

ABOUT

“THE 30% SOLUTION 2012” and EC-25 – “30PLUS”

2009/2010 I-CODE DEVELOPMENT CYCLE
FINAL LIST OF EECC PROPOSALS – Submitted
June 1, 2009



Major EECC Proposals

<p><u>EC-25/“30Plus” – EECC’s Comprehensive 20-25% Savings Package.</u> Boosts energy efficiency of the 2009 IECC by 20-25% and the 2006 IECC by more than 30%. Incorporates many (<i>but not all</i>) of EECC’s individual energy savings proposals, including:</p> <ol style="list-style-type: none">1) Improved envelope measures (i.e., better fenestration/insulation) in most climate zones;2) Comprehensive air sealing, testing, and insulation inspection;3) Improved sealing and testing requirements for ducts;4) Requirements for efficient hot water service distribution system or equipment; and5) Requirements for reduced envelope infiltration along with energy recovery ventilation, or else more efficient HVAC equipment.	<p>Amends Both IRC Energy & IECC</p>
<p><u>RE-1 – Permanently Printing IECC as an Appendix to IRC Chapter 11 & Automatically Updating IRC to Equal IECC (<i>Appendix Option</i>).</u> Reprints <i>IECC</i> as a new Appendix at the end of the <i>IRC</i> and automatically updates IRC Chapter 11 for IECC improvements. This proposal will result in:</p> <ol style="list-style-type: none">1) A Single Consistent Model Energy Code.2) Model Energy Code Development by a Balanced Committee of Energy Experts.3) Automatically updated appendix would ensure perfect consistency between IRC and IECC4) Streamlined Enforcement.5) Shorter, Less Complicated Code Hearings.	<p>Amends IRC Energy Only</p>
<p><u>RE-2 – Achieving a Single Model Energy Code by Substituting the IECC for IRC’s Chapter 11 (<i>Substitution Option</i>).</u> Reprints the relevant sections of the <i>IECC</i> as Chapter 11 of the <i>IRC</i> and automatically updates Chapter 11 to reflect improvements to the <i>IECC</i>. Several states already substitute the IECC for IRC Chapter 11 and the <i>IRC</i> already references the <i>IECC</i> for the performance path. This proposal will result in:</p> <ol style="list-style-type: none">1) A Single Consistent Model Energy Code.2) Model Energy Code Development by a Balanced Committee of Energy Experts.3) Streamlined Enforcement.4) Shorter, Less Complicated Code Hearings	<p>Amends IRC Energy Only</p>

EECC Individual Proposals

<p><u>EC-18 – Continuous Pilot Light Ban for Gas Lighting.</u> Reduces standby energy losses from continuously burning pilot lights on gaslights; Follows similar bans for pool heaters (IECC) and for residential gas cooking equipment (proposed by US DOE).</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-20 – Placeholder for Mandatory IECC Requirements.</u> Allows Development Committee to add mandatory IECC requirements and includes lighting Section 404.1 as mandatory.</p>	<p>Amends Only IECC</p>
<p><u>EC-23 – Signed Building Certificates.</u> Improves the usability and accuracy of builder certificates by including more information and by requiring responsible parties to certify the accuracy of information contained in the certificate.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-34 – Improving Window U-Factors to Mirror Actual Practice (CZ 1-3).</u> Substantially boosts energy efficiency in climate zones 1-3 by lowering fenestration U-factors to more closely reflect actual windows used in these zones; Makes the code more efficient by closing significant gap in trade-off compliance paths and performance path calculations.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-35 – Eliminating Window Efficiency Exceptions.</u> Eliminates unnecessary IECC U-factor & IRC U-factor/SHGC exceptions for impact rated fenestration. The exceptions are too broad and waste an opportunity to make new homes more energy efficient in Climate Zones 1-3.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-39 – Improved Window U-Factors (CZ Marine 4, CZ 5-8).</u> Boosts window insulating value by improving fenestration U-factor requirement to 0.32 for colder climate zones.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-40 – Better Skylight Efficiency.</u> Eliminates separate skylight U-factors; allows compliance with overall fenestration U-factors on a weighted average basis.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-41 – Improved Window SHGC (CZ 1/2/3).</u> Increases energy efficiency, improves comfort and reduces peak demand & cooling system sizing in climate zones 1/2/3 by lowering prescriptive Solar Heat Gain Coefficient (SHGC) values to 0.25 (<i>based on success of identical values for commercial buildings in both 2006 & 2009 IECC</i>).</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-42 – Improved Window SHGC (CZ 4).</u> Reduces peak electricity demand by adopting 0.40 Solar Heat Gain Coefficient (SHGC) requirement in climate zone 4 (except Marine). There is substantial precedent: Most recent DOE/EPA Energy Star qualification criteria requires maximum 0.40 SHGC in North-Central zone (roughly Climate Zone 4); ASHRAE 90.1-2007 has identical requirement for both high rise residential and commercial construction</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-45 – Better Ceiling Insulation (CZ 2-5).</u> Improves thermal envelope efficiency – consistent with new US DOE recommendations for cost-effective <i>ceiling</i> insulation levels – in Climate Zones 2-5 (R-38/38/49/49 and U-F .030/.030/.026/.026). Heating and cooling energy savings are significant and long lasting.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-46 – Better Ceiling Insulation (CZ 7/8).</u> Improves thermal envelope efficiency in Climate Zones 7-8 (R-60 and U-F .023), consistent with new US DOE recommendations for cost-effective <i>ceiling</i> insulation levels. Savings in total heating and cooling energy are significant, long lasting.</p>	<p>Amends Both IRC Energy & IECC</p>

<p><u>EC-47 – Better Wall Insulation (CZ 3/4).</u> Allows several builder compliance options to improve thermal envelope efficiency through improved wood & mass wall insulation in Climate Zones 3/4. Energy savings are substantial and long lasting; wall insulation is difficult to add after new construction is complete.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-48 – Better Wall Insulation (CZ 6/7/8).</u> Allows several builder compliance options to improve thermal envelope efficiency through improved wood & mass wall insulation in Climate Zones 6/7/8. Energy savings are substantial and long lasting; wall insulation is difficult to add after new construction is complete.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-50 – Better Foundation Insulation (colder climates).</u> Improves thermal envelope efficiency through improved <i>foundation</i> insulation (i.e., basements & crawlspaces) in colder climates (R-15/19 and U-F .050/.055). Energy savings are significant and long lasting; foundation insulation is harder to install after new construction is complete.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-57 – Simplified and Improved Opaque Wall Efficiency Calculations.</u> Makes calculations between opaque wall R-Values and U-Values consistent and transparent with explicit standard reference design, proposed design framing fractions, and other envelope component layers used in energy calculations. Proposal uses values based on ASHRAE (where possible) and further supplements them with Rescheck, HERS and Washington State Energy code information.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-68 – More Efficient Sunrooms.</u> Improves the energy efficiency of sunrooms by specifying that exceptions with code requirements apply only to sunrooms with thermal isolation and tightens the requirements in those exceptions.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-81 – Inspections/SLA Standard Critical to Effective Air Sealing, Leakage Prevention & Insulation.</u> Boosts likelihood of air leakage reduction and proper insulation installation by:</p> <ol style="list-style-type: none"> 1) Requiring both testing (with a written report) & a more limited visual inspection; 2) Allowing code officials to require independent testing & inspection with written reports; 3) Reducing code officials' burden by eliminating inspection requirements obviated by the test; 4) Replacing air changes per hour (ACH) with the more accurate and consistent Specific Leakage Area (SLA) as the standard; improving the testing protocol & requiring better air leakage performance; and 5) Separating insulation installation inspection criteria from the air barrier inspection criteria to allow for each to be required or exempted based on the whether testing is conducted. 	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-96 – Low-E Windows Through U-Factor/SHGC Caps.</u> Ensures that effective, efficient glazing is being installed in all eight climate zones by: 1) updating IECC fenestration U-factor and SHGC trade-off limits to reflect improvements in prescriptive U-factors and SHGC in the 2009 IECC and IRC; 2) clarifying the IECC language, and 3) adding the IECC provision to the IRC. Fenestration maximums (caps) encourage the use of cost-effective low-e windows; serve important role in improved residential comfort & energy efficiency.</p>	<p>Amends Only IECC</p>
<p><u>EC-100 – Stabilized Home Heating/Air Conditioning with HVAC Zoning.</u> Improves overall comfort and minimizes overcooled and overheated areas by requiring separate HVAC zone control in homes that have combinations of floor area and building height that makes them susceptible to inefficient space conditioning.</p>	<p>Amends Both IRC Energy & IECC</p>
<p><u>EC-101 – Extending Application of Programmable Thermostats.</u> Builds on programmable thermostat requirements in 2009 code cycle by applying the same requirements to all equipment types that can utilize programmable thermostats. Changes default temperature set-points based on ENERGY STAR program designed to encourage users to save</p>	<p>Amends Both IRC Energy & IECC</p>

energy by using a lower HVAC equipment settings.	
<p><u>EC-103 – More Effective Duct Insulation, Sealing & Testing.</u> Ensures homeowner comfort and energy savings from properly designed, constructed, insulated and sealed ducts by substantially improving duct insulation, sealing and testing requirements. Among other items, this proposal:</p> <ol style="list-style-type: none"> 1) Reduces allowed total duct leakage by 50% if ducts are outside conditioned space; 2) Requires a less stringent duct tightness test for ducts in conditioned space to ensure that conditioned air is delivered to its intended destination; 3) Requires R-4 duct insulation when supply ducts are located in conditioned space to address condensation and house durability issues; 4) Eliminates the use of building framing cavities as ducts; 5) Establishes requirements for a written test report, to increase and simplify enforceability and accountability; 6) Allows code officials to require an independent party to conduct the test; 7) Simplifies and makes consistent testing requirements by reducing the four possible tests to a single post-construction total duct leakage test; 8) Requires final testing of the ducts when construction is complete to ensure that the home owner is receiving a home that meets the intent of the code. 	Amends Both IRC Energy & IECC
<p><u>EC-114 – Improved Hot Water Efficiency.</u> Requires improvement of EITHER the hot water distribution system efficiency OR the water heating equipment.</p>	Amends Both IRC Energy & IECC
<p><u>EC-121 – Proper HVAC Sizing.</u> Sets size requirements on installed equipment, based primarily on limits in ACCA Manual S limits, which state:</p> <ol style="list-style-type: none"> 1) Cooling-only equipment should be sized so that the total cooling capacity does not exceed the total cooling load by more than 15%. 2) If heat pump equipment (air-source or water-source) is installed in a warm or moderate climate, the total cooling capacity should not exceed the total cooling load by more than 15%. 3) If heat pump equipment (air-source or water-source) is installed in a cold climate (where heating costs are a primary concern), the total cooling capacity can exceed the total cooling load by as much as 25%. 4) Furnace and boiler oversizing is not recommended because comfort may be compromised when a furnace or boiler short-cycles. The output capacity of the furnace or boiler may be greater than the design load, but no more than 40% larger than the design heating load. 	Amends Both IRC Energy & IECC
<p><u>EC-125 – Continuous Pilot Light Ban for Fireplaces.</u> Reduces standby energy losses from continuously burning pilot lights on fireplaces; Follows similar bans for pool heaters (IECC) and for residential gas cooking equipment (proposed by US DOE).</p>	Amends Both IRC Energy & IECC
<p><u>EC-126 – Trade-Up: More Efficient HVAC or Energy Recovery Ventilation Equipment.</u> Creates a trade-up, where a home can achieve significant energy savings either through tested air leakage improvements with energy recovery ventilation equipment or through having higher efficiency equipment.</p>	Amends Both IRC Energy & IECC
<p><u>EC-130 – More High-Efficiency Lighting.</u> Requires all new homes to start with 60% efficient lighting – regardless of compliance method. The cost of requiring 60% of lighting to be high efficacy is minimal and a smart improvement for all homes.</p>	Amends Both IRC Energy & IECC
<p><u>EC-142 – Accounting for All Fenestration Efficiency in Home Design.</u> Simplifies and tightens the performance path by including all fenestration — including doors, vertical glazing, and skylights — in a single calculation.</p>	Amends Only IECC

<p><u>EC-144 – Ensuring HVAC Electric Resistance System Efficiency by Linking Correct Footnotes with the Correct System.</u> Ensures that consistent performance path modeling is conducted for electric resistance heating systems.</p>	<p>Amends Only IECC</p>
<p><u>EC-145 – Correcting Interior Shade Fraction Flaw (Performance Path).</u> Sets the interior shade fraction at the same 0.90 level for both summer and winter to eliminate an IECC assumption that incorrectly skews the analysis of heating and cooling.</p>	<p>Amends Only IECC</p>
<p>EECC Administrative Proposals</p>	
<p><u>ADM-9 – Clearer Blueprint & Construction Document Information.</u> Enhances code compliance and eases energy code enforcement by:</p> <ol style="list-style-type: none"> 1)Improving the clarity of information required on construction documents, 2)Allowing code officials to require paperless document submittal, and 3)Allowing code officials to require a separate summary of how the proposed building will meet all of the requirements under this code. 	<p>Amends Both IRC Energy & IECC</p>
<p><u>ADM-24 – Life-cycle Savings is IECC Intent.</u> States that effective use and “conservation” of energy over “the life of the building” is the intent of the International Energy Conservation Code.</p>	<p>Amends Only IECC</p>
<p><u>ADM-30 – Low Energy Buildings.</u> Updates current low-energy building exemption – set in 1998 – to reflect goal of reducing all building energy use by 30%.</p>	<p>Amends Only IECC</p>