Checklists

Here’s a look at the detailed checklists that are part of the 2011 specifications.
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.
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.
EPA remains product- and technology-neutral. Here’s an example of fiberglass insulation installed without gaps, voids, or compressions.
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.
EPA also recognizes that certain products are inherently conducive to quality installation. Here’s an example of spray-foam used to satisfy this requirement.
Some advanced wall systems will naturally meet all installation requirement for no gaps, voids, or compressions. Here’s an example of an Insulated Concrete Form (ICF).
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.
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.
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.
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.
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.
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.
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.
Ladder T - Allows insulation in exterior wall cavity at wall intersections
FRAMING QUALITY CHECKLIST:
STRUCTURAL INSULATED PANELS
FRAMING QUALITY CHECKLIST:
INSULATED CONCRETE FORMS
FRAMING QUALITY CHECKLIST:
RAISED HEEL TRUSSES

Raised Heel Conventional Truss
No Scale
Detail 42

Raised Heel Scissor Truss
No Scale
Detail 43

- Truss Framing
- Airflow
- Baffle
- Eave Venting
- Attic Insulation
- Built Up Over Exterior Wall Framing
- Exterior Wall Framing
- Attic Insulation
- Built Up Over Exterior Wall Framing
FRAMING QUALITY CHECKLIST:
RAISED HEEL TRUSSES
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.
• **Air-Tight Assemblies** *(Reference Design Air Leakage)*
• **Six-Sided Air Barrier** *(Thermal Bypass Checklist)*
• **Zero-Tolerance** *(Grade 1 Installation Mandatory)*
• **Minimal Thermal Bridging** *(Framing Checklist)*
| 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
Exit grille is over here!
HVAC QUALITY INSTALLATION:
PRESSURE BALANCING: PROBLEM
INDOOR AIR QUALITY CHECKLIST:
WHOLE-HOUSE VENTILATION

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**
MORE ROOF FLASHING DETAILS
WATER MANAGED CONSTRUCTION CHECKLIST:
WATER MANAGED WALLS

DRAINAGE PLANE DESIGN

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WATER MANAGED CONSTRUCTION CHECKLIST:
WATER MANAGED WALLS

BEST PRACTICE INSTALLATION

Window/Door Pan Flashing

Building Tips

Example of window flashing details for home with bottom and flashed to SS 1 wall cladding.

Step 1 - Apply a strip of building paper at flashing pan below the interior sill.
Step 2 - If the window sill is close to the exterior plane, the strip can extend all the way to the exterior plane.
Step 3 - The aperture should extend at least 1/4" past the sides of the window opening, or to the face seal or rainscreen wall construction.
Step 4 - Attach only the aperture's top edge with cap nails.

Step 2 - Install flashing

- Install self-adhesive flashing to the sill, ensuring the flashing covers up jamb or head joints.
- Ensure continuity of sealant across both the seams and over the adhesive. Ensure the first strip is exposed, fold the adhesive and apply this to the sill edge, starting in the middle of the sill and working outwards with equal spacing.
- Install the second strip, ensuring the adhesive that will be used to apply the flashing between the window and the exterior wall.
- Tap along the bottom, center, and top of the flashing.

Step 3 - Jam flashing

- Cut the bottom corner of the sill with a score and saw.
- Fold the sides and bottom flaps into the window opening and secure.
- Above the window opening, cut a strip of flaps and apply them to inner frame, then bend top to shape, so it rests out of the way.

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Version 4, INWSD, TID 4
WATER MANAGED CONSTRUCTION CHECKLIST: WATER MANAGED WALLS

WINDOW/DOOR PAN FLASHING
FOUNDATION DRAINAGE SYSTEM WITH CAPILLARY BREAKS

- Free-draining back-fill
- Perforated drainage pipe in gravel with fabric filter
- Poly vapor retarder/capillary break
- Course gravel granular drainage
- Pipe connection to granular drainage