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Building Science

Diffusion Venting

presented by www.buildingscience.com

Code Change

R806.5 Unvented attic and unvented attic enclosed rafter assemblies.

- vapor diffusion port
- port area 1:600 of the ceiling area
- vapor permeance greater than 20 perms
- roof slope greater than 3:12
- air supply 50 cfm/1000 ft² ceiling area
- insulation installed directly under the roof deck
- Climate Zones 1, 2 and 3

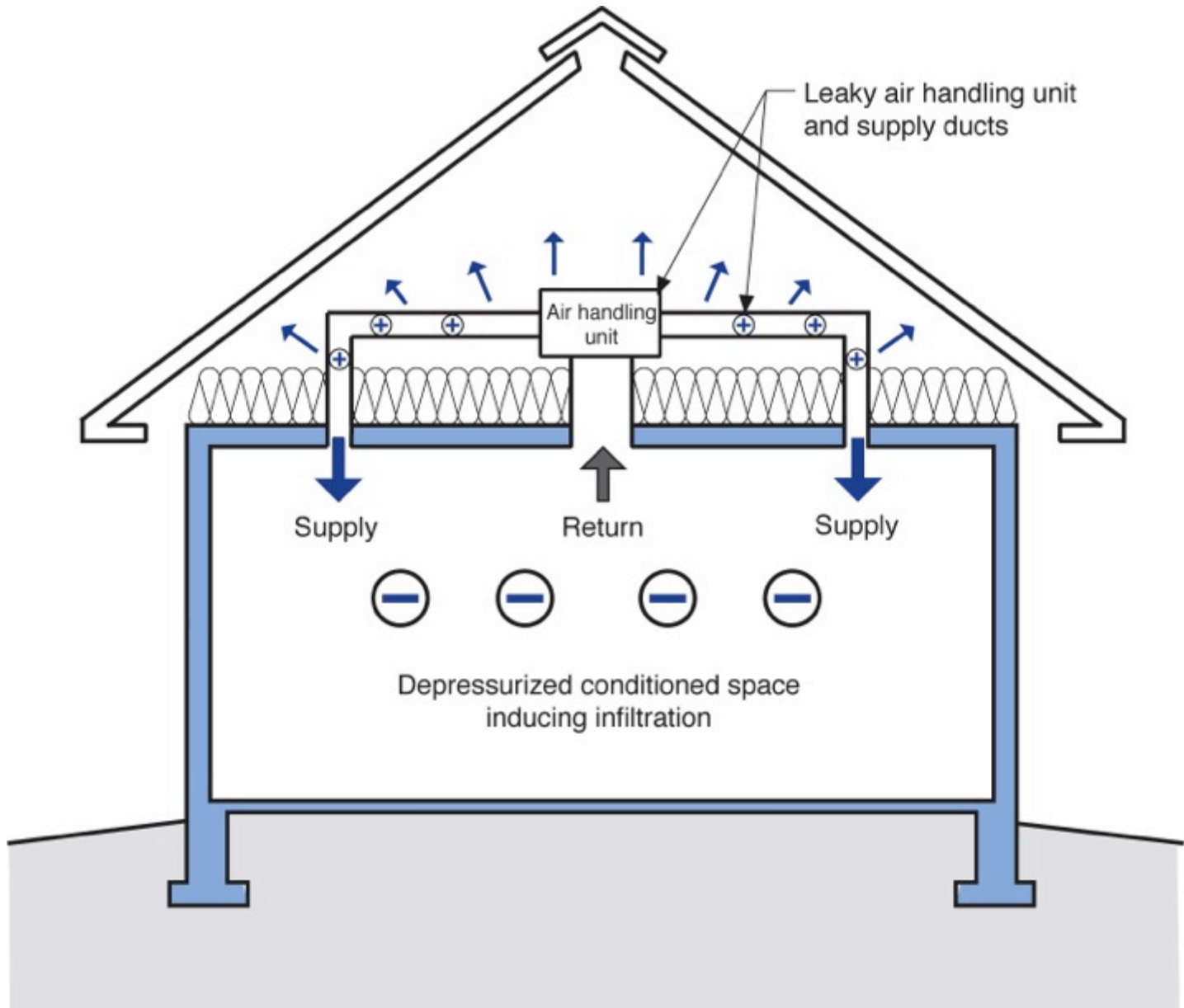
Vapor Diffusion Port: A passageway for conveying water vapor from an unvented attic to the atmosphere.

Houses With Vented Attics Suck

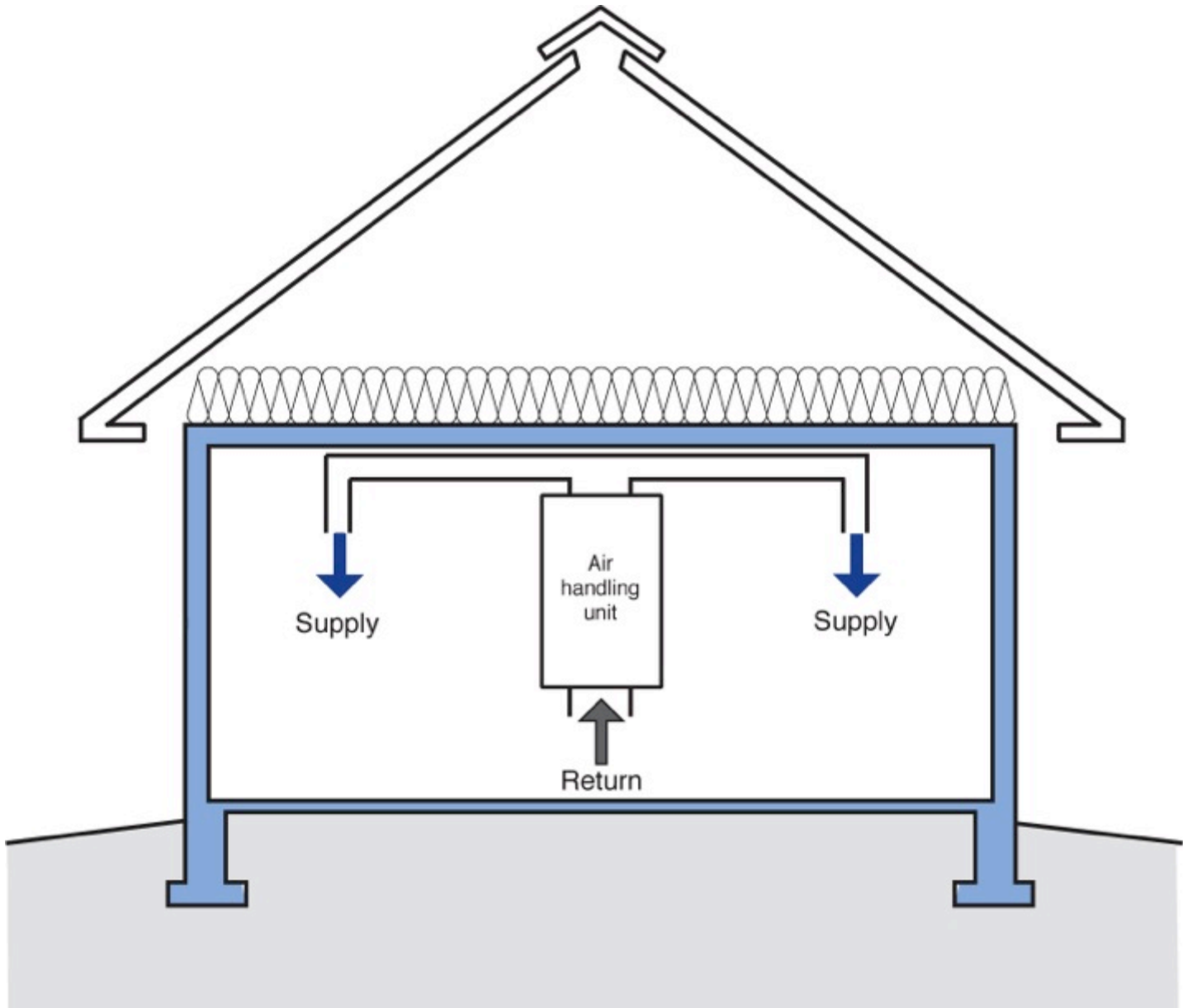
Houses With Vented Attics Suck
Not all the Time.....but.....

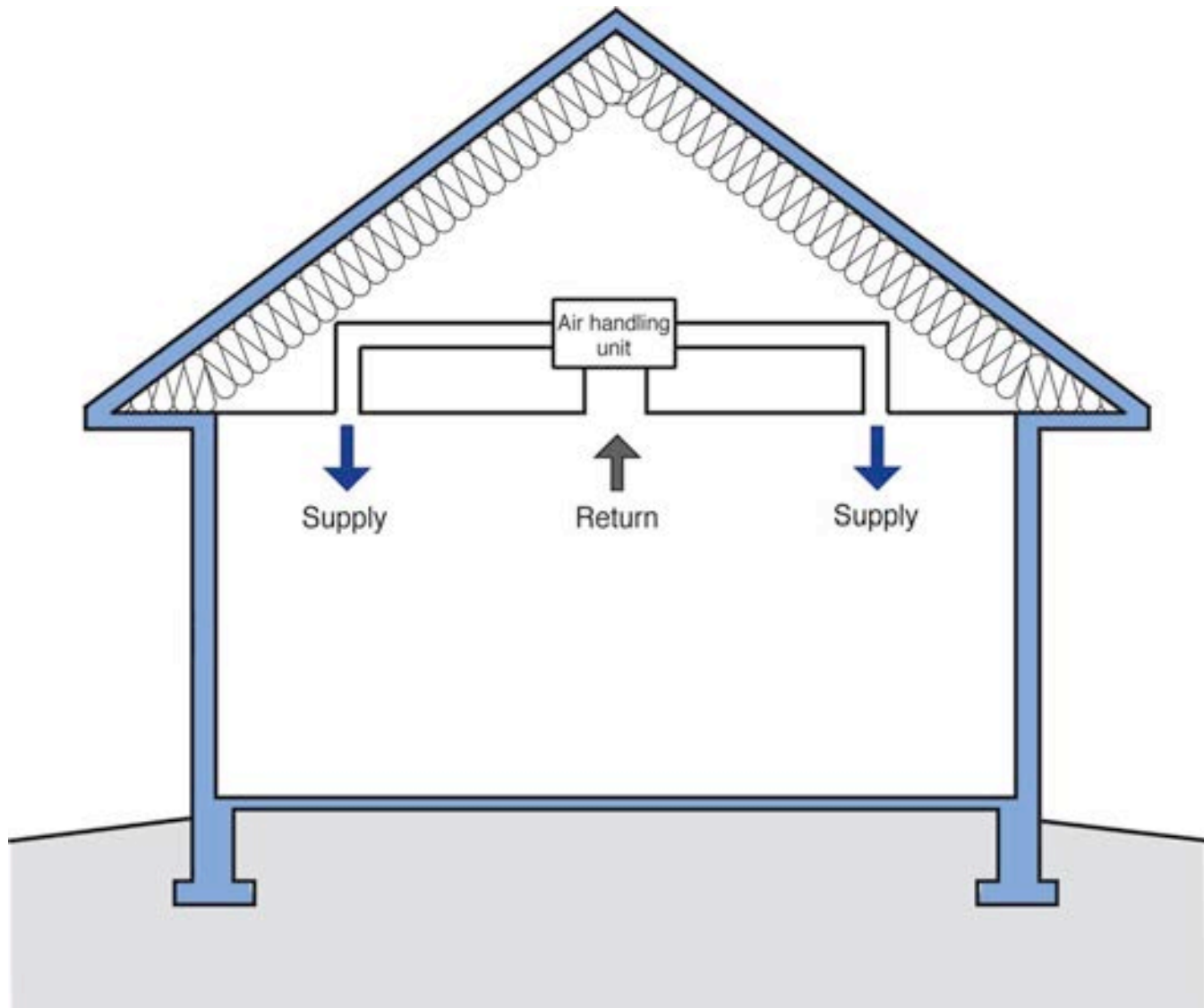












Hygric Buoyancy

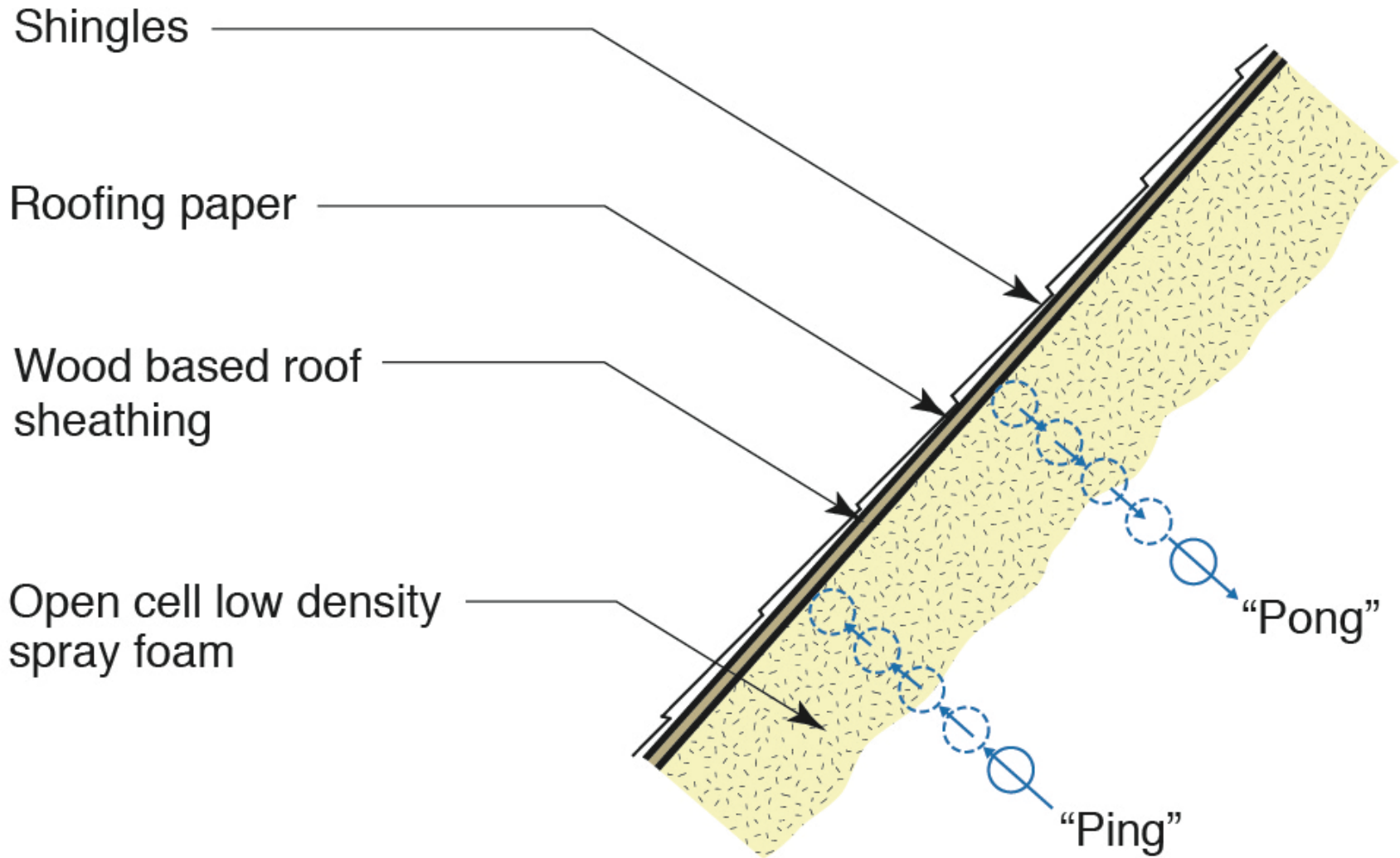
Components in Dry Air	Volume Ratio compared to Dry Air	Molecular Mass - M (kg/kmol)	Molecular Mass in Air
Oxygen	0.2095	32.00	6.704
Nitrogen	0.7809	28.02	21.88
Carbon Dioxide	0.0003	44.01	0.013
Hydrogen	0.0000005	2.02	0
Argon	0.00933	39.94	0.373
Neon	0.000018	20.18	0
Helium	0.000005	4.00	0
Krypton	0.000001	83.8	0
Xenon	$0.09 \cdot 10^{-6}$	131.29	0
Total Molecular Mass of Air			28.97

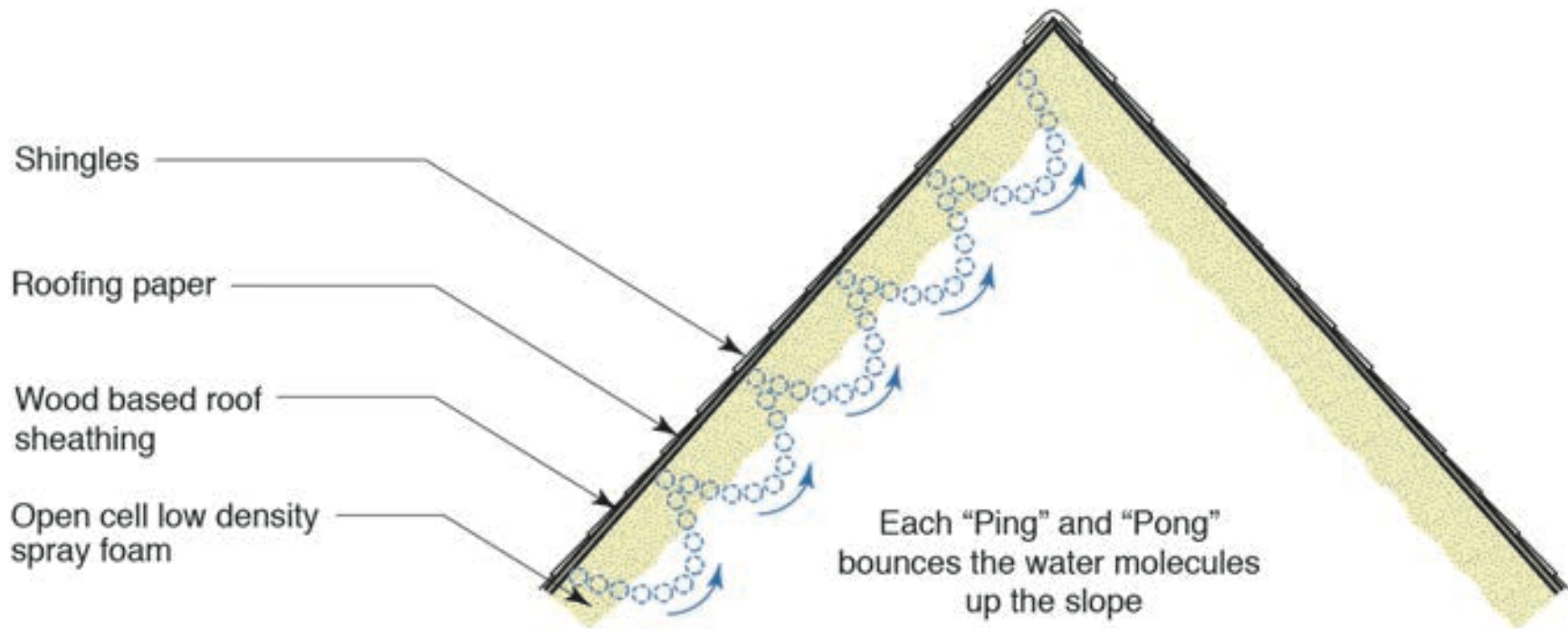
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Note Water Vapor (H₂O) is 18
 Dry Air is 29









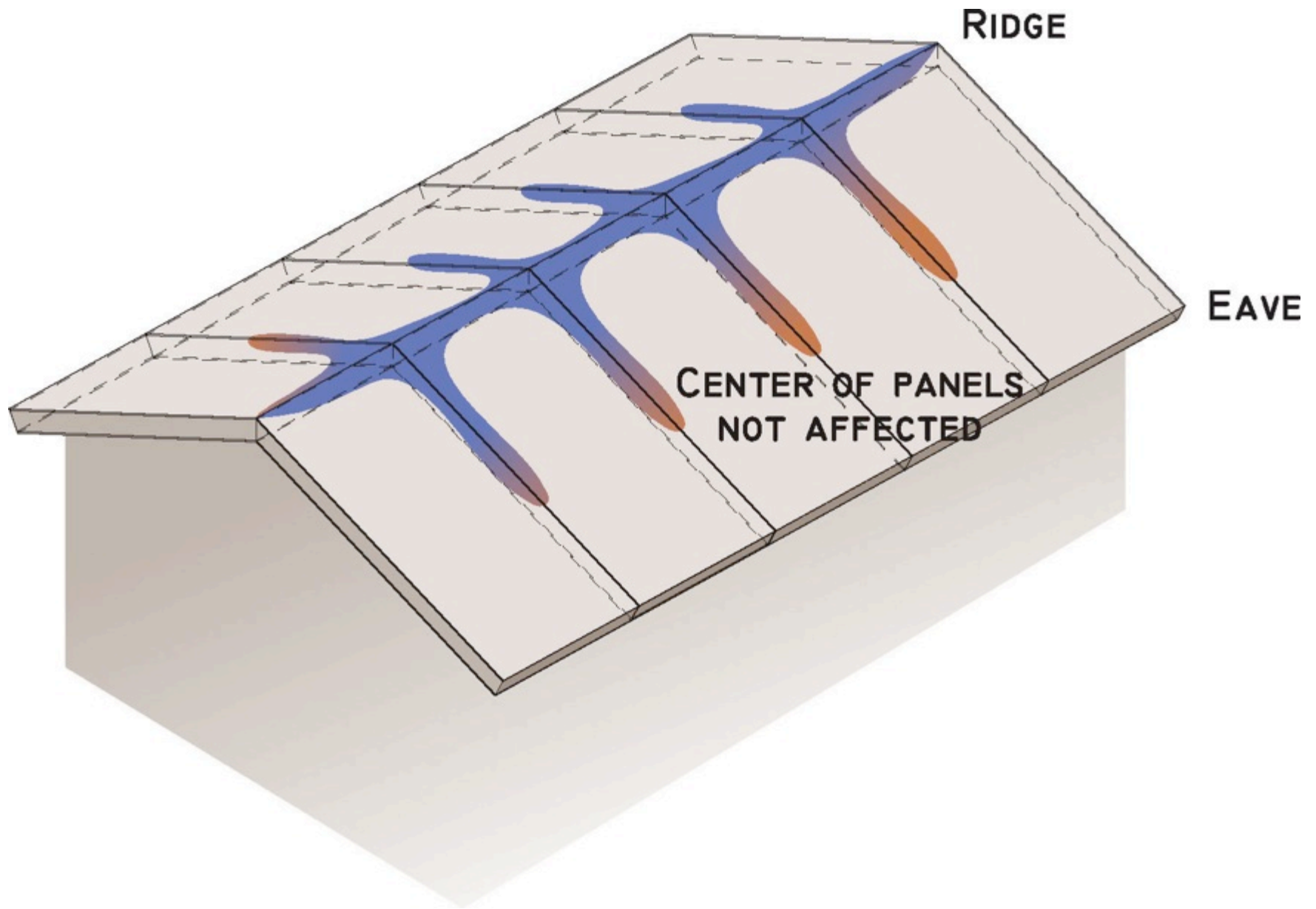














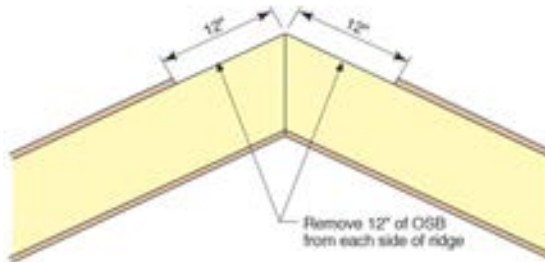






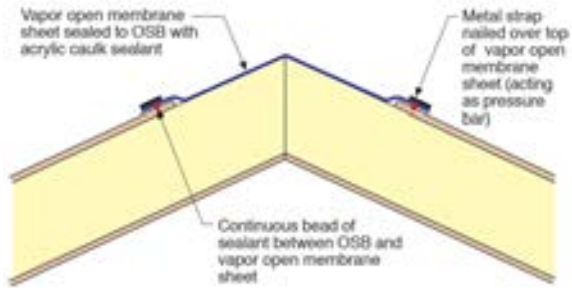
Step 1

- Remove strip of OSB from each side of ridge



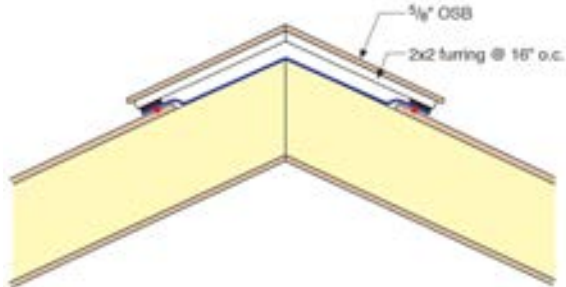
Step 2

- Create air seal with strip of vapor open membrane (tape seams)
- Vapor open membrane sheet sealed to OSB with acrylic caulk sealant
- Hold vapor open membrane sheet in place with metal strapping



Step 3

- Construct wood ridge vent with 2x2 furring









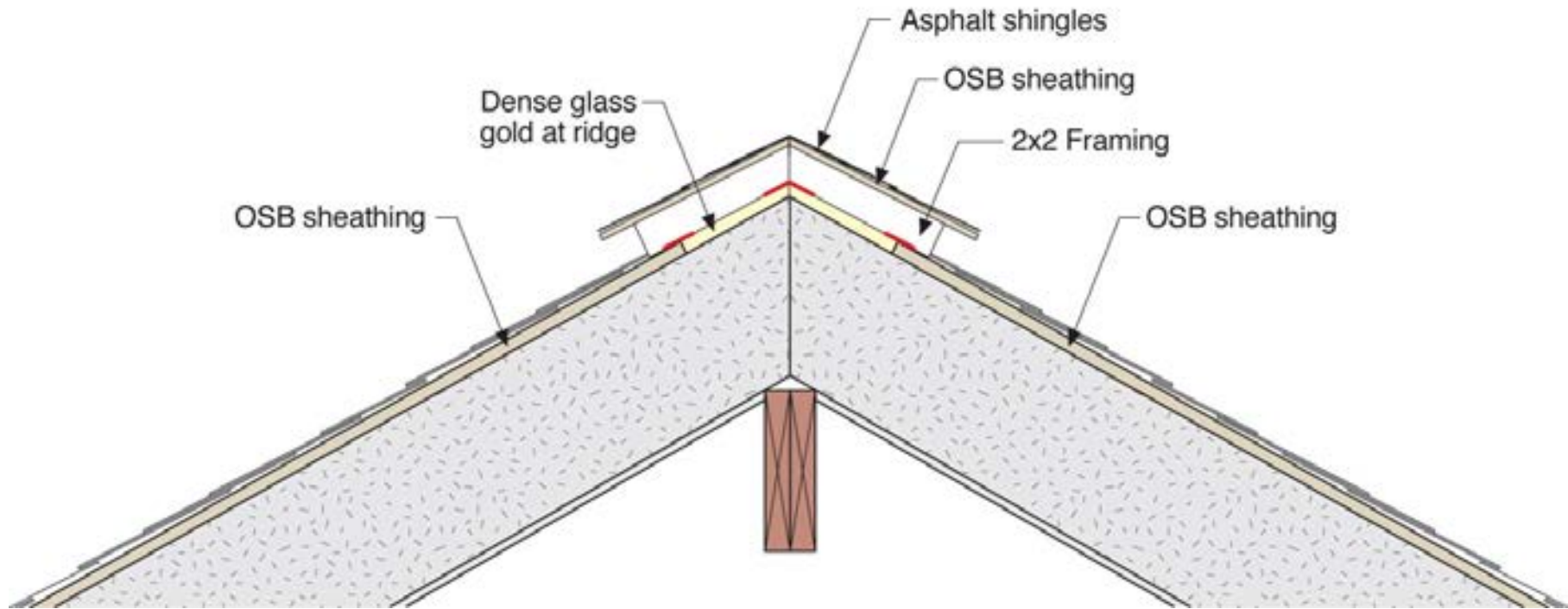


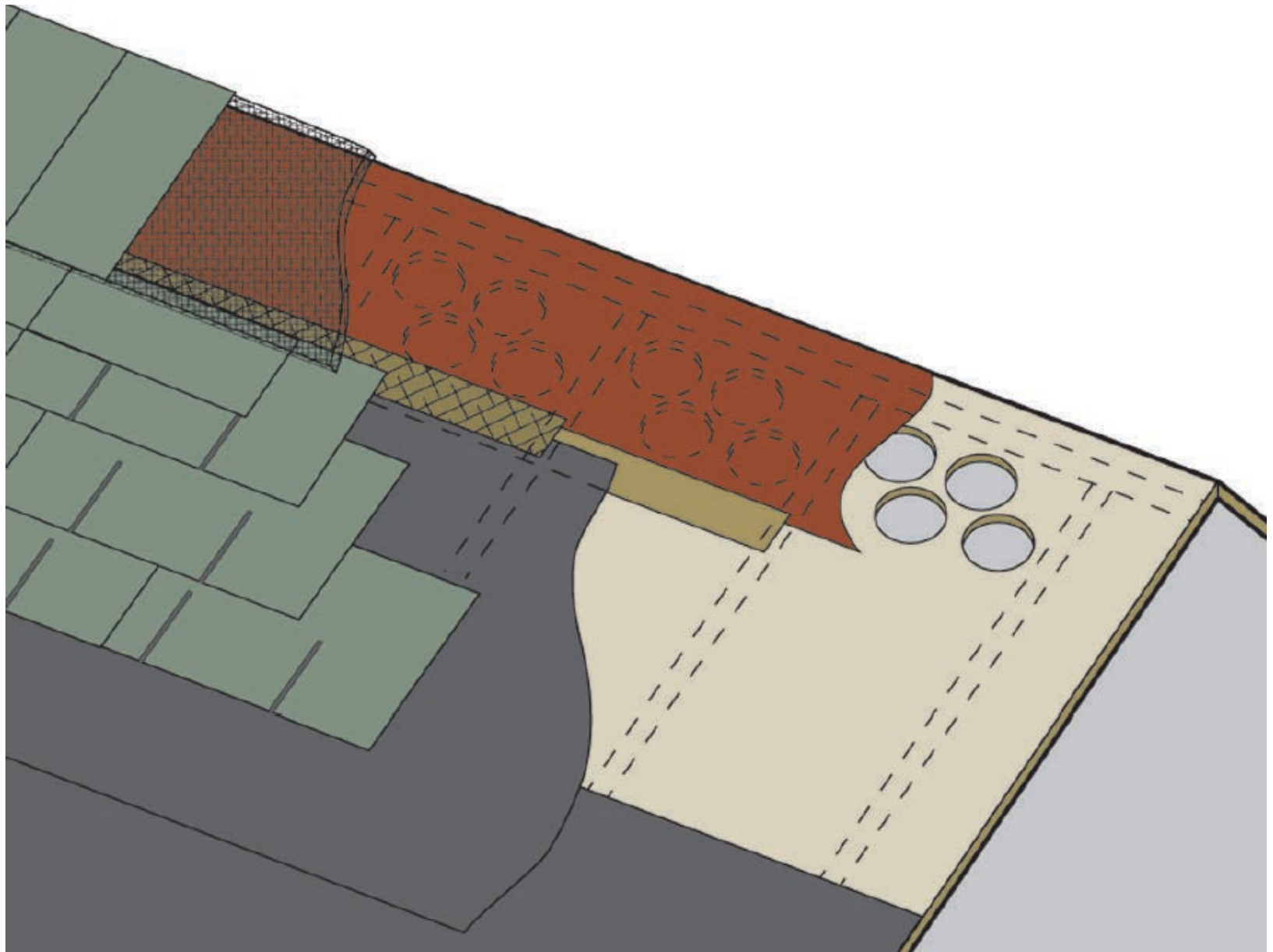


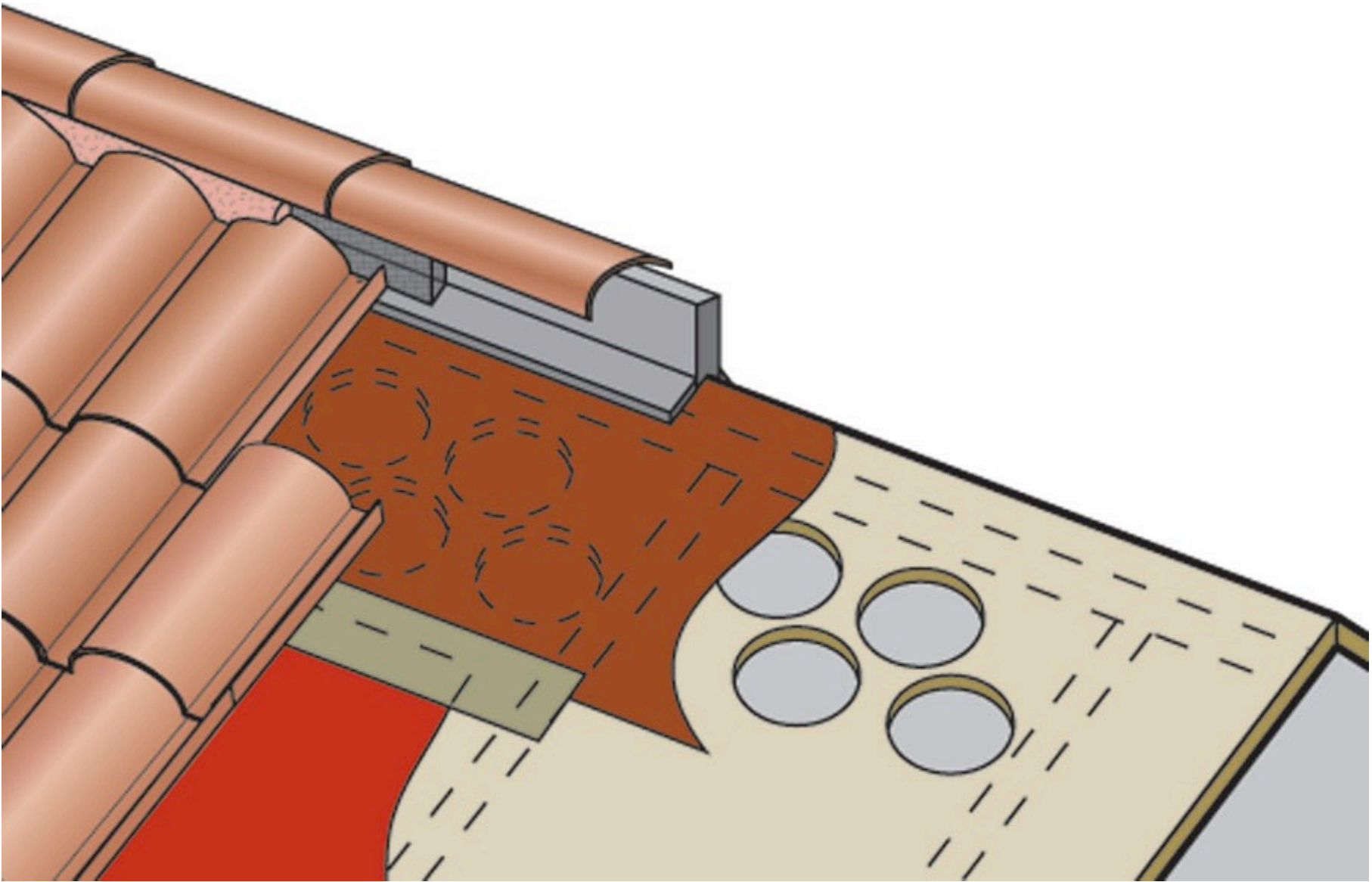


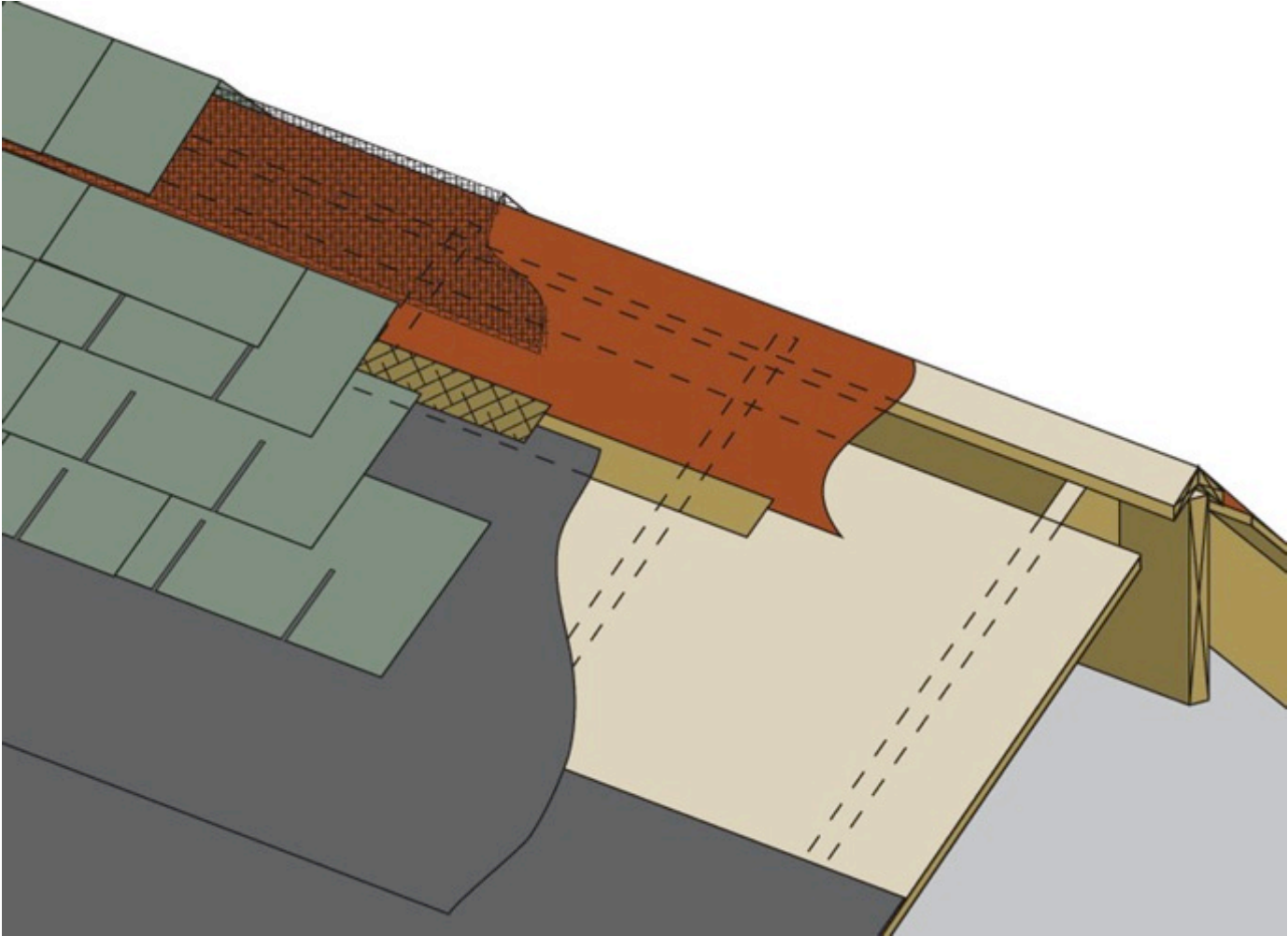


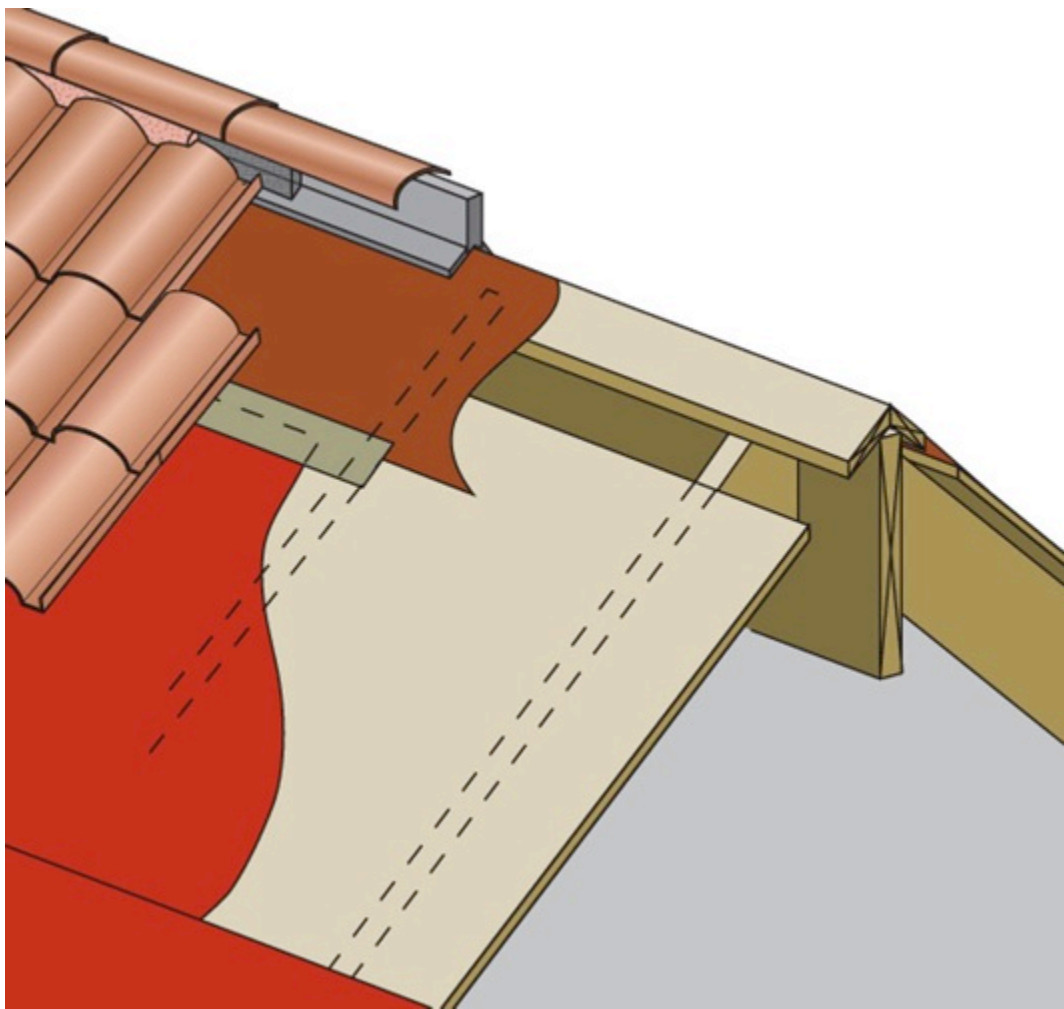












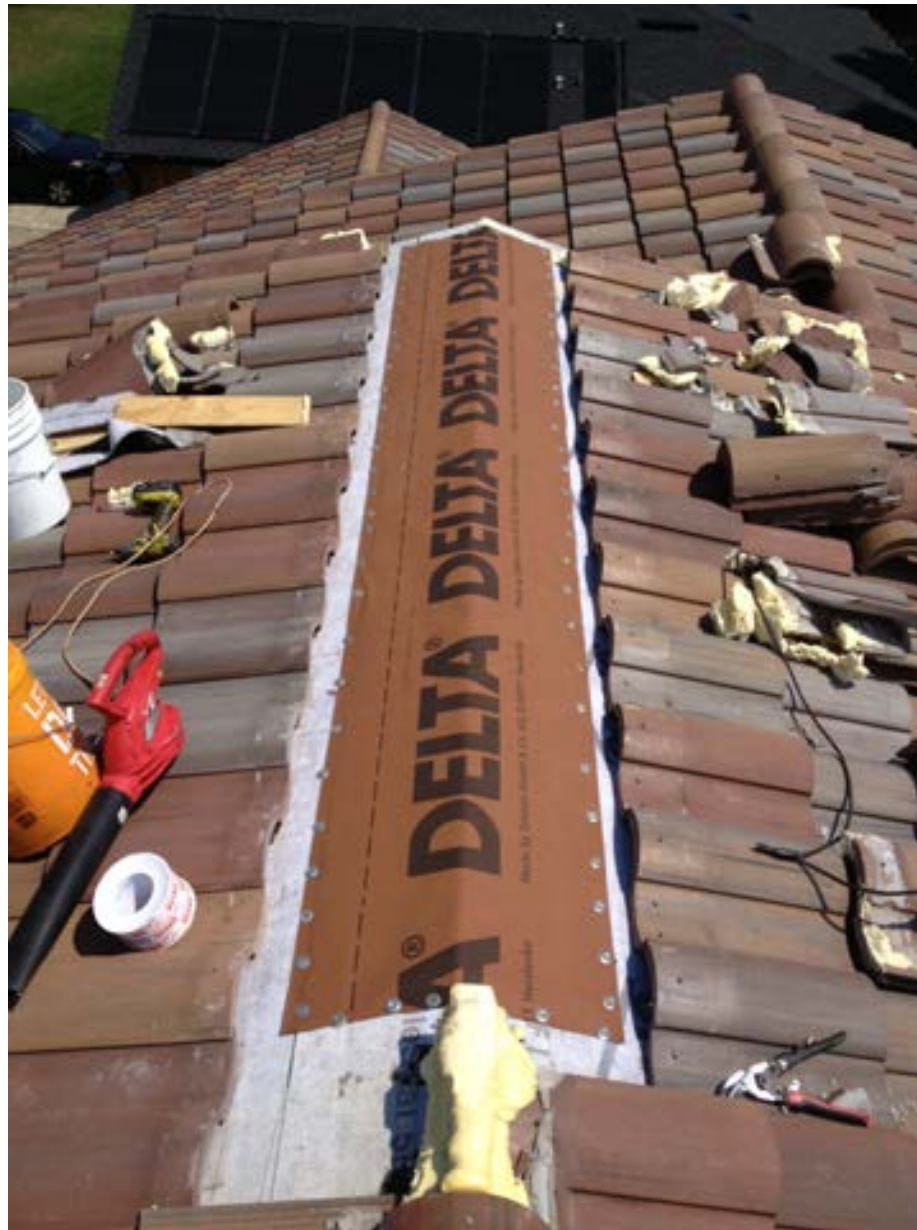






















Sweating Ducts

Sweating Ducts

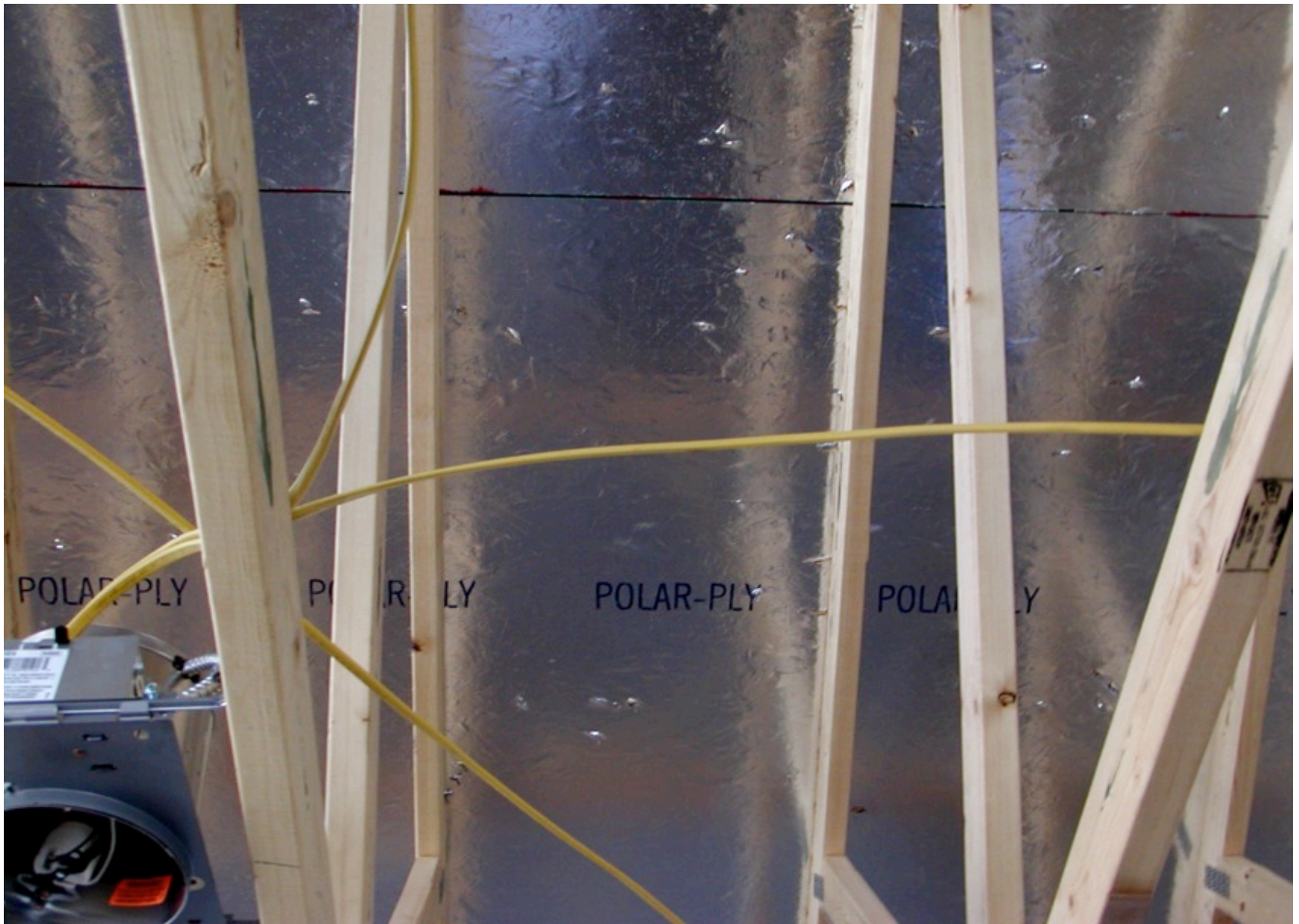
Light Colored Roofs

Cool Roofs

Radiant Barriers

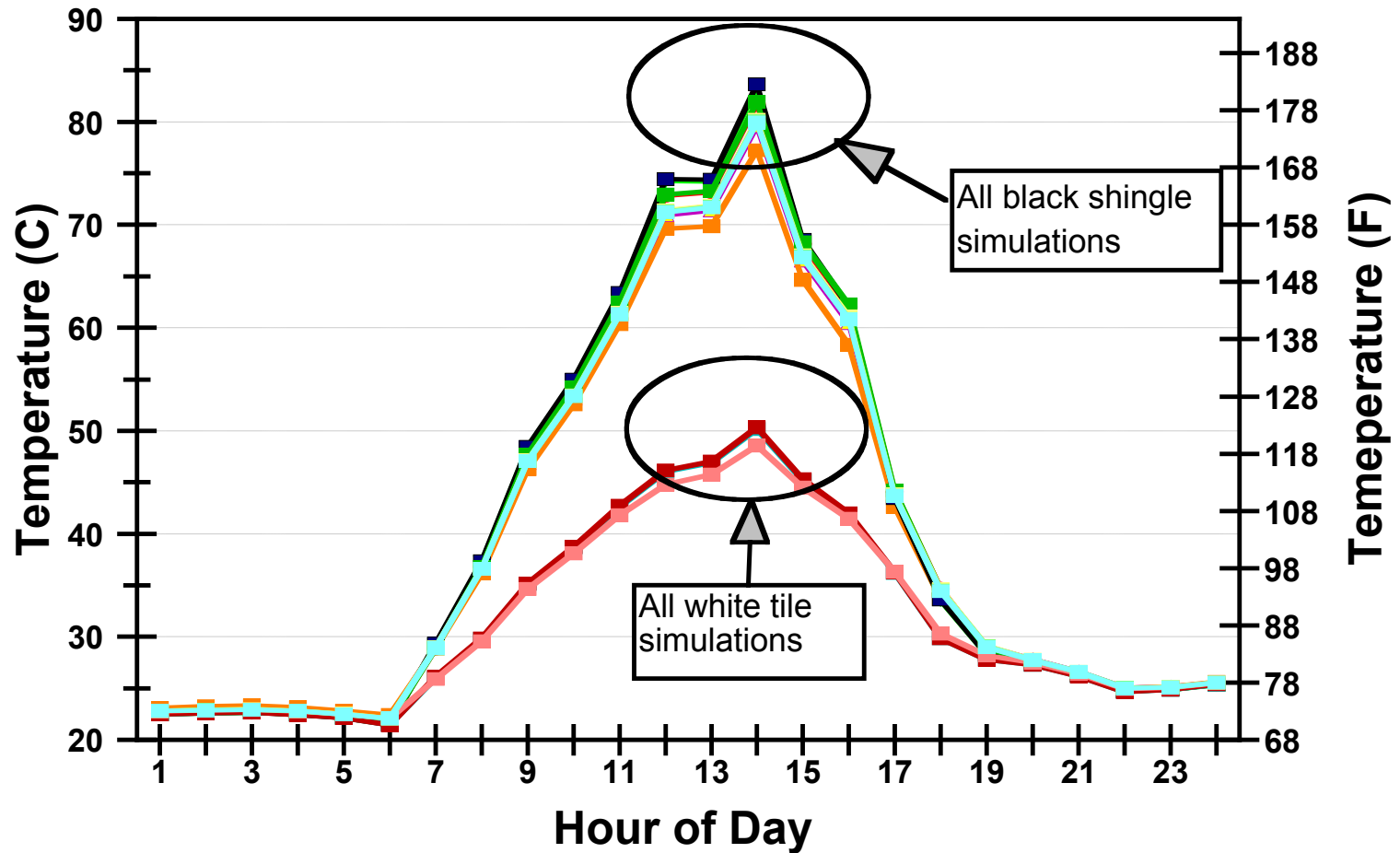
ACCA Manual J, S and D

Ductwork Attic Dehumidification System



Roof Shingle Temperature

FSEC 3.0: Orlando, 1-Aug



Burying Ducts

