

## Release of Version 3, Revision 02 Highlights

'Revision 02' of the Version 3 guidelines has now been posted to the [ENERGY STAR web site](#) and becomes effective on April 1, 2011. As part of this Revision, all major program documents have been updated. A Revision 02 Version Tracking Document, containing all of the specific changes in this revision, has also been created. EPA strongly encourages partners to review these documents. The most substantial revisions are summarized below:

### National Program Requirements

- The implementation timeline has been extended such that Version 2.5 is mandatory for most homes permitted after April 1, 2011, rather than January 1, 2011.
- The procedure for calculating the Benchmark Home Size and Size Adjustment Factor has been revised to exclude most basements.

### Thermal Enclosure System Rater Checklist

- The requirement for a raised-heel truss has been revised to require that for insulated ceilings with attic space above (i.e., non-cathedralized ceilings), uncompressed insulation shall extend to the inside face of the exterior wall below at the following levels: CZ 1 to 5:  $\geq$  R-21; CZ 6 to 8:  $\geq$  R-30.
- The requirement for full-depth insulation beneath attic platforms has been relaxed and now requires that the following values be met or exceeded: CZ 1 to 5:  $\geq$  R-21; CZ 6 to 8:  $\geq$  R-30.
- The revisions clarify that an alternative equivalent U-factor or total UA calculation may be used to demonstrate compliance in place of the prescriptive R-values; that the insulation levels of all non-fenestration components (i.e., ceilings, walls, floors, and slabs) can be traded off using the UA approach; and that regardless of the trade-offs, the ceiling and slab insulation R-value must meet or exceed the minimum values listed in items 4.1 through 4.3 of the checklist.
- The exceptions to the prescriptive fenestration requirements have been better aligned with those exceptions allowed in the 2009 IECC. The revisions clarify that area-weighted average values may be used to meet the U-value and SHGC requirements, that 15 square feet of fenestration is exempt from U-value and SHGC requirements, that one side-hinged opaque door assembly up to 24 square feet in area shall be exempt from the U-factor requirements, and that fenestration utilized as part of a passive solar design shall be exempt from the U-factor and SHGC requirements.
- The allowance to use Grade II insulation coupled with insulated sheathing has been extended to all surfaces (i.e., ceiling, wall, floor, rim joists, and slabs).
- A new footnote has been added that exempts up to 10% of the total exterior wall surface area from the thermal bridging requirements of section 3.1 to accommodate thermal fins, wing walls, masonry fireplaces, or similar architectural features.
- Batts that completely fill a cavity enclosed on all six sides may be used in some cases to meet the requirement for fully aligned air barriers at interior floors without the need for supports, even though some compression will occur due to the excess insulation.
- An allowance has been added to install a tabbed baffle in each bay with a soffit vent, rather than in every bay, as long as the tabbed baffle can prevent wind washing of insulation in adjacent bays.
- It has been clarified that in CZ 4 and higher, where an insulated wall separates a garage, patio, porch, or other unconditioned space from the conditioned space of the house, slab insulation shall also be installed at this interface to provide a thermal break between the conditioned and unconditioned slab.
- A home may use 16" on-center spacing for 2x6 walls in Climate Zones 1 through 4 and still utilize the advanced framing option for reducing thermal bridging.
- To minimize condensation potential a requirement has been added to insulate the top of recessed lights installed in insulated ceilings without an attic above.

### HVAC System Quality Installation Contractor Checklist

- The contractor is now required to record the number of occupants served by each HVAC system rather than the number of bedrooms.
- Design temperatures are now required to match the default values provided by ACCA Manual J or ASHRAE unless the design conditions are dictated by a code or regulation.
- When the HVAC air handler fan is used as part of a whole-house ventilation system, a controller that reduces the ventilation run time by accounting for hours when HVAC system is heating or cooling the home (e.g., Smart Cycler) may be used in place of the requirement for an ECM/ICM motor.
- In some cases, the orientation of a home that produces the largest load may be used for sizing in place of the actual orientation of the home to be built. Specifically, contractors shall perform a load calculation for

the specific house plan and orientation of the home to be qualified or, for plans with multiple options or that may be built in more than one orientation, for every option and orientation. If the loads are calculated for multiple orientations and the loads across all orientations vary by  $\leq 25\%$ , then the largest load shall be permitted to be used for equipment selection for all orientations, subject to the over-sizing limits of ACCA Manual S. Otherwise, the contractor shall group the load for each orientation into a set with  $\leq 25\%$  variation and equipment selection shall be completed for each set of loads.

#### HVAC System Quality Installation Rater Checklist

- In cases where the condenser unit is installed after the time of inspection by the Rater, the HVAC manufacturer and model numbers on installed equipment can be documented through the use of photographs provided by the HVAC Contractor after installation is complete. Additionally the Rater is exempt from verifying items 6.2 and 6.3 if the condenser unit or heat pump, respectively, is installed after the time of inspection by the rater.
- The number of occupants among all HVAC systems shall be equal to the number of bedrooms plus one, with the exception of HVAC systems noted as serving a “Temporary Occupant Load.”
- The pressure differential test described in item 2.8 has been changed to be relative to the house rather than relative to the outside to align with standard practice.
- The required Rater test to determine register airflow for bedroom pressure balancing has been removed. Instead, the Rater may use the reported airflow from the contractor’s balancing report.
- A testing exemption has been provided for exhaust fans that are integrated with microwaves.
- The limitations on net supply and net exhaust flow in Section 5 have been removed to align with proposed revisions to ASHRAE 62.2-2010.
- Duct leakage testing is now explicitly required to be completed after the installation of the air handler and grilles.
- The exemption for duct leakage testing in tight homes with ducts in conditioned space has been revised to only apply to the measurement of duct leakage to the outside, not to total duct leakage. For all homes, the total duct leakage must be measured.
- An allowance to use RESNET’s combustion safety protocols in addition to BPI’s protocols has been added.
- If unvented combustion appliances other than cooking ranges are located inside the home’s pressure boundary, the Rater must conduct RESNET’s or BPI’s combustion safety test procedure and determine that the ambient CO test results are less than 35 ppm.
- For fireplaces that are not mechanically drafted or direct-vented to outdoors, an option for assessing combustion safety has been added allowing the Rater to verify that the pressure differential is  $\leq 5$  Pa using BPI’s or RESNET’s combustion safety test procedure.

#### Water Management System Builder Checklist

- The requirements for gutters and downspouts have been relaxed and are now only required for homes that don’t have slab-on-grade foundation and do have expansive or collapsible soils.