ADDRESS . : 157 TWIN FIELDS DR SUBDIV: AUSTIN FARMS 24 LOTS
CONTRACTOR : PHONE :
OWNER . . : BIVINS DAVID L & KAREN A PHONE :
PARCEL . . : 05-0645- - -0005- -12-
APPL NUMBER: 17-50042846 CP NEW RESIDENTIAL (SFD)
DIRECTIONS : T/S: 11/30/2017 11:50 AM BPETRICH --
157 TWIN FIELDS DR FUQUAY VARINA 27546
AUSTIN FARMS #13
401 TOWARDS FUQUAY - LEFT ON PINEY
GROVE RAWLS - CONTINUE ONTO PINEY GROVE
WILBON - LEFT ON 42 - LEFT ON OAKRIDGE
DUNCAN - LEFT ONTO TWIN FIELDS - LOT IS
AT THE CUL DE SAC ON LEFT
PREMISE#21848499
CALLED PREMISE IN ON 2/2/18..LLUCAS
LAND NOTES : LXMN 9/21/06 ALL DRAINAGE EASEMENTS ARE PRIVATE AND
TO BE MAINTAINED BY ADJOINING PROPERTY
OWNER
IMPERVIOUS SURFACE 3,800 SQ FT

STRUCTURE: 000 000 50X55 3BD 2BA CRAWL W/GARAGE
FLOOD ZONE . . . . : FLOOD ZONE X
BATHS . . . . . : 2 # BEDROOMS . . . . . : 3.00
PROPOSED USE . . . . . : SFD SEPTIC - EXISTING? . . . . : NEW TANK
WATER SUPPLY . . . . . : COUNTY

PERMIT: CPSF 00 CP * SFD

TYP/SQ	REQUESTED / COMPLETED	INSP / RESULT	DESCRIPTION / RESULTS/COMMENTS
B101 01	1/31/18	MC	R*BLDG FOOTING / TEMP SVC POLE VRU #: 003082620
	1/31/18	AP	T/S: 01/31/2018 02:24 PM MCOOK ----------
			1. NEED PREMISE NUMBER
A814 01	2/01/18	SB	ADDRESS CONFIRMATION TIME: 17:00 VRU #: 003083292
	1/31/18	AP	157 TWIN FIELDS DR FUQUAY VARINA 27526
			T/S: 01/31/2018 11:22 AM SBENNETT ----------
B103 01	2/26/18	MC	R*BLDG FOUND & TEMP SVC POLE TIME: 17:00 VRU #: 003093788
	2/26/18	AP	T/S: 02/23/2018 09:22 AM JBROCK ----------
			T/S: 02/26/2018 04:10 PM MCOOK ----------
B105 01	3/29/18	MC	R*OPEN FLOOR TIME: 17:00 VRU #: 003108149
	3/29/18	DA	T/S: 03/28/2018 01:44 PM JBROCK ----------
			T/S: 03/29/2018 03:02 PM MCOOK ----------
			1.missing dbl joist circled on plans ok to continue will look at frame inspection
B105 02	5/21/18	MC	R*OPEN FLOOR TIME: 17:00 VRU #: 003129434
	5/21/18	AP	T/S: 05/18/2018 08:48 AM JBROCK ----------
			T/S: 05/21/2018 02:48 PM MCOOK ----------
R425 01	5/21/18	MC	FOUR TRADE ROUGH IN TIME: 17:00 VRU #: 003129442
	5/21/18	DA	T/S: 05/18/2018 08:49 AM JBROCK ----------
			T/S: 05/21/2018 02:48 PM MCOOK ----------
			1. missing front door 2. no insections on exterior , already covered in siding
I129 01	5/29/18	TI	R*INSULATION INSPECTION TIME: 17:00 VRU #: 003132370
	11	DA	T/S: 05/24/2018 04:28 PM BPETRICH ----------
R425 02	5/29/18	TI	FOUR TRADE ROUGH IN TIME: 17:00 VRU #: 003132362
	11	AP	T/S: 05/24/2018 04:28 PM BPETRICH ----------

---------- COMMENTS AND NOTES ----------

VIOLATION NOTICE

DO NOT REMOVE!

Harnett County Inspection Department
108 East Front Street • P.O. Box 65
Lillington, NC 27546
Phone: (910) 893-7525 Ext. 1 • Fax: (910) 893-2793

Job Name: David & Karen Bivins Date: 5/29/18

Address: 159 Twin Fields Dr.

Lot No.: 13 Permit No.: 17-500-42846

(Check Box for Violation)

☐ Footing	☐ Foundation	☐ Bldg.	☐ Elec.	☐ Plumb.	☐ Mech.	☑ Insul.	☐ Floor Fram.

☐ Floor Slab	☐ MFG. Home	☐ Modular	☐ Damp/Water Proof.	☐ Structural	☐ Wall Sheath.	☐ Other

Violations Found: (1) Must meet NCRC min. of R-15 walls & R-38 ceilings. Provide Res-check

Code Enforcement Official

Signature: _____ Date: 5/29/18

It is unlawful for any subcontractor, general contractor, or owner to cover or cause to be covered any part of the work with flooring, sheetrock, earth or other material until the proper inspector had ample time to approve the installation

WHITE COPY - CONTRACTOR/OWNER YELLOW COPY - INSPECTORS

Insulation Certificate

Icynene Classic Max & Icynene Classic Max Select

Complying with ICC-ES REPORT 1826*

INSULATION CERTIFICATE • DO NOT REMOVE

PLEASE POST NEAR ELECTRICAL PANEL.

Meets the following International Residential Code (IRC) version requirements: 2009 IRC, 2012 IRC and 2015 IRC
Meets the following International Building Code (IBC) version requirements: 2009 IBC, 2012 IBC and 2015 IBC
Meets the following International Energy Conservation Code (IECC) version requirements: 2009 IECC, 2012 IECC and 2015 IECC

Please consult International Building Code (IBC), Chapter 26 - Plastic and International Residential Code (IRC) 2006 IRC R314, 2009 IRC R316, 2012 IRC R316, 2015 IRC R316 - Foam Plastics for specific requirements. The aforementioned Icynene spray polyurethane foam insulation system(s) has/have been installed in accordance with manufacturer's processing guidelines to provide a thermal resistance of:

Area Insulated		Aged R-Value		Thickness#	
Attic Area[1] spray down on ceiling	R- 20	at	5.5	inches	
Sloped Ceilings	R-	at		inches	
Walls (location): Exterior walls	R- 13	at	3.5	inches	
Walls (location):	R-	at		inches	
Floors (over an unheated crawl space)	R-	at		inches	
Crawl Space Perimeter	R- 10	at	2	inches	Rigid Board Foam
Basement Walls	R-	at		inches	
Other (location):	R-	at		inches	

[1] Nominal thicknesses are representative of field, spray-applied foam material.

Jobsite Address	Lot 13 Austin Farms 157 Twin Fields Dr. Fuquay Varina, NC 27526
Date of Insulation Installation	5-22-18 phase 1, phase 2 after sheet rock
Building Contractor	Wardson Construction
Insulation Contractor	Prime Energy Group
Insulation Contractor Phone	919-821-3288
Installed By	DJ Jones
Product Batch Number/s	GEO 17886

* The foam plastic has been installed in accordance with the terms of Section 4.4.1.2.2 of ESR-1826, and that any alterations to the attic must be consistent with those requirements. An ignition barrier or intumescent coating is not required provided the attic is equipped with an outward-opening hatch or flexible pressure relief panel in the scuttle hole.

Area not intended for occupancy or storage. Occupied areas must be protected with a thermal barrier. NOTE TO HOMEOWNER: Access to this attic is limited to servicing of utilities and equipment only. unless specifically designed for storage per building code requirements.

Icynene Inc. 6747 Campobello Road
Mississauga, Ontario L5N 2L7 Canada

Ph: 1.800.758.7325 • ICYNENE.COM

SL-602 • Updated January 2017

ICYNENE®
The Evolution of Insulation

ICYNENE CORP.

March 5, 2018

RE: Prime Energy Group; An IBP Company
2300 Westinghouse Blvd Suite 105
Raleigh NC 27604
Certified Icynene Insulation Contractor

To Whom It May Concern:

This letter is to certify that Prime Energy Group is a certified Icynene Installation Contractor. They have successfully completed Icynene's sprayer certification program which includes Health & Safety training, equipment training, PPE, the Building Science approach to properly insulating residential and commercial structures and proper foam spraying techniques.

They have also completed Icynene's sales training program to ensure the proper product selection for the projects that they work on, and Health & Safety and Code Compliance protocols are undertaken while spraying Icynene spray foam.

Please let me know if you have any questions regarding our partnership with this Icynene certified Installation Contractor.

Regards,

Keith Jolley
Regional Sales Director- Southeast
Caribbean & the Americas
Icynene Corp.
(813) 334-7193 Cell
kjolley@icynene.com

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ESR-1826

Reissued 02/2018
This report is subject to renewal 02/2019.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 21 00—THERMAL INSULATION

REPORT HOLDER:

ICYNENE, INC.

6747 CAMPOBELLO ROAD
MISSISSAUGA, ONTARIO L5N 2L7
CANADA

EVALUATION SUBJECT:

ICYNENE CLASSIC, CLASSIC ULTRA, CLASSIC ULTRA SELECT AND CLASSIC PLUS

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ICC-ES Evaluation Report

ESR-1826

Reissued February 2018

This report is subject to renewal February 2019.

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation

REPORT HOLDER:

ICYNENE, INC.
6747 CAMPOBELLO ROAD
MISSISSAUGA, ONTARIO L5N 2L7
CANADA
(905) 363-4040
www.icynene.com

EVALUATION SUBJECT:

ICYNENE CLASSIC, CLASSIC ULTRA, CLASSIC ULTRA SELECT AND CLASSIC PLUS

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 2015, 2012 and 2009 *International Energy Conservation Code*® (IECC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Surface burning characteristics
- Physical properties
- Thermal performance (*R*-values)
- Attic and crawl space installation
- Fire–resistance-rated construction
- Air permeability
- Exterior walls of Types I–IV construction

1.2 Evaluation to the following green standard:

- 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2008)

Attributes verified:

- See Section 2.0

2.0 USES

Icynene Classic, Classic Ultra, Classic Ultra Select (replaces Classic Max and Classic Max Select, respectively) and Classic Plus are used to provide thermal insulation in buildings and to seal areas such as plumbing and conduit penetrations against air infiltration. The insulations are for use in wall cavities and floor assemblies; and in attic and crawl space installations as described in Section 4.4.

The Classic, Classic Ultra and Classic Ultra Select insulations are for use in Type V construction under the IBC and dwellings under the IRC; fire-resistance-rated construction when installed in accordance with Section 4.5; and in Types I through IV construction when installed in accordance with Section 4.6.

The Classic Plus insulation is for use in nonfire-resistance-rated construction under the IBC and IRC and in Types I through IV construction when installed in accordance with Section 4.6.

The attributes of the insulations have been verified as conforming to the provisions of ICC 700-2008 Section 703.2.1.1.1(c) as an air impermeable insulation. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.0 DESCRIPTION

3.1 General:

3.1.1 Classic, Classic Ultra and Classic Ultra Select: Icynene Classic, Classic Ultra and Classic Ultra Select are low-density, open-cell, polyurethane foam plastic insulations and air barrier systems that are 100 percent water-blown with an installed nominal density of 0.5 pcf (8 kg/m^3). The insulations are two-component, spray-applied products. The two components of the insulation are polymeric isocyanate (A-Component, also known as Base Seal®) and proprietary resin (B-Component, Classic, Classic Ultra or Classic Ultra Select Resin). When stored at temperatures between 50°F (10°C) and 100°F (38°C), the components have a shelf life of six months.

3.1.2 Classic Plus: The Icynene Classic Plus foam plastic insulation is two-component, low density, open cell, spray-applied, foam plastic with a nominal density of 0.7 pcf (11 kg/m^3). The polyurethane foam is produced by combining a polymeric isocyanate (A component) and

proprietary resin, Classic Plus (B component). When stored at temperatures between 50°F (10°C) and 100°F (38°C), the components have a shelf life of twelve months.

3.2 Surface Burning Characteristics:

3.2.1 Classic, Classic Ultra and Classic Ultra Select: When tested in accordance with ASTM E84/UL 723, at a thickness of 6 inches (152 mm) and a nominal density of 0.5 pcf (8 kg/m^3), Icynene Classic, Classic Ultra and, Classic Ultra Select have a flame spread index of 25 or less and a smoke-developed index of 450 or less. There is no thickness limit when installed behind a code-prescribed 15-minute thermal barrier, except as noted in Section 4.3.1.2 and Table 2.

3.2.2 Classic Plus: When tested in accordance with ASTM E84/UL 723, at a thickness of 4 inches (152 mm) and a nominal density of 0.7 pcf (11 kg/m^3), Icynene Classic Plus has a flame spread index of 25 or less and a smoke-developed index of 450 or less. There is no thickness limit when installed behind a code-prescribed 15-minute thermal barrier, except as noted in Section 4.3.1.2 and Table 2.

3.3 Thermal Resistance:

Icynene Classic, Classic Ultra, Classic Ultra Select and Classic Plus have thermal resistance (*R*-values) at a mean temperature of 75°F (24°C) as shown in Table 1.

3.4 Air Permeability:

Icynene spray-applied foam plastic insulations are considered air-impermeable insulation in accordance with 2015 IBC Section 1203.3 and 2015 and 2012 IRC Sections R202 and R806.5 (2009 IRC Sections R202 and R806.4), at the following thicknesses:

- Classic, Classic Ultra and Classic Ultra Select: Minimum, 3 inches (76 mm) based on testing in accordance with ASTM E2178.
- Classic Plus: Minimum, 2 inches (51 mm) based on testing in accordance with ASTM E2178.

3.5 Intumescent Coatings:

3.5.1 No Burn Plus XD: No Burn Plus XD intumescent coating is a latex-based coating supplied in 1-gallon (4L) and 5-gallon (19L) pails and 55-gallon (208 L) drums. The coating material has a shelf life of 12 months when stored in factory-sealed containers at temperatures between 40°F (4.4°C) and 90°F (32.2°C).

3.5.2 DC 315 Coating: DC 315 coating (ESR-3702), manufactured by International Fireproof Technology, International Inc. / Paint To Protect Inc., is a water-based intumescent coating supplied in 5-gallon (19L) pails and 55-gallon (208L) drums. The coating material has a shelf life of 12 months when stored in factory-sealed containers at temperatures between 50°F (10°C) and 80°F (27°C).

3.5.3 Fireshell® F10E Coating: Fireshell® F10E coating, manufactured by TPR2 Corporation (ESR-3997), is a water-based intumescent coating supplied in 5-gallon (19L) pails and 55-gallon (208L) drums. The coating material has a shelf life of 12 months when stored in factory-sealed containers at temperatures between 45°F (7.2°C) and 95°F (35°C).

4.0 INSTALLATION

4.1 General:

The manufacturer's published installation instructions and this report must be strictly adhered to and a copy of these instructions and this evaluation report must be available on the jobsite at all times during installation.

4.2 Application:

4.2.1 General: Icynene Classic, Classic Ultra, Classic Ultra Select and Classic Plus foam plastic insulations must be applied on the jobsite using two-component, 1-to-1 ratio, spray equipment specified by Icynene, Inc. The foam plastic must not be sprayed onto a substrate that is wet, or covered with frost or ice, loose scales, rust, oil or grease. The foam plastic insulation must not be used in electrical outlet or junction boxes or in contact with rain or water, and must be protected from the weather during and after application. Where the insulation is used as air-impermeable insulation, such as in unvented attic spaces regulated by 2015 IBC Section 1203.3 or IRC Section R806, the insulation must be installed at a minimum thicknesses noted in Section 3.4. The insulation can be installed in one pass to the maximum thickness. Where multiple passes are required, the cure time between passes is negligible.

4.2.2 Classic, Classic Ultra and Classic Ultra Select: The insulation must be used in areas where the maximum service temperature is no greater than 180°F (82°C). The insulation must be applied when the temperature is at or above 14°F (-10°C) and be protected from the weather during and after application.

4.2.3 Classic Plus: The insulation may be used in areas where the maximum service temperature is no greater than 180°F (82°C). The insulation must be applied when the temperature is at or above 14°F (-10°C) and be protected from the weather during and after application.

4.3 Thermal Barrier:

4.3.1 Classic, Classic Ultra, Classic Ultra Select and Classic Plus:

4.3.1.1 Application with a Prescriptive Thermal Barrier: Icynene Classic, Classic Ultra, Classic Ultra Select and Classic Plus foam plastic insulations must be separated from the interior of the building by an approved thermal barrier, such as $^1/_2$-inch (12.7 mm) gypsum wallboard installed using mechanical fasteners in accordance with the applicable code, or an equivalent 15-minute thermal barrier complying with the applicable code. When installation is within an attic or crawl space as described in Section 4.4, a thermal barrier is not required between the foam plastic and the attic or crawl space, but is required between the foam plastic insulation and the interior of the building. There is no thickness limit when installed behind a code-prescribed 15-minute thermal barrier, except as noted in Section 4.3.1.2 and Table 2.

4.3.1.2 Application without a Prescriptive Thermal Barrier or Ignition Barrier: The prescriptive 15-minute thermal barrier or ignition barrier may be omitted when installation is in accordance with the following requirements:

4.3.1.2.1 The insulation must be covered on all surfaces with a fire protective coating at the minimum thickness set forth in Table 2.

4.3.1.2.2 The maximum installed thickness of the insulation must not exceed the thicknesses set forth in Table 2.

4.3.1.2.3 The coating must be applied over the insulation in accordance with the coating manufacturer's instructions and this report.

4.4 Attics and Crawl Spaces:

4.4.1 Classic, Classic Ultra and Classic Ultra Select:

4.4.1.1 Application with a Prescriptive Ignition Barrier: When Icynene Classic, Classic Ultra and Classic Ultra Select foam plastic insulations are installed within attics where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 and IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code and must be installed in a manner so that the foam plastic insulation is not exposed. The Classic, Classic Ultra or Classic Ultra Select insulation may be installed in unvented attics when the foam plastic is applied at a minimum thickness of 3 inches (76 mm) in accordance with 2015 IBC Section 1203.3 or 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4), as applicable.

4.4.1.2 Application without a Prescriptive Ignition Barrier: Where Icynene Classic, Classic Ultra and Classic Ultra Select foam plastic insulations are installed in an attic or crawl space without a prescriptive ignition barrier, in accordance with Sections 4.4.1.2.1, 4.4.1.2.2, 4.4.1.2.3 and 4.4.1.2.4, the following conditions apply:

1. Entry to the attic or crawl space is only for service of utilities and no storage is permitted.
2. There are no interconnected attic, crawl space or basement areas.
3. Air in the attic or crawl space is not circulated to other parts of the building.
4. Combustion air is provided in accordance with IMC Section 701.
5. Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with 2015 IBC Section 1203.3 or 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4), as applicable.
6. Under-floor (crawl space) ventilation is provided when required by 2015 IBC Section 1203.4 (2012 and 2009 IBC Section 1203.3) or IRC Section R408.1, as applicable.

4.4.1.2.1 Attics—Classic, Classic Ultra and Classic Ultra Select: In attics, Icynene Classic, Classic Ultra and Classic Ultra Select foam plastic insulations may be spray-applied to the underside of the roof sheathing and/or rafters, as described in this section. The thickness of the foam plastic applied to the underside of the roof sheathing must not exceed 14 inches (356 mm). The thickness of the spray foam insulation applied to vertical wall surfaces must not exceed 5.5 inches (140 mm). The insulation must be covered on all surfaces with one of the coatings described in Section 3.5. The coating must be applied over the insulation in accordance with the coating manufacturer's instructions and this report. Surfaces to be coated must be dry, clean, and free of dirt, loose debris and other substances that could interfere with adhesion of the coating. The coating is applied in one coat with low-pressure airless spray equipment. The coating must be applied to a thickness as follows:

- No Burn Plus XD at a minimum thickness of 6 wet mils (0.15 mm) [4 dry mils (0.1 mm) dry film thickness], applied at a rate of 0.4 gallon (1.5 L) per 100 square feet (9.2 m^2).
- DC 315 at a minimum thickness of 4 wet mils (0.1 mm) [3 dry mils], applied at a rate of 0.3 gallon (1.1 L) per 100 square feet (9.2 m^2).

The coatings must be applied when ambient and substrate temperature is at least 60°F (16°C) and no more than 95°F (35°C). All other surfaces (including glass) must be protected against damage from the coating. The insulation may be installed in unvented attics when the foam plastic is applied at a minimum thickness of 3.5 inches (89 mm) as described in this section in accordance with 2015 IBC Section 1203.3, 2015 and 2012 IRC Section R806.5 or 2009 IRC Section R806.4, as applicable.

4.4.1.2.2 Attics—Classic Ultra and Classic Ultra Select: When Classic Ultra or Classic Ultra Select is applied in unvented attics conforming to 2012 IRC Section R806.5 or 2009 IRC Section R806.4, the insulation may be applied to the underside of roof sheathing and/or rafters to a minimum thickness of $3^1/_2$ inches (90 mm) and may be applied to vertical wall surfaces to a minimum thickness of $3^1/_2$ inches (90 mm). Maximum thickness on the underside of roof sheathing or on vertical wall surfaces is 20 inches (508 mm). The insulation may be left exposed to the attic without a prescriptive ignition barrier or an intumescent coating.

The attic must have attic access complying with IRC Section R807, horizontally placed in the floor, and opening outward toward the living space. Items penetrating the roof deck or walls, such as skylight wells and vents, must be covered with a minimum of $3^1/_2$ inches (90 mm) of the Classic Ultra or Classic Ultra Select insulation.

4.4.1.2.3 Crawl Spaces: In crawl spaces, Icynene Classic, Classic Ultra or Classic Ultra Select insulations may be spray-applied to vertical walls and the underside of floors, as described in this section. The thickness of the foam plastic applied to the underside of the floors must not exceed 14 inches (356 mm). The thickness of the spray foam plastic insulation applied to vertical wall surfaces must not exceed $3^1/_2$ inches (88.9 mm). The foam plastic does not require an ignition barrier or a coating.

4.4.1.2.4 Use on Attic Floors: When used on attic floors, Icynene Classic, Classic Ultra or Classic Ultra Select foam plastic insulations may be installed at a maximum thickness of $11^1/_2$ inches (292 mm) between joists in attic floors. The insulation must be separated from the interior of the building by an approved thermal barrier. The coatings specified in Section 4.4.1.2.1 and the ignition barrier in accordance with IBC Section 2603.4.1.6 and IRC Section R316.5.3, may be omitted.

4.4.2 Classic Plus:

4.4.2.1 Application with a Prescriptive Ignition Barrier: When Icynene Classic Plus is installed up to a maximum thickness of 4 inches (102 mm) within attics or crawl spaces where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 and IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code and must be installed in a manner so that the foam plastic insulation is not exposed. Icynene Classic Plus may be installed in unvented attics when the foam plastic is applied at a minimum thickness of 2 inches (51 mm) in accordance with 2015 IBC Section 1203.3, 2015 and 2012 IRC Section R806.5 or 2009 IRC Section R806.4, as applicable.

4.4.2.2 Application without a Prescriptive Ignition Barrier: Where Icynene Classic Plus insulation is installed in accordance with Sections 4.4.3.2.1, 4.4.3.2.2, and 4.4.3.2.3, the following conditions apply:

1. Entry to the attic or crawl space is to service utilities, and no storage is permitted.
2. There are no interconnected attic or crawl space areas.
3. Air in the attic or crawl space is not circulated to other parts of the building.
4. Combustion air is provided in accordance with IMC Section 701.
5. Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with 2015 IBC Section 1203.3 or 2015 and 2012 IRC Section R806.5 or 2009 IRC Section R806.4, as applicable.
6. Under-floor (crawl space) ventilation is provided when required by 2015 IBC Section 1203.4 (2012 and 2009 IBC Section 1203.3) or IRC Section R408.1, as applicable.

4.4.2.2.1 Attics: In attics, Icynene Classic Plus insulation may be spray-applied to the underside of the roof sheathing and/or rafters, the underside of wood floors, and vertical surfaces, as described in this section. The thickness of the foam plastic applied to the underside of the top of the space must not exceed 14 inches (356 mm). The thickness of the spray foam plastic insulation applied to vertical wall surfaces must not exceed 8 inches (203 mm). The foam plastic insulation must be covered on all exposed surfaces with DC315 intumescent coating at a minimum thickness of 4 wet mils (0.1 mm) [3 dry mils (0.08 mm)], applied at a rate of 0.25 gallon (0.95 L) per 100 square feet (9.2 m^2). The coating must be applied over the Icynene Classic Plus insulation in accordance with the coating manufacturer's instructions and this report. Surfaces to be coated must be dry, clean, and free of dirt, loose debris and other substances that could interfere with adhesion of the coating. The coating is applied in one coat with low-pressure airless spray equipment.

The coating must be applied when ambient and substrate temperature is at least 60°F (16°C) and no more than 95°F (35°C). All other surfaces (including glass) must be protected against damage from the coating.

Icynene Classic Plus insulation may be installed in unvented attics when the foam plastic is applied at a minimum thickness of 2 inches (51 mm) as described in this section, in accordance with 2015 IBC Section 1203.3, 2015 and 2012 IRC Section R806.5 or 2009 IRC Section R806.4, as applicable.

4.4.2.2.2 Crawl Spaces: In crawl spaces, Icynene Classic Plus insulation may be spray-applied to vertical walls and the underside of floors, as described in this section. The thickness of the foam plastic applied to the underside of the floors must not exceed 14 inches (356 mm). The thickness of the spray foam plastic insulation applied to vertical wall surfaces must not exceed 8 inches (203 mm). The insulation must be covered with DC-315 coating as described in Section 4.4.2.2.1.

4.4.2.2.3 Use on Attic Floors: Icynene Classic Plus insulation may be installed at a maximum thickness of 13 inches (330 mm) between joists in attic floors. The insulation must be separated from the interior of the building by an approved thermal barrier. The insulation does not require an ignition barrier or a coating.

4.5 One-hour Fire-resistance-rated Assemblies:

4.5.1 Classic, Classic Ultra and Classic Ultra Select:

4.5.1.1 Assembly 1 (Limited Load-bearing Wood Stud Wall): Minimum nominally 2-by-4 [$1^1/_2$ by $3^1/_2$ inches (38 mm by 89 mm)] southern pine (G = 0.55), No. 2 grade studs spaced 16 inches (406 mm) on center with a base layer of $^1/_2$-inch-thick (12.7 mm) wood fiber sound board installed horizontally on each face with vertical joints located over the studs, attached with 6d box nails, 2 inches (51 mm) long and spaced 24 inches (610 mm) on center along the studs, and a second layer of $^5/_8$-inch-thick (15.9 mm) Type X gypsum wallboard installed vertically on each face, attached with 8d box nails, $2^1/_2$ inches (64 mm) long and spaced 7 inches (178 mm) on center along the studs. The stud cavity contains Icynene Classic, Classic Ultra or Classic Ultra Select insulation nominally 2 inches (51 mm) thick.

Axial loads applied to the wall assembly must be limited to the least of the following:

- 1,805 pounds (8029 N) per stud.
- Design stress of 0.78 F'_c.
- Design stress of 0.78 F'_c at a maximum l_e/d of 33.

4.5.1.2 Assembly 2 (Limited Load-bearing Wood Stud Wall): Minimum nominally 2-by-4 [$1^1/_2$ by $3^1/_2$ inches (38 mm by 89 mm)] southern pine (G = 0.55), No. 2 grade studs spaced 16 inches (406 mm) on center with two layers of $^1/_2$-inch-thick (12.7 mm) Type X gypsum wallboard installed vertically with joints staggered on each face, attached with 8d box nails, $2^1/_2$ inches (64 mm) long and spaced 7 inches (178 mm) on center along the studs for the face layer and 6d cement coated box nails, 2 inches (51 mm) long and spaced 24 inches (610 mm) on center along the studs. The stud cavity contains Icynene Classic, Classic Ultra or Classic Ultra Select insulation nominally 2 inches (51 mm) thick.

Axial loads applied to the wall assembly must be limited to the least of the following:

- 1,805 pounds (8029 N) per stud.
- Design stress of 0.78 F'_c.
- Design stress of 0.78 F'_c at a maximum l_e/d of 33.

4.5.1.3 Assembly 3 (Floor/Ceiling): Minimum nominally 2-by-10 [$1^1/_2$ by $9^1/_4$ inches (38 mm by 235 mm)] Douglas fir, No. 2 grade wood joists spaced 24 inches (610 mm) on center, with minimum 1-by-3 [$^3/_4$ by $2^1/_2$ inches (19.1 by 64 mm)] spruce bridging at mid-span. Floor decking must be minimum $^1/_2$-inch-thick (12.7 mm) exterior grade plywood installed perpendicular to joists and fastened with 2-inch-long (51 mm) ring shank nails 6 inches (152 mm) on center at the joints and 12 inches (305 mm) on center at the intermediate joists. Plywood joints must occur over joists. Icynene Classic, Classic Ultra or Classic Ultra Select insulation must be applied to the underside of the plywood deck between the joists to a depth of 5 inches (127 mm). Two layers of minimum $^5/_8$-inch-thick (15.9 mm), Type X gypsum wallboard must be attached perpendicular to the joists on the ceiling side of the assembly. The first layer must be attached with $1^1/_4$-inch-long (32 mm), Type W drywall screws, spaced 24 inches (610 mm) on center. The second layer must be applied perpendicular to the joists, offset 24 inches (610 mm) from the base layer. The second layer must be attached with 2-inch-long (51 mm), Type S drywall screws spaced 12 inches (305 mm) on center. Additional fasteners must be installed along the butt joints of the second layer, securing the two layers together. These fasteners must be $1^1/_2$-inch-long (38 mm), Type G drywall screws placed 2 inches (51 mm) back from each end of the butt joint and spaced 12 inches (305 mm) on

6.3 Test report on air leakage rate in accordance with ASTM E2178 (Classic, Classic Ultra and Classic Ultra Select and Classic Plus).

6.4 Reports of room corner fire testing in accordance with NFPA 286 (Classic, Classic Ultra, Classic Ultra Select and Classic Plus).

6.5 Test reports in accordance with ASTM E119 (Classic, Classic Ultra and Classic Ultra Select).

6.6 Test report in accordance with NFPA 285, and related engineering analysis (Classic, Classic Ultra and Classic Ultra Select).

6.7 Reports of tests in accordance with NFPA 259 (Classic, Classic Ultra and Classic Ultra Select).

6.8 Reports of fire tests in accordance with ASTM E970 (Classic, Classic Ultra, Classic Ultra Select and Classic Plus).

6.9 For Classic Ultra and Classic Ultra Select, an engineering evaluation, including full-scale fire testing, small-scale testing and fire modeling (Section 4.4.1.2.2).

7.0 IDENTIFICATION

All packages and containers of Classic, Classic Ultra, Classic Ultra Select and Classic Plus insulations must be labeled with the Icynene, Inc., name and address; the product name; component designation (A or B); the flame spread index and the smoke-developed index; the expiration date; the name of the inspection body (ICC-ES); and the evaluation report number (ESR-1826).

No Burn Plus XP Intumescent coating described in Section 3.5.1 is identified with the manufacturer's name and address, the product trade name and use instructions.

The International Fireproof Technology, Inc. / Paint To Protect Inc. DC 315 coating described in Section 3.5.2 is identified with the manufacturer's name and address, the product trade name, date of manufacture, shelf life or expiration date, the manufacturer's application instructions and the evaluation report number (ESR-3702).

Fireshell F10E coating is labeled with the manufacturer's name and address; the product name; the date of manufacture. the shelf life or expiration date; the manufacturer's instructions for application, and the evaluation report number (ESR-3997).

TABLE 1—THERMAL RESISTANCE (*R*-VALUES)

	R-VALUE (°F·ft²·h/Btu)	
THICKNESS (inches)	Classic, Classic Ultra and Classic Ultra Select	Classic Plus
1	3.7	4.0
2	7.4	8.0
3	11	12
3.5	13	14
4	14	16
5	18	20
5.5	20	22
6	22	24
7	25	28
7.5	27	30
8	29	32
9	32	36
9.5	34	38
10	36	40
11.5	41	42
13.5	—	54
14	50	56

For SI: 1 inch = 25.4 mm, 1°F·ft²·h/Btu = 0.176 110°K·m²/W.

[1] *R*-values are calculated based on tested *K* values at 1- and 3.5-inch thicknesses.
[2] *R*-values greater than 10 are rounded to the nearest whole number.

TABLE 2—USE OF INSULATION WITHOUT A PRESCRIPTIVE THERMAL BARRIER[1]

INSULATION TYPE	MAXIMUM THICKNESS (in.) (Walls & Vertical Surfaces)	MAXIMUM THICKNESS (in.) (Ceilings, Underside of Roof Sheathing/Rafters & Floors)	FIRE-PROTECTIVE COATING MINIMUM THICKNESS & TYPE (Applied to all Foam Surfaces)[2]	MINIMUM THEORETICAL APPLICATION RATE OF FIRE-PROTECTIVE COATING[3]	TESTS SUBMITTED
CLASSIC, CLASSIC ULTRA AND CLASSIC ULTRA SELECT	6	14	DC315 20 mils WFT / 13 mils DFT	1.25 gal / 100 ft^2	NFPA 286
	7 1/2	11 1/2	Fireshell F10E 21 mils WFT / 14 mils DFT	1.31 gal / 100 ft^2	NFPA 286
CLASSIC PLUS	6 1/2	11 1/2	DC315 20 mils WFT / 13 mils DFT	1.25 gal / 100 ft^2	NFPA 286

For SI: 1 inch = 25.4 mm; 1 mil = 0.0254 mm; 1 gallon = 3.38 L; 1 ft^2 = 0.093 m^2; NA = not applicable.

[1]See Section 4.3.1.2.
[2]See Sections 3.5.2 and 3.5.3.
[3]As reported in the manufacturer's application instructions. Actual application rate, based on specific project conditions, must be in accordance with the manufacturer's application instructions.

TABLE 3—NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES

WALL COMPONENT	MATERIALS
Base Wall System – Use either 1, 2 or 3	1 – Concrete wall. 2 – Concrete masonry wall. 3 –Minimum 3 5/8-inch-deep (92 mm), No. 20 gage, C-shaped steel studs, spaced a maximum of 24 inches on center with lateral bracing every 4 feet (1219 mm) as required by code. Sheathing shall be a described in Exterior Sheathing below.
Floorline Firestopping	Minimum 4 pcf mineral wool in each stud cavity at each floorline, attached with Z-clips. Thickness must match stud cavity depth.
Cavity Insulation – Use either 1, 2, 3, 4 or 5	1 – None. 2 – Partial cavity fill with a maximum air space of 2 inches (51 mm) or full cavity depth not exceeding 7 5/8 inches (194 mm) of Classic, Classic Plus, Classic Ultra or Classic Ultra Select (ESR-1826); MD-R-210 (ESR-3493); MD-C-200 (ESR-3199); or Proseal (ESR-3500). 3 – Any insulation qualified as noncombustible in accordance with ASTM E136. 4 – Glass fiber batt insulation[a]. 5 – Mineral fiber insulation[a]. [a] Insulation must comply with the applicable requirements of 2015 or 2012 IBC Section 720.2 (2009 IBC Section 719.2).
Exterior Sheathing – Only for Base Wall System No.3 – Use either 1 or 2	1 – Minimum 1/2-inch-thick (12.7 mm),), glass mat gypsum sheathing complying with ASTM C1177. 2 – Sheathing shall be attached with No. 6, 1 1/4- inch-long (32 mm)self-tapping screws located 8 inches (203 mm) on center along the perimeter and 12 inches 302 mm) on center in the field of wallboard. Joints must be taped and treated with joint compound in accordance with ASTM C840 or GA-216.
Exterior Insulation	Maximum thickness of 5 1/2 inches (140 mm) of Proseal Eco (MD-R-210) (ESR-3493) or Proseal (ESR-3500).
Exterior Wall Covering – Use either 1, 2, 3, 4, 5, 6 or 7	1 – Brick - standard nominally 4-inch-thick (102 mm) clay brick; brick veneer anchors – standard types installed a maximum of 24 inches OC vertically on each stud[b]. 2 – Stucco - minimum 3/4-inch-thick (19.1 mm), exterior cement plaster and lath with a secondary water-resistive barrier may be installed between the exterior insulation and the lath. 3 – Natural stone (limestone, granite, marble, sandstone), minimum 2-inch-thick (51 mm)[c]. 4 – Cast artificial stone, minimum 1 1/2-inch-thick (38 mm), complying with AC51 and subject of a current ICC-ES evaluation report[c]. 5 – Terracotta cladding, minimum of 1 1/4–inch-thick (32 mm)[c]. 6 – Precast concrete panels, minimum of 1 1/2–inch-thick (32 mm)[c]. 7 – Concrete masonry units (CMU), minimum of 1 1/2–inch-thick (38 mm)[c]. [b] The maximum air gap between exterior insulation and cladding shall be 2 inches (51 mm). [c] Any standard non-open-jointed installation technique such as ship-lap, etc., may be used.