

Highlights of “The 30% Solution 2012,” Including EC25 and Other EECC-Supported Proposals



“The 30% Solution 2012” – developed by the broad-based Energy Efficient Codes Coalition (EECC) – is a comprehensive set of improvements that will result in a 2012 International Energy Conservation Code (IECC) that’s nearly 35% more energy efficient than the 2006 IECC. Revised in the public comment phase to incorporate improvements suggested by Development Committee hearings in Baltimore, “The 30% Solution 2012” **represents the most energy efficient set of proposals before the ICC Final Action Hearings** and could produce four potential outcomes for the 2012 IECC:

- GOOD:** Support for DOE’s comprehensive **EC13** proposal **plus** the Virginia code officials’ proposal **RE4** to make the IECC the ICC’s sole residential model energy code by having the International Residential Code (IRC) require residential buildings comply with the IECC (EECC proposals also include companion IRC proposals to make IRC consistent with IECC).
- BETTER:** **EC13 plus** EECC improvements to avoid potential legal challenges.
- BEST:** EECC’s own comprehensive proposal, **EC25**, which starts with the improved version of **EC13**, then adds further improvements that substantially boost energy savings.
- BEYOND:** Individual EECC proposals that further increase energy efficiency levels and improve the code **beyond EC25**.

By voting for these elements of “The 30% Solution 2012,” ICC Governmental Member Representatives will adopt the maximum achievable efficiency improvements – all readily available – for new home construction. Other EECC public comments oppose proposals that will not improve the code and its overall energy efficiency (*such as NAHB’s EC16*).

Taken together – in both comprehensive and individual formats – “The 30% Solution 2012” addresses virtually every part of new home energy efficiency subject to code requirements – space heating and cooling, thermal envelope, duct sealing, air sealing, and hot water heating. The EECC views “The 30% Solution 2012” as the next step in a dynamic process of transforming the energy efficiency of America’s housing sector, which uses over 20% of America’s energy, 40% of its electricity and accounts for 20% of US greenhouse gas emissions. Stronger building energy codes for new homes represent one of America’s biggest opportunities to lock in energy savings at construction . . . when they are least expensive and easiest to implement.

EECC’s specific voting recommendations on all energy code proposals (both residential and commercial buildings) can be found on the EECC website, www.thirtypercentsolution.org.

Key Features of EECC’s Comprehensive EC25 Proposal

Improved Window U-Factors in Most Climate Zones: Substantially boosts energy efficiency in most climate zones by improving the insulating value of windows by lowering required fenestration U-factors (also **EC34** and **EC39**).

Improved Window SHGC in Climate Zones 1-3: Increases energy efficiency, improves comfort and reduces peak demand and cooling system sizing in climate zones 1, 2 and 3 by reducing solar gain through windows by lowering prescriptive Solar Heat Gain Coefficient (SHGC) values to 0.25 (also **EC41**).

Eliminates Exceptions to Window Efficiency: Makes new homes more energy efficient in Climate Zones 1-3 by eliminating unnecessary and overly broad IECC U-factor and IRC U-factor/ SHGC exceptions for impact-rated fenestration (also **EC35**).

Better Ceiling Insulation in Climate Zones 2-5: Improves thermal envelope efficiency – consistent with new US DOE recommendations for cost-effective ceiling insulation levels – in Climate Zones 2-5 (R-38/38/49/49) Heating and cooling energy savings are significant and long lasting (also **EC45**).

Better Wall Insulation in Climate Zones 3-4 and 6-8: Allows several builder compliance options to improve thermal envelope efficiency through improved wood-framed and mass wall insulation in Climate Zones 3 - 4 (also **EC47**) and 6-8 (also **EC48**). Energy savings are substantial and long lasting; wall insulation is difficult to retrofit later.

Better Foundation Insulation in Colder Climates: Improves thermal envelope efficiency through improved foundation insulation (i.e., basements and crawlspaces) in colder climates (R-15/19). Energy savings are significant and long lasting; foundation insulation is harder to install after new construction is complete (also **EC50**).

More Effective Requirements for Air Tightness Testing and Inspection of Insulation Installation and Air Sealing: Generally requires air leakage testing with leakage shown to be less than five air changes per hour (ACH50) conducted by a party approved by the code official with a written report of results; includes limited exceptions for multi-family buildings. Eliminates visual inspection requirements for air tightness where satisfactory testing is completed. Requires insulation installation inspection and specifies the details of that inspection (also **EC81**).

Duct Leakage Control. Sets total duct leakage at a maximum of 4 cfm with an exception of 8 cfm where air handler and all ducts are located within conditioned space. Requires R-4 insulation for supply ducts insulated within conditioned space. Requires that testing be conducted by a party approved by the code official —the testing party must verify the results with a signed written report. Prohibits the use of building cavities as ducts (also **EC103**).

Other Key Individually Proposed EEC Efficiency Measures

Fenestration SHGC: Establishes a maximum SHGC of 0.40 in climate zone 4 (**EC42**).

Ceiling Insulation: Increases ceiling R-value requirement in climate zones 7-8 to R-60 (**EC46**).

More Accurate U-Factor Calculations: Requires U-factors of opaque assemblies to be calculated using a series-parallel calculation, using actual insulation and framing fractions or a default fraction; allows code official to require documentation of actual framing fractions and inspection by a third party (**EC57**).

Sunrooms: Improves fenestration U-factors for thermally isolated sunrooms that enclose conditioned space; clarifies scope of exceptions to sunroom requirements (**EC68**).

Window U-Factor and SHGC Trade-off Caps: Establishes enhanced fenestration U-factor and SHGC trade-off cap for IECC and identical cap for IRC to ensure reasonable windows are used in trade-off calculations to reduce energy use and peak demand, improve comfort and control condensation (**EC96**).

Zoning/Thermostats: Requires one thermostat for each heating/cooling zone; for all homes of 2000 square feet or more, requires one heating and cooling zone per story; requires separate return and supply; requires individual system or automatic damper for each zone (**EC100**).

Programmable Thermostats: Extends programmable thermostat requirement to all equipment types that can utilize programmable thermostats; establishes new table for default temperature set-points; and requires heat pump recovery system for programmable thermostat models installed for heat pump systems (**EC101**).

Service Water Heating: Puts limits on distribution piping lengths from each water heater and requires improved insulation on water distribution piping (**EC114**).

HVAC Oversizing: Prescribes sizing requirements and establishes limitations on HVAC equipment over-sizing (**EC121**).

Fireplace Systems: Prohibits continuously burning pilot lights in certain fireplace systems (**EC125**).

Thermal Distribution System Efficiency: Requires ducts and air handler to be installed in conditioned space, with exceptions where a hydronic or ductless thermal distribution system is installed or an energy recovery ventilation system is installed with a tested air leakage of 3 ACH50 (or 4 ACH50 for multifamily) (**EC126**).

Performance Path Enhancements: Several EEC proposals are intended to improve the alternate compliance path using the performance methodology (see **EC142** for doors and **EC145** for shade fractions).

For the latest information on the **30% Solution 2012** visit the EEC'S web site:

www.thirtypercentsolution.org