



Checklists

Here's a look at the detailed checklists that are part of the 2011 specifications.

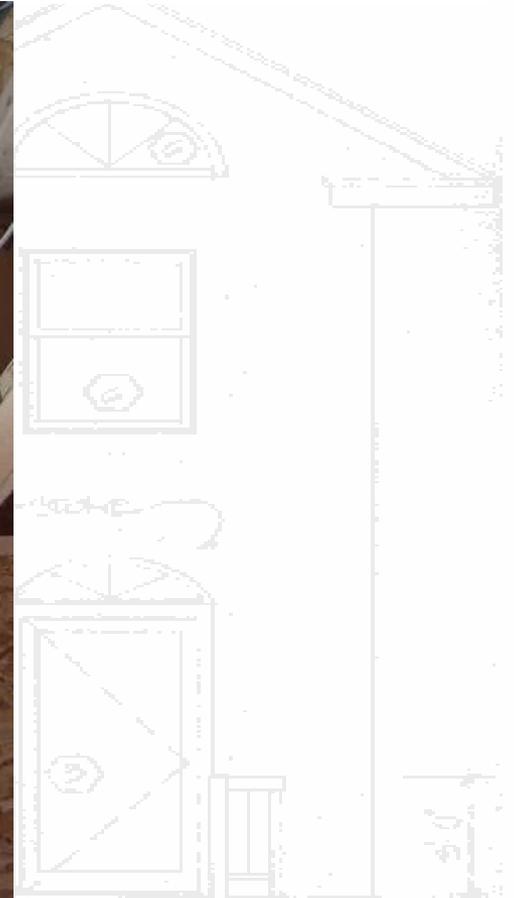
ENERGY STAR QUALIFIED HOMES 2011 SPEC MANDATORY CHECKLISTS



- ***Thermal Bypass***
- ***Quality Framing***
- ***HVAC Quality Installation Contractor***
- ***HVAC Quality Installation Verifier***
- ***Indoor Air Quality***
- ***Water Managed Construction***

In addition to the Thermal Bypass Inspection Checklist (TBC) that has been enforced since 2006, there are an additional 5 checklists that accompany the 2011 specifications.

THERMAL BYPASS CHECKLIST: INSULATION INSTALLATION PROBLEM



There are only two changes to the Thermal Bypass Checklist. First, it will require insulation to be installed without any gaps, voids, or compressions, as shown here.

THERMAL BYPASS CHECKLIST: PROPER INSULATION



Fiberglass



EPA remains product- and technology-neutral. Here's an example of fiberglass insulation installed without gaps, voids, or compressions.

THERMAL BYPASS CHECKLIST: PROPER INSULATION



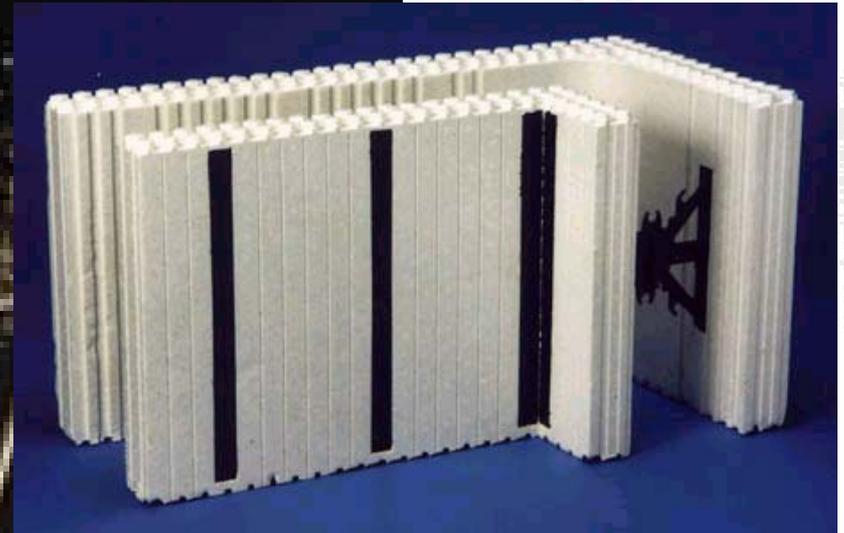
Here's another example of properly installed insulation. Blown-in insulation like fiberglass blankets, or wet-spray cellulose shown here, can be installed without gaps, voids, or compressions.

THERMAL BYPASS CHECKLIST: PROPER INSULATION



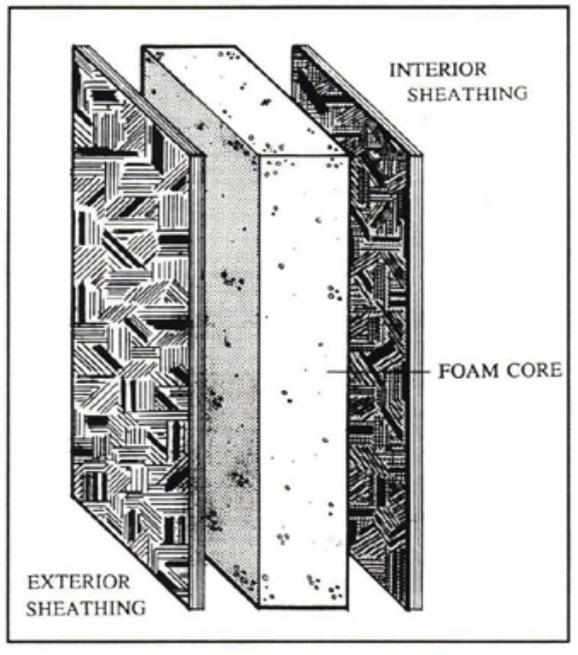
EPA also recognizes that certain products are inherently conducive to quality installation. Here's an example of spray-foam used to satisfy this requirement.

THERMAL BYPASS CHECKLIST: PROPER INSULATION



Some advanced wall systems will naturally meet all installation requirements for no gaps, voids, or compressions. Here's an example of an Insulated Concrete Form (ICF).

THERMAL BYPASS CHECKLIST: PROPER INSULATION



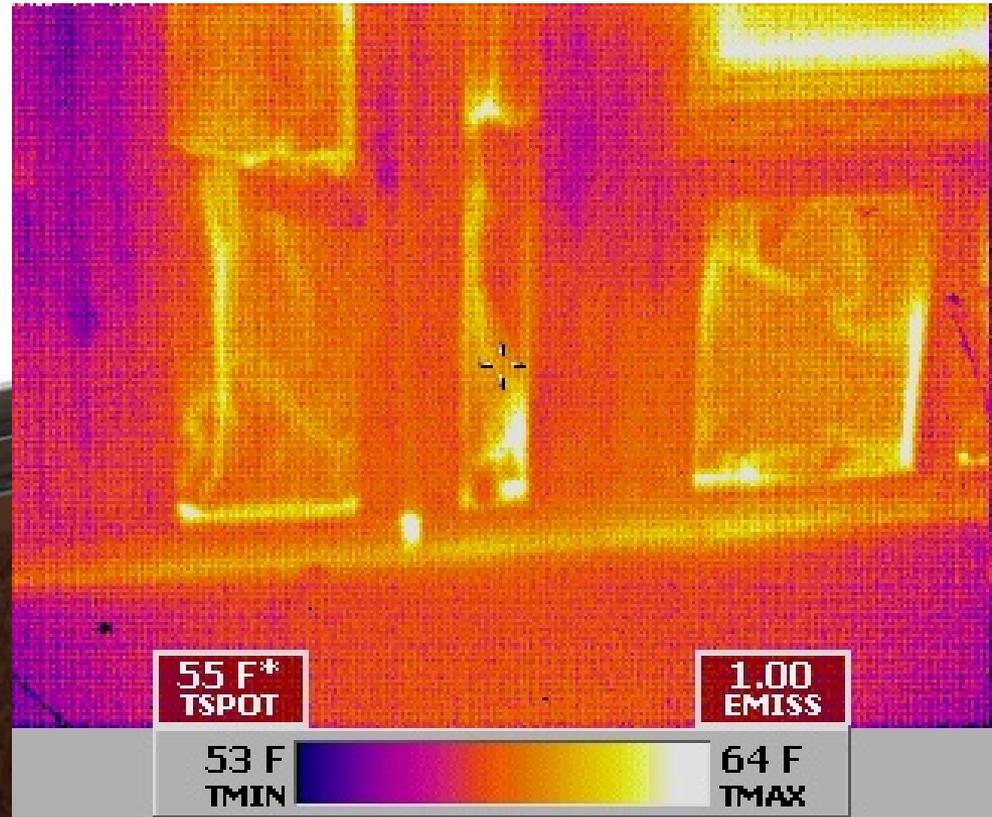
There are factory-built insulated wall assemblies, like the Structural Insulated Panels (SIPs) shown here, that also ensure full alignment of insulation with the integrated air barriers including no gaps, voids or compression.

THERMAL BYPASS CHECKLIST: BYPASS AT WALL/ATTIC INTERFACE



The second item added to the TBC requires a visual inspection ensuring that any sheetrock that meets a top plate at a boundary condition between an inside space and an attic is fully sealed or caulked. This new requirement will prevent significant amounts of air leakage between the two spaces.

FRAMING QUALITY CHECKLIST: THERMAL BRIDGING



EPA also added a framing quality checklist to reduce the amount of thermal bridging throughout the building envelope. Houses like the one shown here lose a tremendous amount of heat through materials like wood or steel. This checklist will limit the number of studs placed next to each other to prevent this.

FRAMING QUALITY CHECKLIST: THERMAL BRIDGING SOLUTION



Choose One System:

- *Optimum Value Engineered Framing (OVE)*
- *Insulated Sheathing*
- *Structural Insulated Panels (SIPS)*
- *Insulated Concrete Forms (ICF)*

Plus:

- *Raised Heel Trusses*
- *Raised HVAC Attic Platform Framing*

The solution provided by the framing quality checklist requires that a builder use one qualified system for framing, and use raised heel trusses, and use raised attic platform framing where heating/cooling equipment is installed.

FRAMING QUALITY CHECKLIST: OVE FRAMING



Here's an example of excessive framing, beyond what is needed for structural purposes. This leads to thermal bridging because wood is a poor insulator by itself.

FRAMING QUALITY CHECKLIST: OVE FRAMING



Here, the difference between excessive framing and Optimum Value Engineered Framing is self-evident. The goal of OVE is to reduce unnecessary wood around windows, headers, corners, wall intersections, etc.

FRAMING QUALITY CHECKLIST: OVE FRAMING

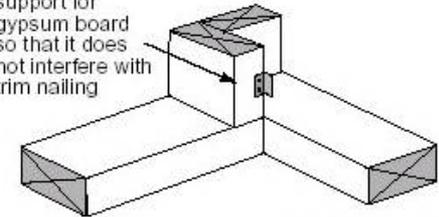


Courtesy of Building Science Corp.

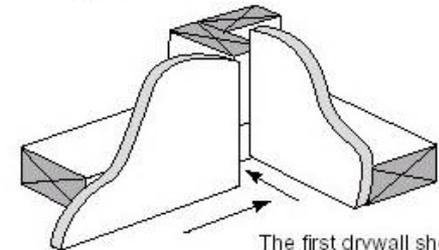
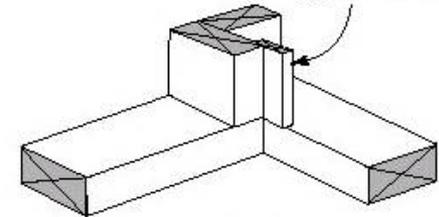
A good example of OVE framing is using a two-stud corner, rather than a three-stud corner which leaves an uninsulated pocket. A different approach is to use clips or furring strips so that sheetrock can be attached easily.

INSIDE "TWO-STUD" CORNERS

Position clip support for gypsum board so that it does not interfere with trim nailing



Backer support for gypsum board

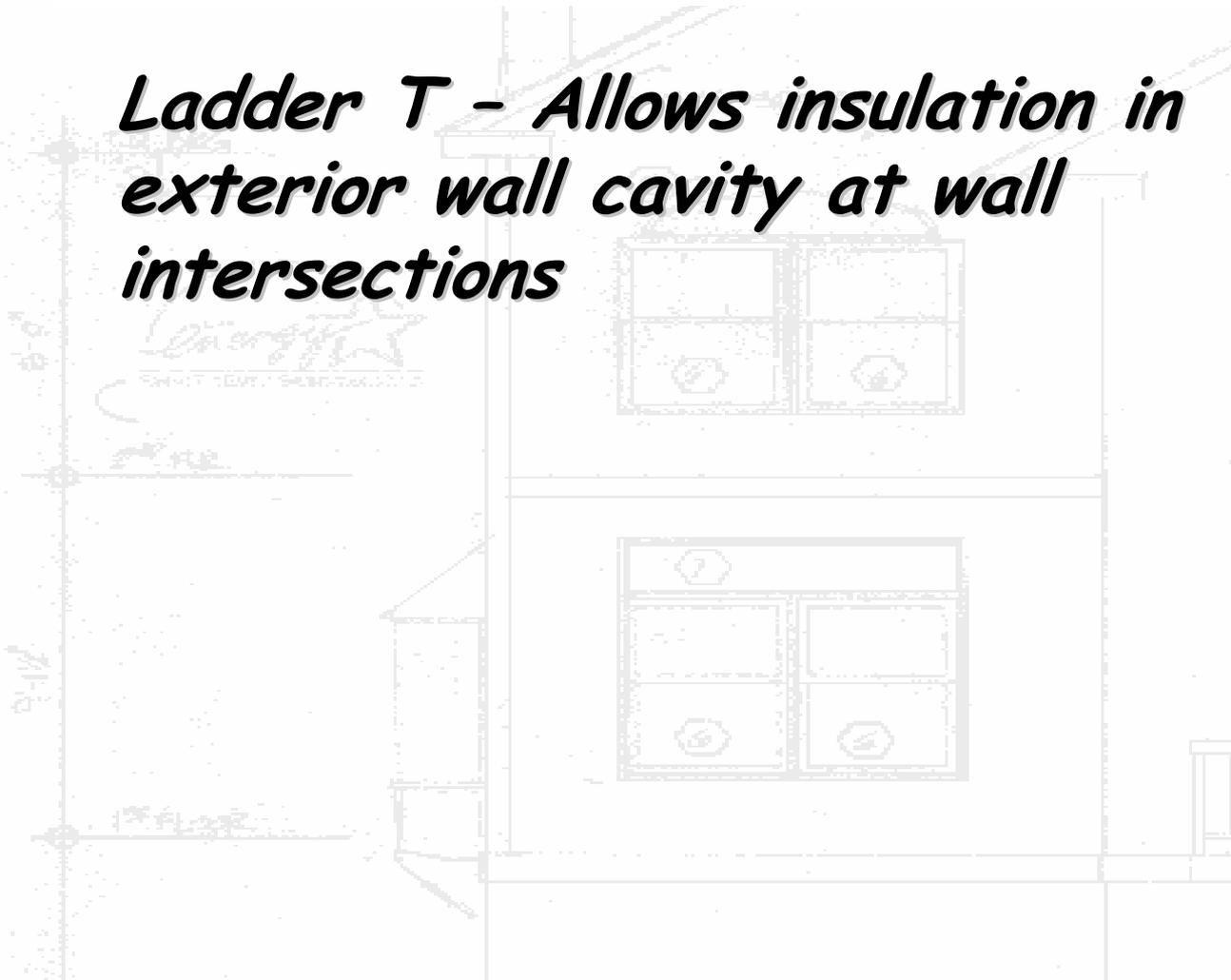


Courtesy of Southface Institute

FRAMING QUALITY CHECKLIST: OVE FRAMING



Ladder T - Allows insulation in exterior wall cavity at wall intersections



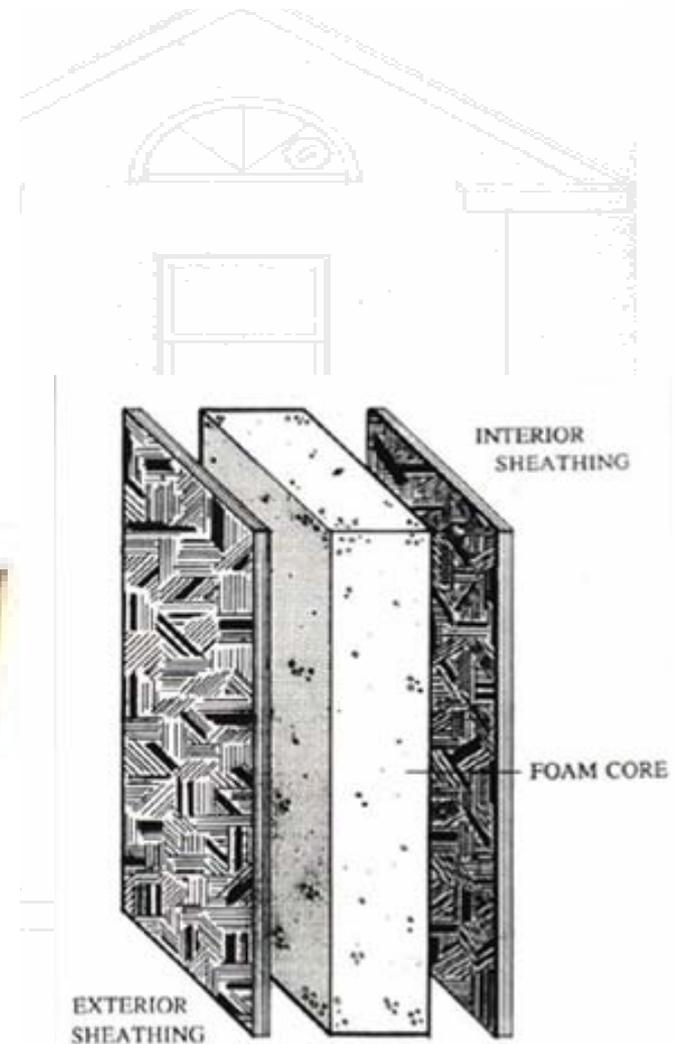
FRAMING QUALITY CHECKLIST: INSULATED SHEATHING



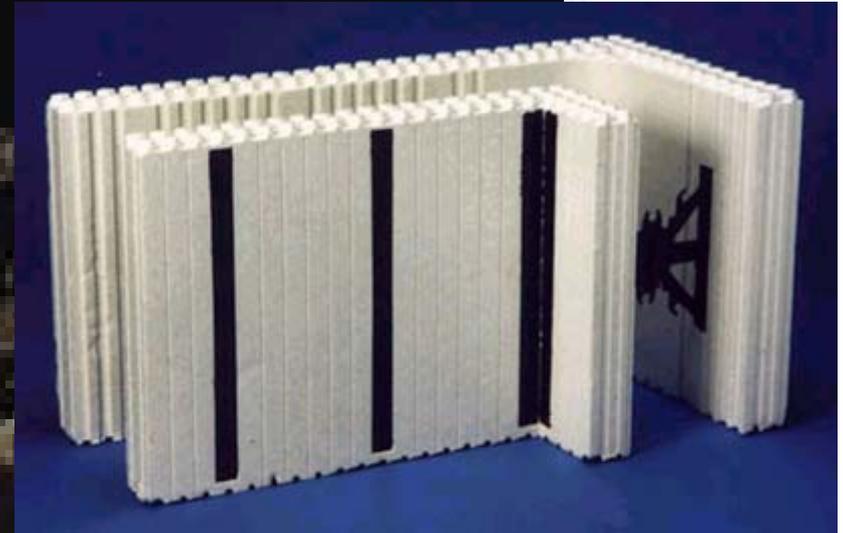
ENERGY STAR



FRAMING QUALITY CHECKLIST: STRUCTURAL INSULATED PANELS



FRAMING QUALITY CHECKLIST: INSULATED CONCRETE FORMS

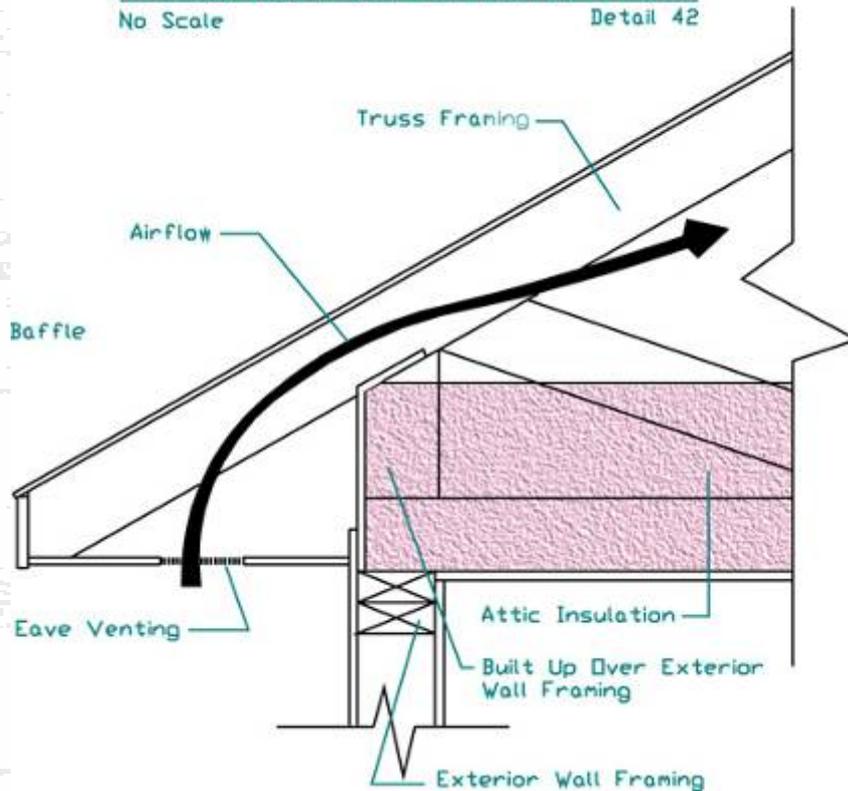


FRAMING QUALITY CHECKLIST: RAISED HEEL TRUSSES

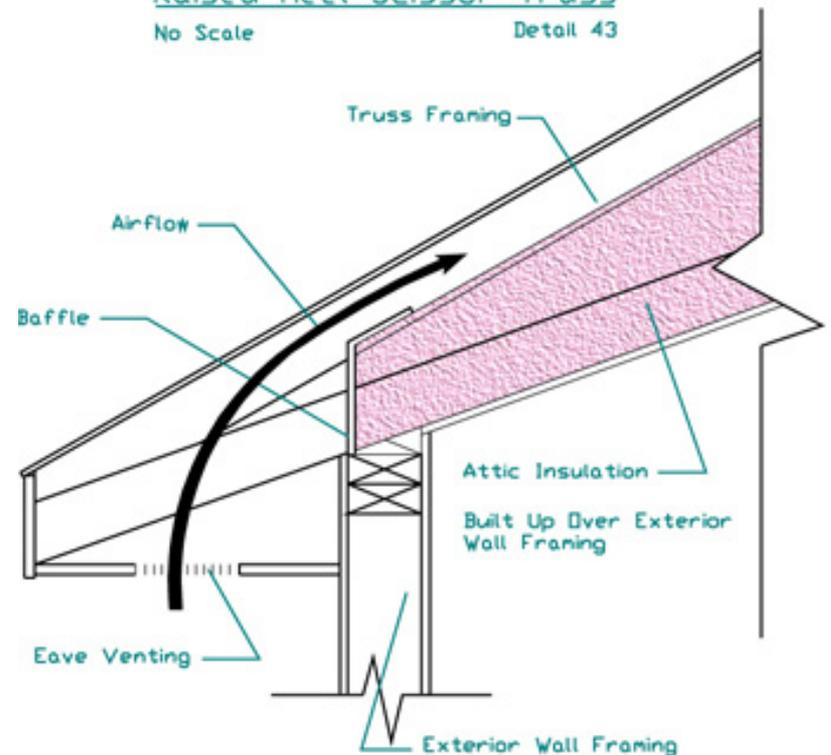


ENERGY STAR

Raised Heel Conventional Truss
No Scale Detail 42



Raised Heel Scissor Truss
No Scale Detail 43



FRAMING QUALITY CHECKLIST: RAISED HEEL TRUSSES



FRAMING QUALITY CHECKLIST:

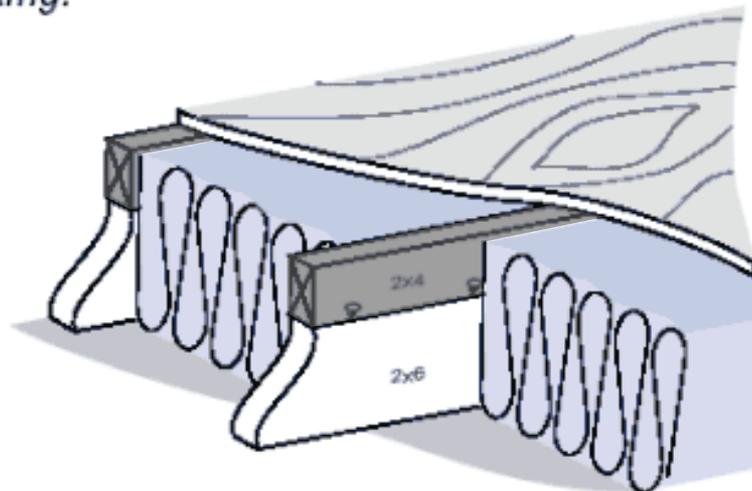
RAISED HVAC PLATFORM FRAMING

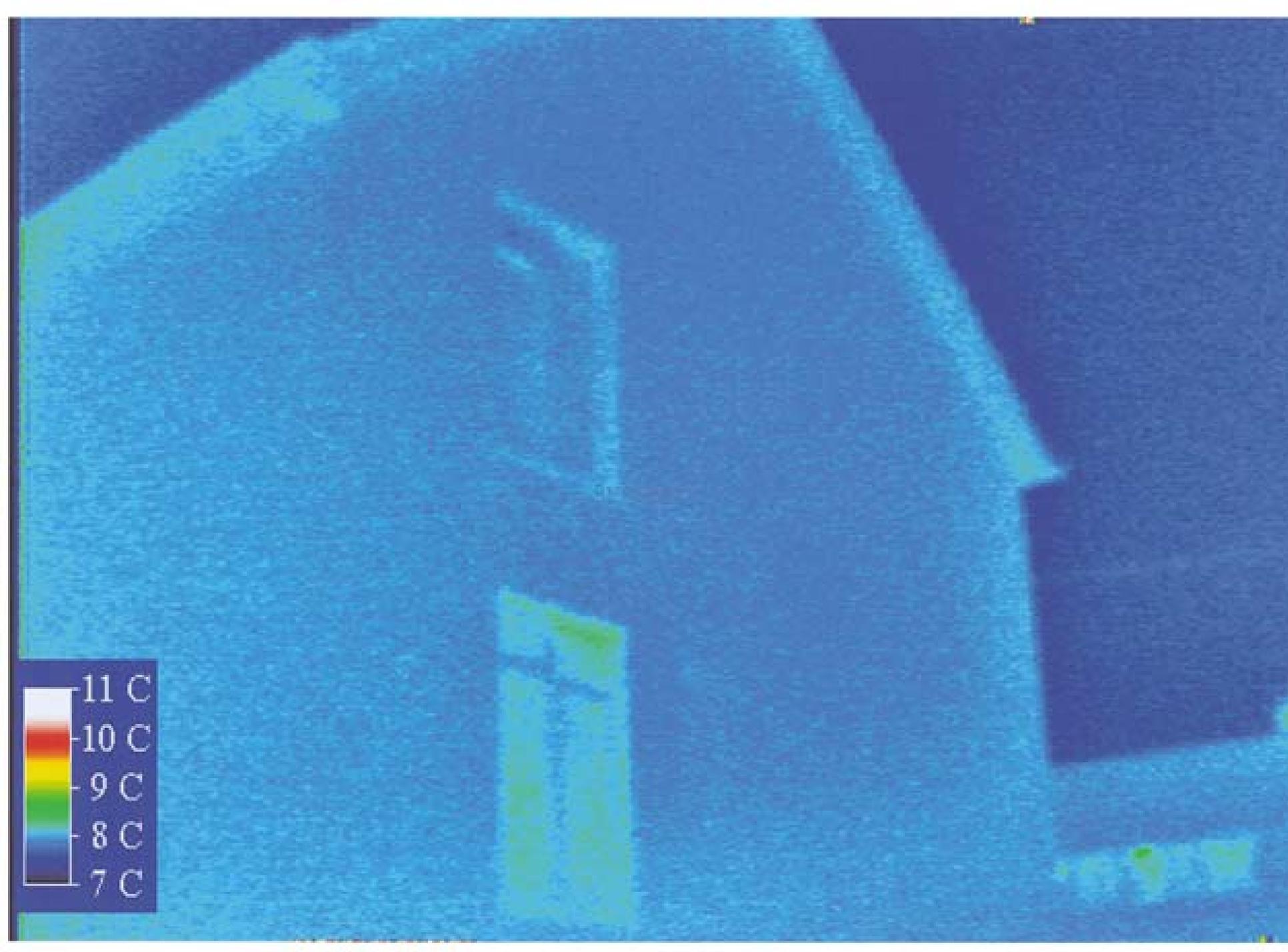


ENERGY STAR

INCREASE ATTIC INSULATION LEVELS UNDER DECKING

For many products, an insulation depth of 10 to 14 inches is needed to achieve an R-30 to R-38 insulation value. Thus, a 2x4 or 2x6 extension needs to be added to a 2x6 joist to provide sufficient depth before installing decking.





HVAC QUALITY INSTALLATION CHECKLISTS:
HVAC QUALITY INSTALLATION



Right-Sizing

*Equipment (ACCA Manual J/S)
Ducts (ACCA Manual D)
Terminals (ACCA Manual T)*

Air Distribution

*Duct Leakage
Static Pressure
Flow Across Coil
Air Flow*

Refrigerant Charge

*Testing
TXV Valve*

Duct Installation

*Installation
R-8 Ducts in Attic
Leakage to Outdoors and Total
Pressure Balancing*



WARRANTY



WARRANTY

1/16" 250

100' x 100' x 100' x 100' x 100' x 100'

100' x 100' x 100' x 100' x 100' x 100'

100' x 100' x 100' x 100' x 100' x 100'

Exit grille is over here !





delfia

CLASS 1 AIR DUST
SMALLER SIZE
SMOKE DEVELOPED



LIS
AIR DUST

delfia

CLASS 1 AIR DUST
SMALLER SIZE
SMOKE DEVELOPED

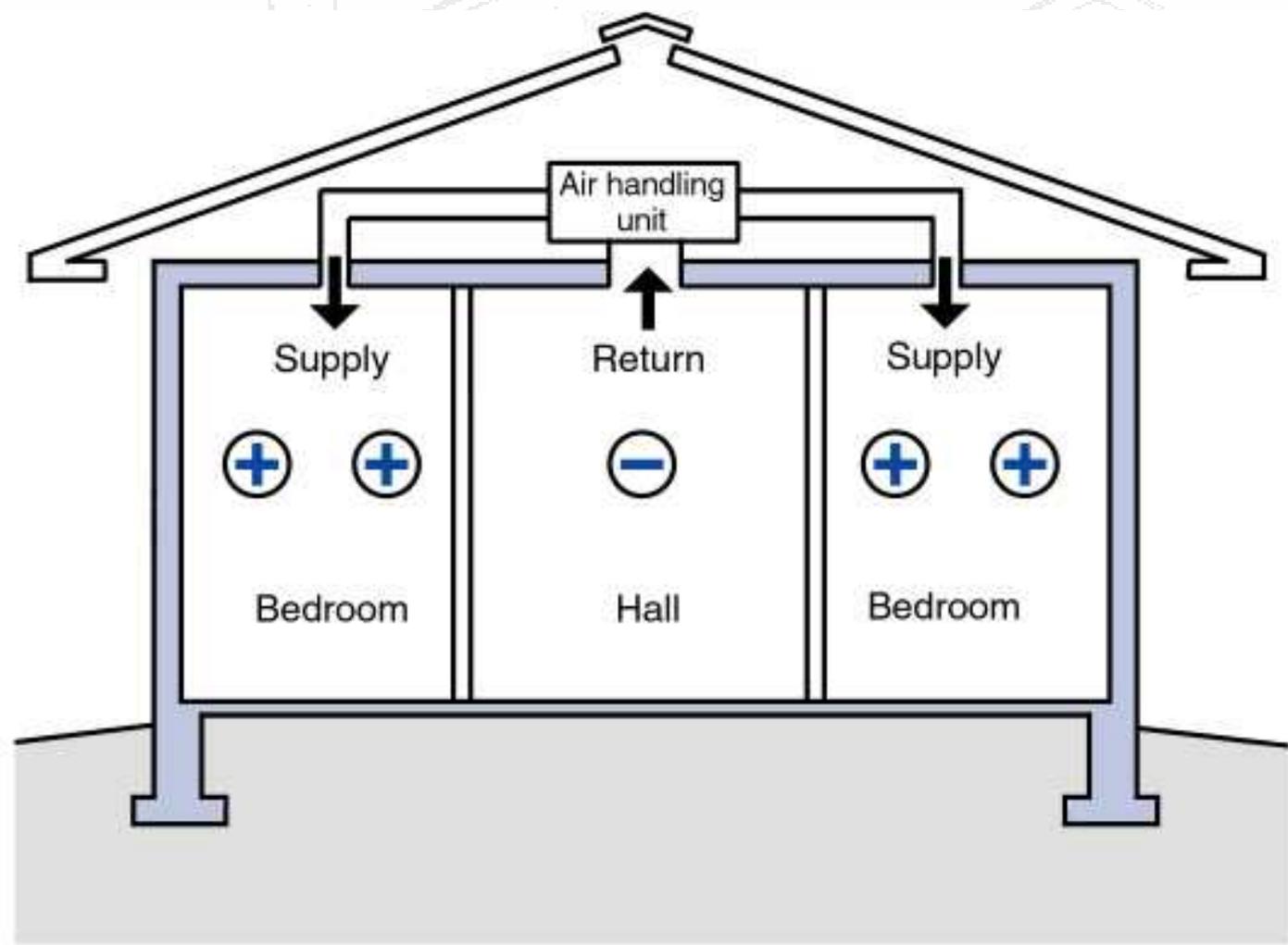
LIS





05.08.2005

HVAC QUALITY INSTALLATION: PRESSURE BALANCING: PROBLEM



HVAC QUALITY INSTALLATION: PRESSURE BALANCING: SOLUTIONS



TRANSFER GRILLE



JUMP DUCT

INDOOR AIR QUALITY CHECKLIST: WHOLE-HOUSE VENTILATION



ENERGY STAR



CONTINUOUS EXHAUST



FRESH AIR
DAMPER



DUCTED FRESH AIR SUPPLY

INDOOR AIR QUALITY CHECKLIST: WHOLE-HOUSE VENTILATION



ERV



INDOOR AIR QUALITY CHECKLIST: SPOT VENTILATION



Screw pinning damper closed- No airflow



Only testing will find these things

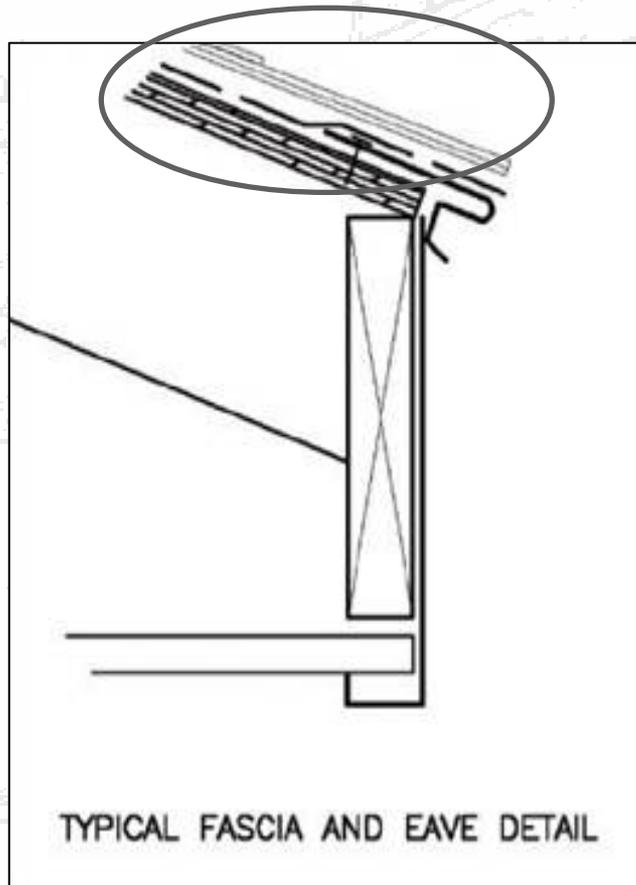


This is the reading from a **110** cfm fan:



Testing tells the story

WATER MANAGED CONSTRUCTION CHECKLIST: WATER MANAGED ROOFS



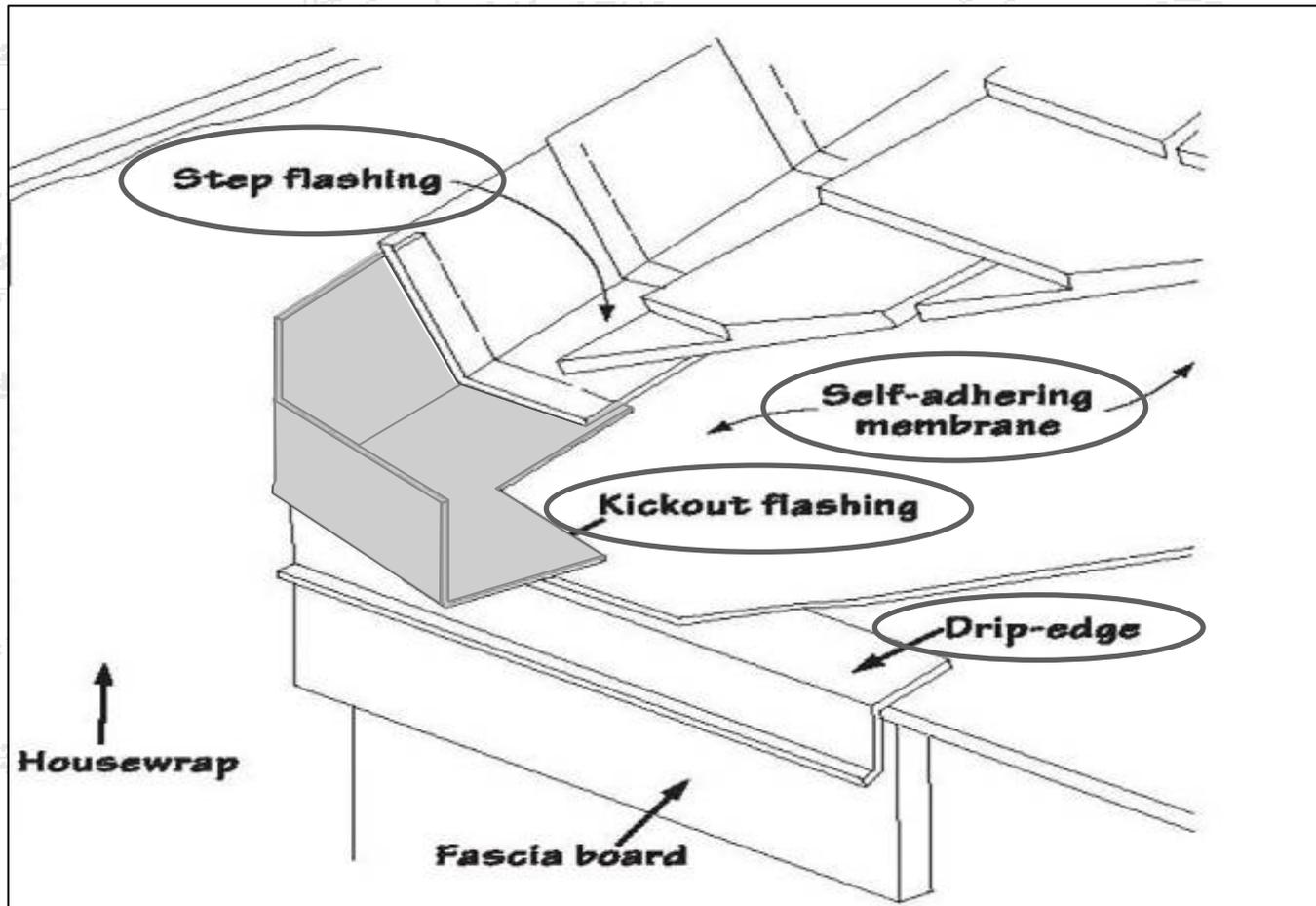
BITUMINOUS MEMBRANE AT VALLEYS

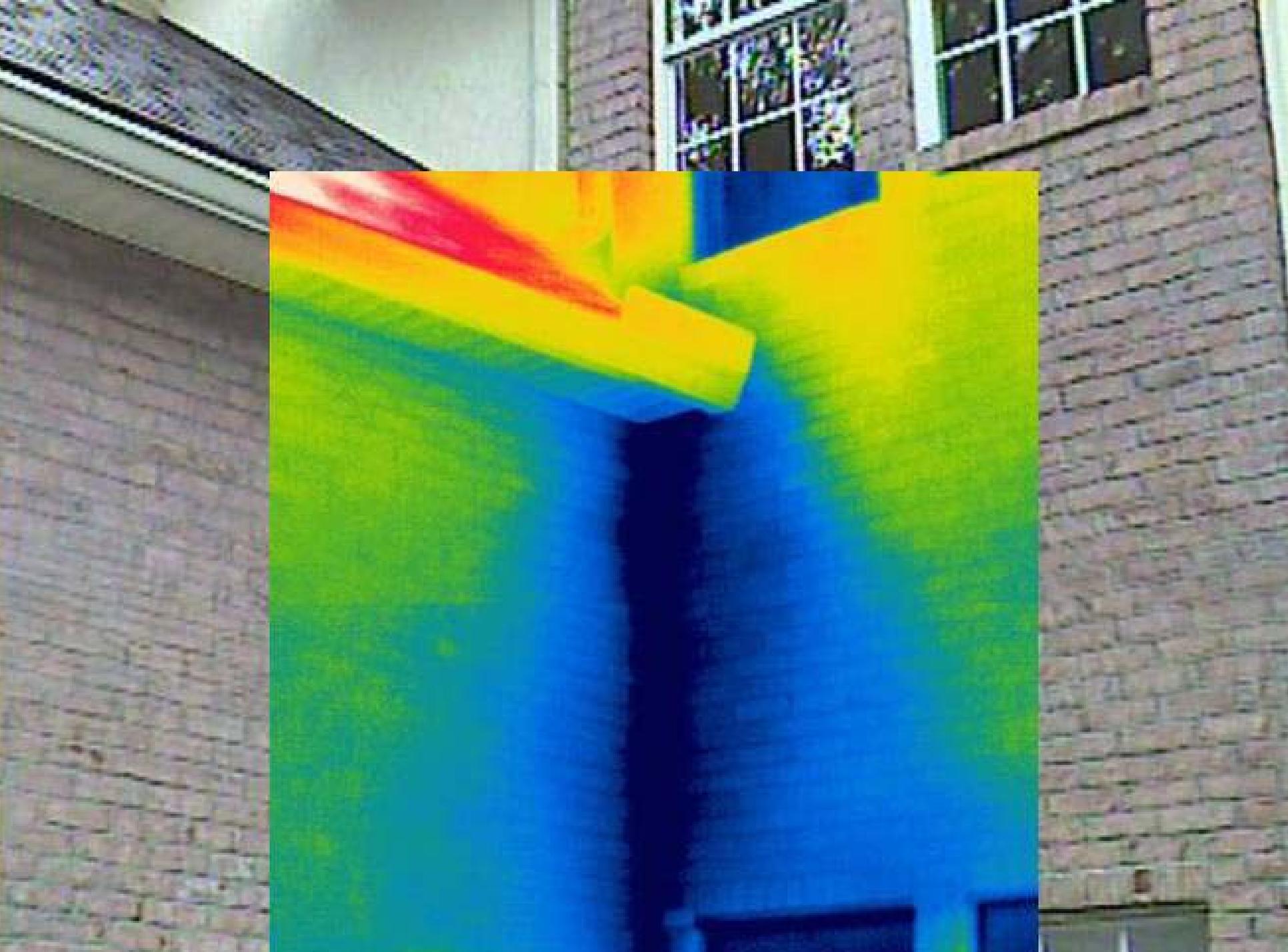


WATER MANAGED CONSTRUCTION CHECKLIST: WATER MANAGED ROOFS



MORE ROOF FLASHING DETAILS ...

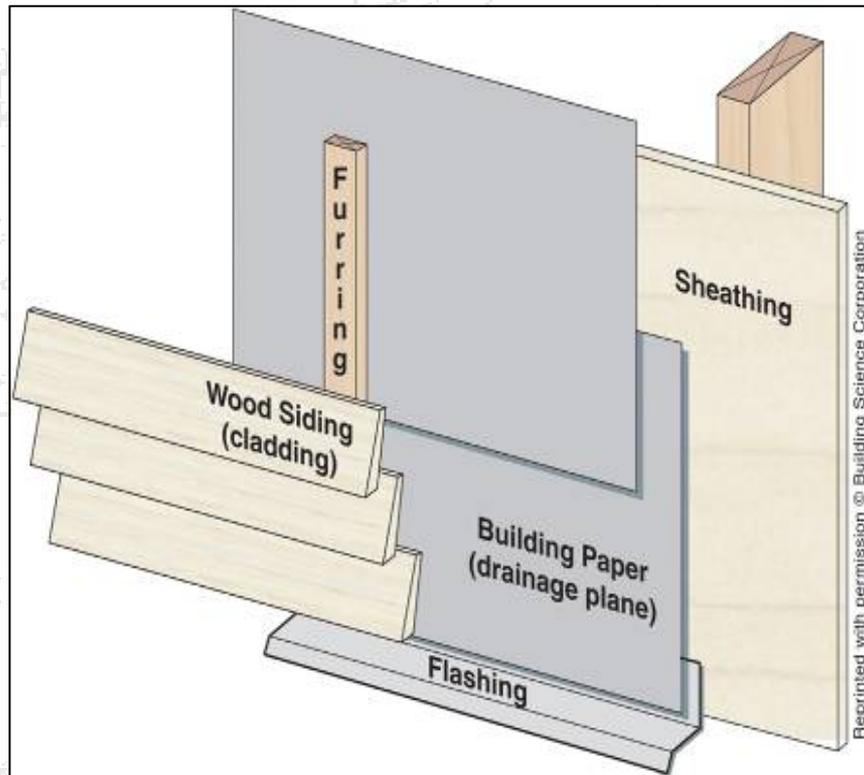




WATER MANAGED CONSTRUCTION CHECKLIST: WATER MANAGED WALLS



ENERGY STAR

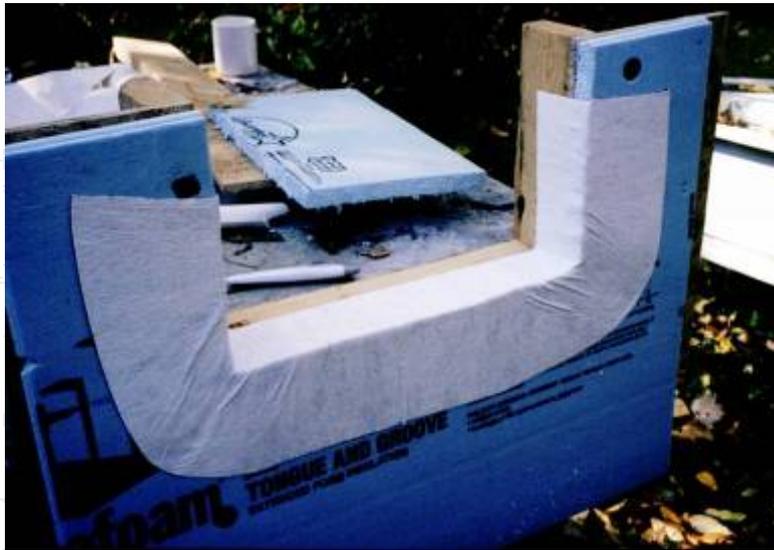


Reprinted with permission © Building Science Corporation

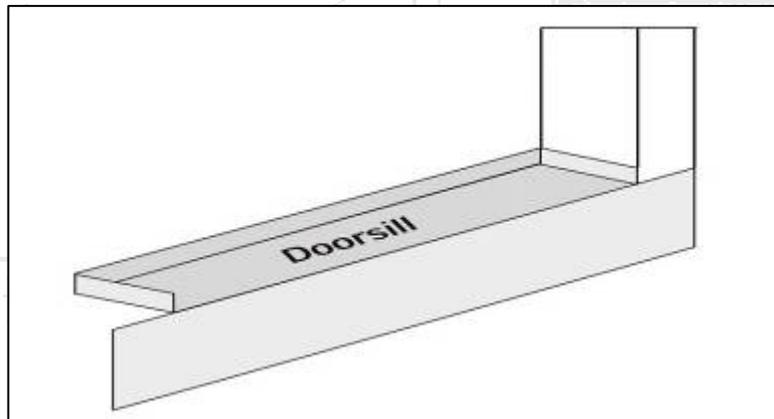


DRAINAGE PLANE DESIGN

WATER MANAGED CONSTRUCTION CHECKLIST: WATER MANAGED WALLS



WINDOW/DOOR PAN FLASHING



BEST PRACTICE INSTALLATION

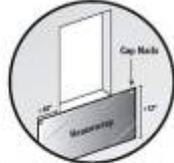


WINDOW FLASHING

Building Tips
Example of window flashing details for home with basement and plywood or OSB wall sheathing.



STEP 1 • 3" TUBEROUND FLASHING NOT INSTALLED



- Apply at least a 12" flap, or space, of building paper or basement paper just below the windowsill.
- If the window sill is close to the sill plate, the space should be covered all the way to the sill plate.
- The space should extend at least 18" past the sides of the window opening, or to the first stud in open wall construction.
- Attach only the space's top edge with cap nails.

STEP 1 • 3" TUBEROUND HAS BEEN INSTALLED



- Cut the basement covering the rough opening in the shape of a modified "T".
- Fold the side and bottom flaps into the window opening and attach.
- Above the window opening, cut a lead flap and flip up to expose sheathing, and house tape in place out of the way.

STEP 2 • GILL FLASHING



- Install self-adhesive flashing to the sill, ensuring that flashing extends up joints at least 6".
- Use manufacturer product notes with two membrane strips over the adhesive. Reverse the first strip to expose half the adhesive and apply this area to the sill. Begin pressing in the middle of the sill and work towards the sides. Reverse the second strip to expose the adhesive that will be used to apply the flashing below the windows to the outside wall.
- Tape down the bottom corners of the flashing.

STEP 3 • JOINT CALLING



- Call the outside edges of the head and side joints.
- Do not call across the sill.
- Install the window using tension restraint walls and following manufacturer's specifications.

Building America Best Practices Series Volume 2: Builders and Buyers Handbook for Improving the Home Efficiency, Comfort, and Durability in the Hot-Dry and Mixed-Dry Climates Version 3.0/2005 • TR2.4

WATER MANAGED CONSTRUCTION CHECKLIST: WATER MANAGED WALLS



WINDOW/DOOR PAN FLASHING

WATER MANAGED CONSTRUCTION CHECKLIST: WATER MANAGED FOUNDATIONS



FOUNDATION DRAINAGE SYSTEM WITH CAPILLARY BREAKS

