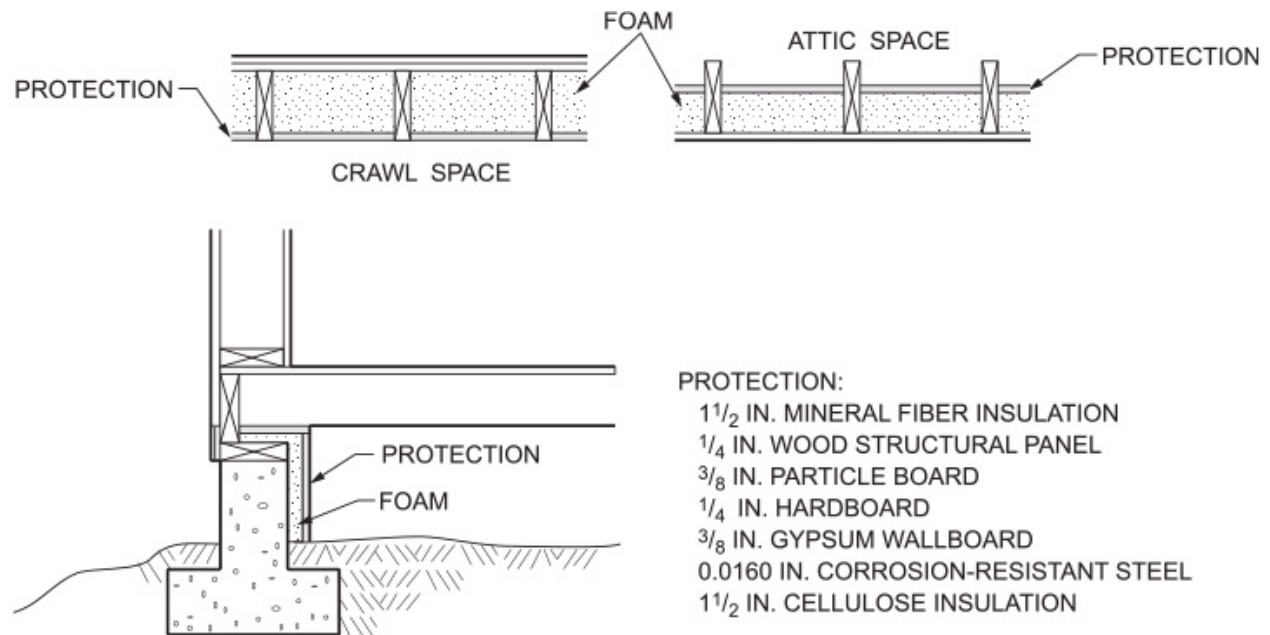
The thermal barrier specified in [Section R316.4](#) is not required where all of the following apply:

1. Attic access is required by [Section R807.1](#).
2. The space is entered only for purposes of repairs or maintenance.
3. The foam plastic insulation has been tested in accordance with [Section R316.6](#) or the foam plastic insulation is protected against ignition using one of the following ignition barrier materials:
 - 3.1. 1¹/₂-inch-thick (38 mm) mineral fiber insulation.
 - 3.2. 1/4-inch-thick (6.4 mm) wood structural panels.
 - 3.3. 3/8-inch (9.5 mm) particleboard.
 - 3.4. 1/4-inch (6.4 mm) hardboard.
 - 3.5. 3/8-inch (9.5 mm) gypsum board.
 - 3.6. Corrosion-resistant steel having a base metal thickness of 0.016 inch (0.406 mm).
 - 3.7. 1¹/₂-inch-thick (38 mm) cellulose insulation.
 - 3.8. 1/4-inch (6.4 mm) fiber-cement panel, soffit or backer board.

The ignition barrier is not required where the foam plastic insulation has been tested in accordance with [Section R316.6](#).

❖ Where attic access is required by [Section R807.1](#) [where attic areas exceed 30 square feet (2.8 m²) and have a vertical height of 30 inches (762 mm) or more], and entry is only for service of utilities, foam plastics need not be provided with the thermal barrier required by [Section R316.4](#) if the foam plastic has been tested in accordance with [Section R316.6](#), or an ignition barrier is used in place of a thermal barrier to cover the foam plastic. Multiple materials are listed that can be used as the ignition barrier (see [Commentary Figure R316.5.3](#)). The foam plastic material covered with the ignition barrier can be on the floor, wall (often called a knee wall or gable end) or the ceiling of the attic. The phrase “purposes of repairs and maintenance” applies to attics that contain only mechanical equipment, electrical wiring, fans, plumbing, gas or electric hot water heaters, gas or electric furnaces, etc. The attic space cannot be used for storage. The reduced provision (from a thermal barrier to an ignition barrier) provides a barrier

whose only purpose is to prevent the direct impingement of flame on the foam plastic insulation.



For SI: 1 inch = 25.4 mm.

Commentary Figure R316.5.3

FOAM PLASTIC, ATTIC AND CRAWL SPACES

R316.5.4 Crawl spaces.

The thermal barrier specified in [Section R316.4](#) is not required where all of the following apply:

1. Crawl space access is required by [Section R408.4](#).
2. Entry is made only for purposes of repairs or maintenance.
3. The foam plastic insulation has been tested in accordance with [Section R316.6](#) or the foam plastic insulation is protected against ignition using one of the following ignition barrier materials:
 - 3.1. 1 1/2-inch-thick (38 mm) mineral fiber insulation.
 - 3.2. 1/4-inch-thick (6.4 mm) wood structural panels.
 - 3.3. 3/8-inch (9.5 mm) particleboard.
 - 3.4. 1/4-inch (6.4 mm) hardboard.

3.5. $\frac{3}{8}$ -inch (9.5 mm) gypsum board.

3.6. Corrosion-resistant steel having a base metal thickness of 0.016 inch (0.406 mm).

3.7. $\frac{1}{4}$ -inch (6.4 mm) fiber-cement panel, soffit or backer board.

❖ Where crawl space access is required by [Section R408.4](#) (access must be provided to all under-floor spaces) and entry is only for service of utilities, foam plastics need not be provided with the thermal barrier required by [Section R316.4](#) if the foam plastic has been tested in accordance with [Section R316.6](#), or an ignition barrier is used in place of a thermal barrier to cover the foam plastic. Multiple materials are listed that can be used as the ignition barrier (see [Commentary Figure R316.5.3](#)). The foam plastic material covered with the ignition barrier can be on the floor, wall or ceiling of the crawl space. The phrase “purposes of repairs or maintenance” applies to crawl spaces that contain only mechanical equipment, electrical wiring, fans, plumbing, gas, or electric hot water heaters, gas or electric furnaces, etc. The crawl space cannot be used for storage. The reduced requirement (from a thermal barrier to an ignition barrier) provides a barrier whose only purpose is to prevent the direct impingement of flame on the foam plastic.

R316.5.5 Foam-filled exterior doors.

Foam-filled exterior doors are exempt from the requirements of [Sections R316.3](#) and [R316.4](#).

❖ No thermal barrier (see [Section R316.4](#)) or surface-burning characteristics testing (see [Section R316.3](#)) is required for foam-filled exterior doors except as noted for garage doors in accordance with [Section R316.5.6](#).

R316.5.6 Foam-filled garage doors.

Foam-filled garage doors in attached or detached garages are exempt from the requirements of [Sections R316.3](#) and [R316.4](#).

❖ A thermal barrier (see [Section R316.4](#)) or surface-burning characteristics testing (see [Section R316.3](#)) is not required for foam-filled garage doors in either an attached or detached garage.

R316.5.7 Foam backer board.

The thermal barrier specified in [Section R316.4](#) is not required where siding backer board foam plastic insulation has a thickness of not more than 0.5 inch (12.7 mm) and a potential heat of not more than 2000 Btu per square foot (22 720 kJ/m²) when tested in accordance with NFPA 259 and it complies with one or more of the following:

1. The foam plastic insulation is separated from the interior of the building by not less than 2 inches (51 mm) of mineral fiber insulation.
2. The foam plastic insulation is installed over existing exterior wall finish in conjunction with re-siding.
3. The foam plastic insulation has been tested in accordance with [Section R316.6](#).

❖ The code contains a definition for “Foam backer board” (see [Section R202](#)). If these siding products are used on the exterior of a wall and the requirements of [Sections R316.3](#) and [R316.4](#) are met, this section of the code does not apply. If a thermal barrier is not used on the interior of the building, limitations are placed on the product and its use. In addition to the flame spread limitations of [Section R316.3](#), other properties of the foam plastic portion of the product include maximum thickness of 1/2-inch (12.7 mm) and potential heat of no more than 2,000 British thermal units (Btu) per square foot (22 720 kJ/m²) when tested using NFPA 259. Limitation in siding/foam combination product use includes separation from the interior of the building by not less than 2 inches (51 mm) of mineral fiber insulation or installation over an existing wall finish as part of residing or the foam plastic insulation is tested in accordance with [Section R316.6](#). The removal of the thermal barrier requirement in this section is reasonable considering the separation provided by the existing construction and the limitation of the potential heat of the foam plastic imposed by the code.

R316.5.8 Re-siding.

The thermal barrier specified in [Section R316.4](#) is not required where the foam plastic insulation is installed over existing exterior wall finish in conjunction with re-siding provided that the foam plastic has a thickness of not more than 0.5 inch (12.7 mm) and a potential heat of not more than 2000 Btu per square foot (22 720 kJ/m²) when tested in accordance with NFPA 259.

❖ Foam plastic is frequently used in re-siding applications to provide a leveling surface for new siding, while also bringing additional insulation value to the wall assembly. If these products are used in a wall assembly and the requirements of [Sections R316.3](#) and [R316.4](#) are met, this section of the code does not apply. If a thermal barrier is not used between the foam plastic and the interior of the building, the foam insulation must meet the flame spread requirements of [Section R316.3](#), is limited to a maximum thickness of 1/2 inch (12.7 mm) and potential heat of no less than 2,000 Btu per square foot (22 720 kJ/m²) when tested using NFPA 259. The removal of the thermal barrier requirement in this section is reasonable considering the separation provided by the existing construction and the limitation of the potential heat of the foam plastic imposed by the code.

R316.5.9 Interior trim.

The thermal barrier specified in [Section R316.4](#) is not required for exposed foam plastic interior trim, provided that all of the following are met:

1. The density is not less than 20 pounds per cubic foot (320 kg/m³).
2. The thickness of the trim is not more than 0.5 inch (12.7 mm) and the width is not more than 8 inches (204 mm).
3. The interior trim shall not constitute more than 10 percent of the aggregate wall and ceiling area of any room or space.
4. The flame spread index does not exceed 75 when tested in accordance with ASTM E84 or UL 723. The smoke-developed index is not limited.

❖ Foam plastic interior trim is defined in [Section R202](#) as exposed foam plastic used as picture molds, chair rails, crown moldings, baseboards, handrails, ceiling beams, door trim and window trim, and similar decorative or protective materials.

Foam plastic interior trim must be provided with a thermal barrier (which would effectively prevent its actual use as interior trim) unless it complies with all four items listed in this section.

Item 1: The density of materials must be at least 20 pounds per cubic foot (pcf) (320 kg/m³). The intent was to separate those materials used for trim from those intended for use as insulation. As a comparison, most foam plastic insulation is in the range of 1 to 2¹/₂ pounds per cubic foot (16.02 to 40 kg/m³) with very few materials over 5 pcf (81 kg/m³).

Item 2: Even though other nonfoam plastic trim materials are not limited in dimension, the maximum thickness and width of foam plastic trim is limited to 1/2 inch (12.7 mm) and 4 inches (102 mm), respectively.

Item 3: Foam plastic trim cannot constitute more than 10 percent of the aggregate area of the walls and ceiling of a room.

Item 4: The flame spread index must not be higher than 75 when tested in accordance with ASTM E84 or UL 723. The value of 75 was selected to be consistent with the requirement for foam plastic insulation, even though other materials used as trim are permitted to have flame spread indexes of up to 200 in many locations. The smoke-developed index is not regulated.

R316.5.10 Interior finish.

Foam plastics used as interior finishes shall comply with [Section R316.6](#) and shall meet the flame spread index and smoke-developed index requirements of [Sections R302.9.1](#) and [R302.9.2](#).

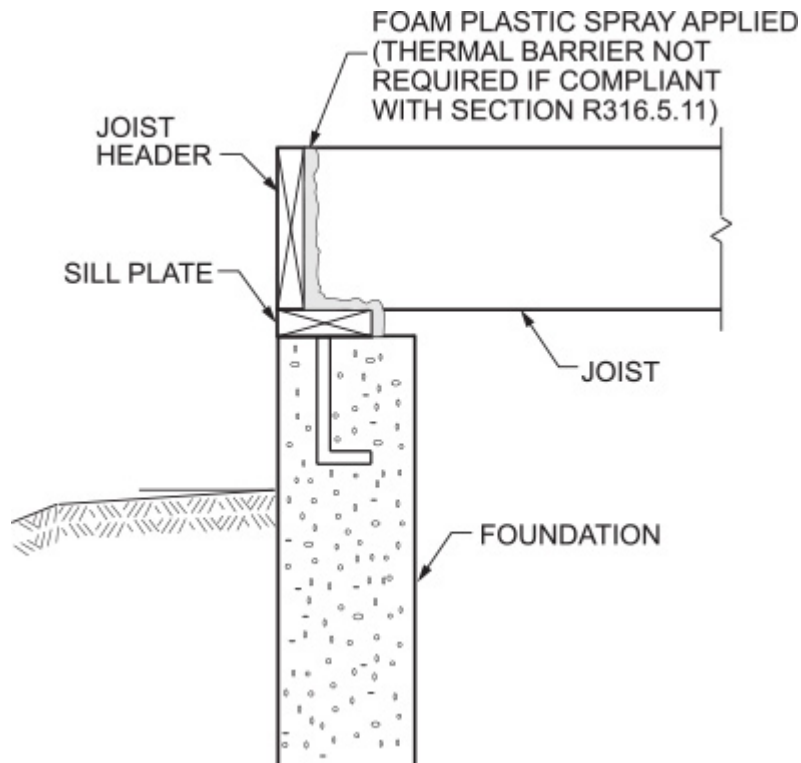
❖ Foam plastic used as interior finish must be approved through [Section R316.6](#). This means that the foam plastic material must be tested in order to eliminate the thermal barrier in accordance with NFPA 286 and the acceptance criteria of [Section R302.9.4](#), FM 4880, UL 723, UL 1040 or UL 1715, or fire tests related to actual end-use configurations (including the foam plastic thickness). The foam plastic must also meet the flame spread index requirements of [Section R302.9](#) (flame spread index less than 200).

R316.5.11 Sill plates and headers.

Foam plastic spray applied to sill plates and headers or installed in the perimeter joist space without the thermal barrier specified in [Section R316.4](#) shall comply with all of the following:

1. The thickness of the foam plastic shall be not more than $3\frac{1}{4}$ inches (83 mm).
2. The density of the foam plastic shall be in the range of 0.5 to 2.0 pounds per cubic foot (8 to 32 kg/m³).
3. The foam plastic shall have a flame spread index of 25 or less and an accompanying smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

❖ No thermal barrier is required when a foam plastic is spray applied to the sill plate and joist header where all of the conditions listed in [Section R316.5.11](#) are met. Because foam plastic insulation in this application is left exposed, the three conditions listed [thickness less than $3\frac{1}{4}$ inches (83 mm), density 0.5 to 2.0 pcf (8 to 32 kg/m³), flame spread index less than 25 and smoke-developed index less than 450] control the spray applied foam plastic used in this application (see [Commentary Figure R316.5.11](#)).



Commentary Figure R316.5.11

FOAM PLASTIC SPRAY APPLIED TO SILL PLATE AND HEADER

R316.5.12 Sheathing.

Foam plastic insulation used as sheathing shall comply with [Section R316.3](#) and [Section R316.4](#). Where the foam plastic sheathing is exposed to the attic space at a gable or kneewall, the provisions of [Section R316.5.3](#) shall apply. Where foam plastic insulation is used as exterior wall sheathing on framed wall assemblies, it shall comply with [Section R316.8](#).

❖ Foam plastic used as sheathing is a very common application, adding insulation to the framing of the building. Where used as a sheathing material, foam plastic sheathing must meet the requirements of [Sections R316.3](#) and [R316.4](#). Often, foam plastic sheathing is used on the outside of an exterior wall, continuously covering the wall. Where used on framed wall assemblies, exterior foam plastic sheathing must comply with the wind resistance requirements of [Section R316.8](#).

Consider an example where the living area of the building has a thermal barrier, such as 1/2-inch (12.7 mm) gypsum board, in place. That thermal barrier, combined with foam plastic that meets the surface burning requirements of less than 75 for a flame spread index and less than 450 for a smoke-developed index, results in a code-compliant application.

Where foam plastic sheathing is exposed to the attic space at a gable or knee wall, the foam plastic insulation must meet the requirements of [Section R316.5.3](#). For applications where foam plastic is used as sheathing, code approval follows the same paths outlined in [Section R316.1](#).

If the foam plastic insulation has passed testing, in the thickness and density intended for use, in accordance with [Section R316.6](#), no thermal barrier or ignition barrier is required over the foam plastic insulation and this section of the code does not apply. It is important to note that the actual configuration must be tested, including typical seams, joints and other details that will occur in the finished installation.

R316.5.13 Floors.

The thermal barrier specified in [Section R316.4](#) is not required to be installed on the walking surface of a structural floor system that contains foam plastic insulation where the foam plastic is covered by not less than a nominal 1/2-inch-thick (12.7 mm) wood structural panel or equivalent. The thermal barrier specified in [Section R316.4](#) is required on the underside of the structural floor system that contains foam plastic insulation where the underside of the structural floor system is exposed to the interior of the building.

❖ In today's construction, new types of products are being used that incorporate foam plastic insulation for energy reasons. One example is structural insulated panels where foam plastic is laminated between two structural wood facings. This type of panel can be used as a wall, floor or roof. Foam plastic is required to be protected by a thermal barrier that should be not less than a nominal 1/2-inch-thick (12.7 mm) wood structural panel or equivalent. Thermal barrier materials cannot be used on the walking surfaces of a structural floor system due to their friability. This section addresses this problem. If the foam plastic on the underside of the floor system is exposed to the interior of the building, then the foam plastic on the underside of the floor system must be covered by the required thermal barrier.

R316.6 Specific approval.

Foam plastic not meeting the requirements of [Sections R316.3](#) through [R316.5](#) shall be specifically approved on the basis of one of the following approved tests: NFPA 286 with the acceptance criteria of [Section R302.9.4](#), FM 4880, UL 1040 or UL 1715, or fire tests related to actual end-use configurations. Approval shall be based on the actual end-use configuration and shall be performed on the finished foam plastic assembly in the maximum thickness intended for use. 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.

❖ Foam plastic does not have to comply with the installation and use requirements of [Sections R316.3](#) through [R316.5](#) where specific approval is obtained in accordance with this section. This

section lists examples of specific large-scale tests, such as FM 4880, NFPA 286, UL 1040 or UL 1715. Also, other large-scale fire tests related to actual end-use configuration can be used. The intent is to require testing based on the proposed end-use configuration of the foam plastic assembly with a fire exposure that is appropriate in size and location for the proposed application. These tests must be performed on full-scale assemblies. The tested assemblies must include typical seams, joints and other details that will occur in the finished installation. The foam plastic must be tested in the maximum thickness and density intended for use. Thorough testing provides an accurate depiction of the in-place fire performance of assemblies and systems using foam plastics.

There are two ways to show code compliance under [Section R316.6](#). One method is to provide the actual test report that contains a description of the assembly and test results showing that the foam plastic, in the end use application, has passed the test. The second method is to obtain, from the ICC-ES, an evaluation report that covers the end-use application.

R316.7 Termite damage.

The use of foam plastics in areas of “very heavy” termite infestation probability shall be in accordance with [Section R318.4](#).

❖ This section refers code users to [Section R318.4](#), which addresses the use of foam plastics in areas of “very heavy” termite infestation probability. When the structure is built in an area defined as “very heavy” termite infestation, [Section R318.4](#) prohibits the use of foam plastics installed on the exterior face of below grade foundations walls or slab foundations, under exterior or interior foundation walls or slab foundations below-grade or where located within 6 inches (152 mm) of exposed earth. [Section R318.4](#) states three exceptions where foam plastics are permitted:

1. Where the structural members of the building are either noncombustible or pressure-preservative-treated wood.
2. Where, in addition to the requirements of [Section R318.1](#), the foam plastic is adequately protected from subterranean termite damage.
3. On the interior side of basement walls.

R316.8 Wind resistance.

Foam plastic insulation complying with ASTM C578 and ASTM C1289 and used as exterior wall sheathing on framed wall assemblies shall comply with SBCA FS 100 for wind pressure

resistance unless installed directly over a sheathing material that is separately capable of resisting the wind load or otherwise exempted from the scope of SBCA FS 100.

❖ Foam plastic insulation sheathing that complies with ASTM C578 and C1289, is used as exterior wall sheathing on framed wall assemblies and is intended to resist wind pressure must comply with SBCA FS 100. This standard provides a methodology by which a manufacturer can qualify its product, through testing, to meet the requirements of the International Codes® (I-Codes®) in establishing the wind pressure resistance of the product. It also provides for ongoing quality control procedures to ensure that the product continues to meet its qualified wind pressure resistance.