

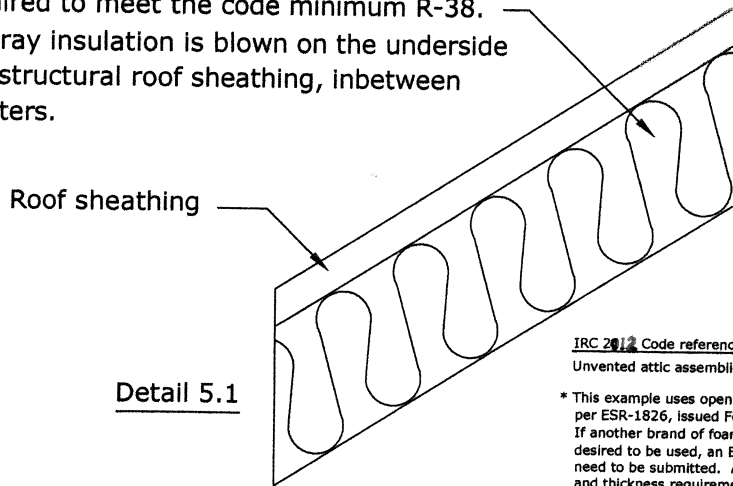
Unvented attic assemblies

Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) shall be permitted if all the following conditions are met:

- 1) The unvented attic space is completely contained within the building thermal envelope.
- 2) No interior vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly.
- 3) Where wood shingles or shakes are used, a min. 1/4" vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.
- 4) (Doesn't apply to Virginia)
- 5) One of the three attic assemblies shown below is used:

5.1) Air-impermeable insulation used only

A minimum of 3 1/2" thick Icynene* is required for air-impermeability. A minimum of 11" thickness is required to meet the code minimum R-38. The spray insulation is blown on the underside of the structural roof sheathing, inbetween the rafters.



Detail 5.1

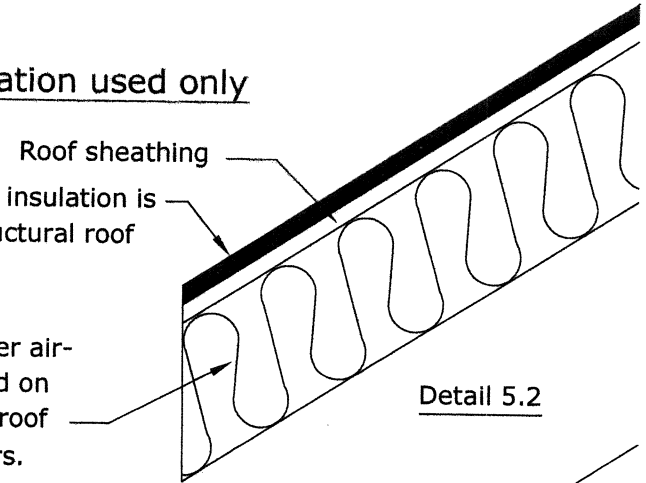
IRC 2012 Code referenced sections
Unvented attic assemblies - R806.5

* This example uses open-cell Icynene per ESR-1826, Issued Feb. 1, 2015. If another brand of foam insulation is desired to be used, an ESR report will need to be submitted. Air-impermeability and thickness requirements may differ for different brands of foam insulation.

5.2) Air-permeable insulation used only

A minimum of R-15 rigid board insulation is installed directly above the structural roof sheathing.

A minimum of R-23 batt or other air-permeable insulation is installed on the underside of the structural roof sheathing, inbetween the rafters.

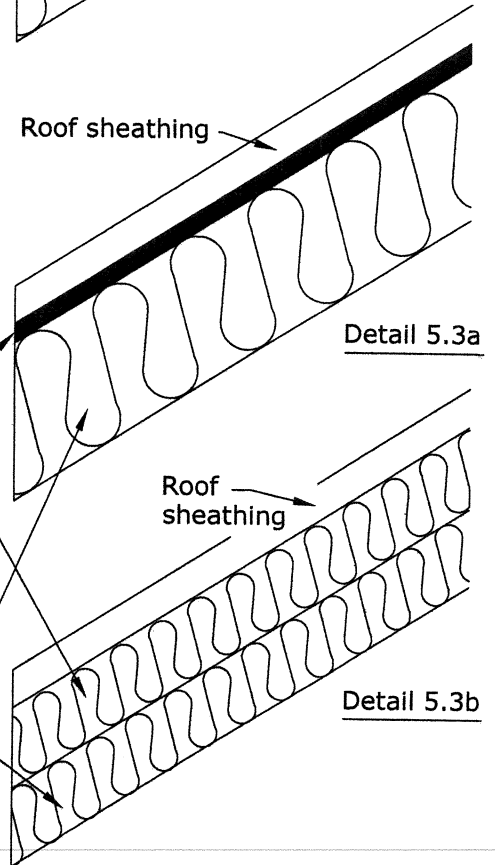


Detail 5.2

5.3) Air-permeable insulation and air-impermeable insulation used.

A minimum of R-15 rigid board or Icynene* foam insulation is installed on the underside of the structural roof sheathing, inbetween the rafters.

A minimum of R-23 batt or other air-permeable insulation is installed on the underside of the structural roof sheathing, inbetween the rafters.



Detail 5.3a

Detail 5.3b

Spray foam in attic assemblies

When spray foams are used in attic assemblies, a certain amount of fire protection is required depending on the use of the attic and if the attic is unfinished or finished space (ie. if the walls and ceilings are covered with gypsum board).

In the following examples, Icynene open cell spray foam is assumed. If another spray foam is desired to be used, refer to the appropriate ESR report for conditions of use.

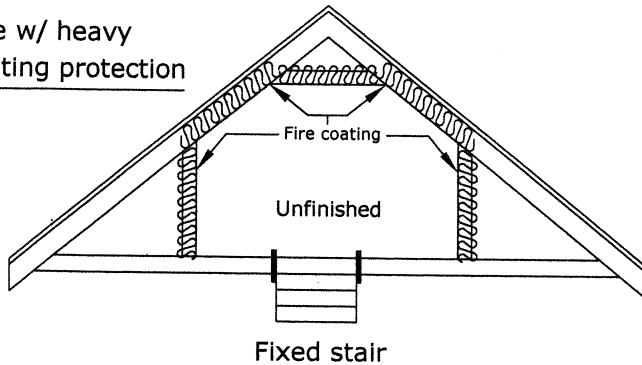
R-38 is required for flat or sloped ceiling areas.
R-13 is required for vertical wall areas.

IRC 2012 Code referenced sections
Foam plastics in attics - R316.5.3

Other referenced documents
Icynene - ESR-1826, Issued Feb. 1, 2015

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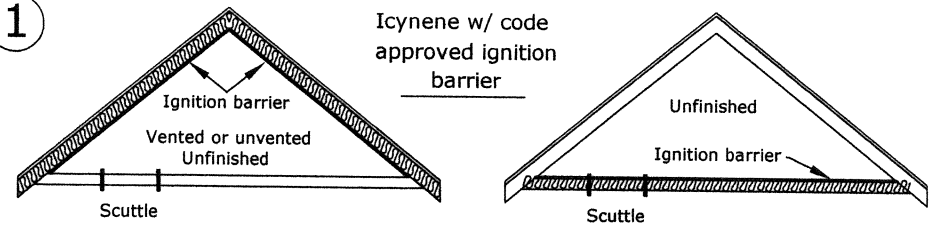
Icynene w/ heavy fire coating protection



Permitted when:

- Foam is covered with DC 315 @ 13 mils dry/20 mils wet @ 80 SF/gallon.
- Max. 14" thick foam on ceilings / max. 6" thick on walls.

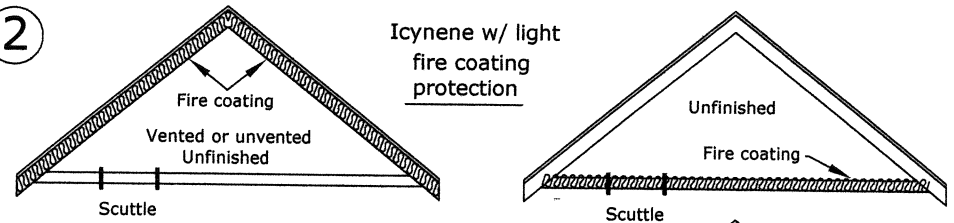
1



Permitted when:

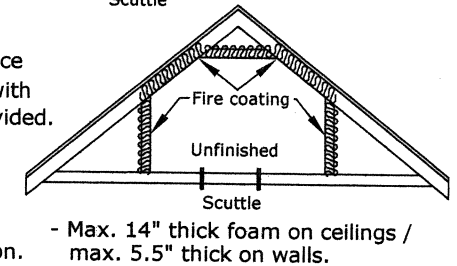
- Attic is NOT used for storage. Entry is for service of utilities only.
- Icynene needs to be covered by a code-approved ignition barrier as per R316.5.3.

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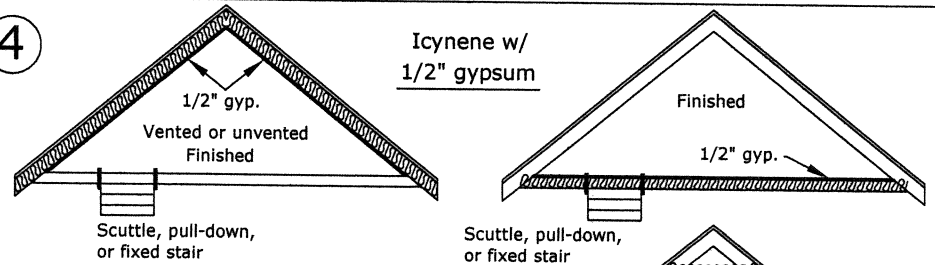


Permitted when:

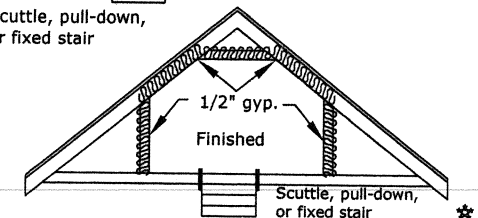
- Attic is NOT used for storage. Entry is for service of utilities only. Attics are not interconnected with other attics/crawlspace. Combustion air is provided. Attic ventilation provided (except for unvented attic assemblies).
- Foam is covered with either No Burn Plus XD @ 4 mils dry/6 mils wet @ 270 SF/gallon; or DC 315 @ 3 mils dry/4 mils wet @ 400 SF/gallon.



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When Icynene is covered with 1/2" gypsum, any type of attic assembly is permissible.



Spray Foam Comparisons

	Icynene	Demilec APX	Sealection 500	Sealection Argibalance
ESR report no.	ESR-1826	ESR-3470	ESR-1172	ESR-2600
R-values	R = 3.7 @ 1" R-30 @ 8.5" R-38 @ 11"	R = 3.7 @ 1" R-30 @ 8.75" R-38 @ 11"	R = 3.8 @ 1" R-30 @ 8" R-38 @ 10"	R = 4.5 @ 1" R-30 @ 6.75" R-38 @ 8.5"
Where permissible	Ok in crawl and attic if no storage and not interconnected	Ok in crawl and attic if no storage and not interconnected	Ok in crawl and attic if no storage and not interconnected	Needs protection
Air-impermeable	Min. 3 1/2" thick	Min. 3 1/2" thick	Min. 3 1/2" thick	Min. 3 1/2" thick
No. of lifts required	One lift	One lift	One lift	One lift