

# Proposed Changes

May 19, 2014

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# TG-5: Energy Efficiency

## Chapter 7: Energy Efficiency

Proposal ID TBD	LogID 5219	701.1 Mandatory requirements (Energy Efficiency)																																
<b>Submitter:</b>	Eric Lacey, RECA																																	
<b>Requested Action:</b>	Add new as follows																																	
<b>Proposed Change:</b>	<p><b>701.4.3.5 Fenestration</b> NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in Table 701.4.3.5. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.</p> <p style="text-align: center;"><b>Table 701.4.3.5</b> <b>Fenestration Specifications</b></p> <table border="1"> <thead> <tr> <th>Climate Zone</th> <th>Window/Ext. Door U-Factor</th> <th>Window/Ext. Door SHGC</th> <th>Skylight and TDD U-Factor</th> <th>Skylight and TDD SHGC</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.50</td> <td>0.25</td> <td>0.75</td> <td>0.30</td> </tr> <tr> <td>2</td> <td>0.40</td> <td>0.25</td> <td>0.65</td> <td>0.30</td> </tr> <tr> <td>3</td> <td>0.35</td> <td>0.25</td> <td>0.55</td> <td>0.30</td> </tr> <tr> <td>4</td> <td>0.35</td> <td>0.40</td> <td>0.55</td> <td>0.40</td> </tr> <tr> <td>5-8</td> <td>0.32</td> <td>Any</td> <td>0.55</td> <td>Any</td> </tr> </tbody> </table>			Climate Zone	Window/Ext. Door U-Factor	Window/Ext. Door SHGC	Skylight and TDD U-Factor	Skylight and TDD SHGC	1	0.50	0.25	0.75	0.30	2	0.40	0.25	0.65	0.30	3	0.35	0.25	0.55	0.30	4	0.35	0.40	0.55	0.40	5-8	0.32	Any	0.55	Any	<b>Mandatory</b>
Climate Zone	Window/Ext. Door U-Factor	Window/Ext. Door SHGC	Skylight and TDD U-Factor	Skylight and TDD SHGC																														
1	0.50	0.25	0.75	0.30																														
2	0.40	0.25	0.65	0.30																														
3	0.35	0.25	0.55	0.30																														
4	0.35	0.40	0.55	0.40																														
5-8	0.32	Any	0.55	Any																														
<b>Reason:</b>	<p>This proposal improves ICC-700 in two important ways: First, it updates the fenestration requirements of the 2015 ICC-700 to match those of the 2015 IECC. Because prescriptive residential fenestration requirements in the 2012 and 2015 IECC are identical, the table will mesh well with jurisdictions that adopt either version of the IECC. Second, it applies the baseline not only to the prescriptive compliance path, but also to the performance path. The 2008 NGBS applied a mandatory set of baseline fenestration requirements to both the performance path and the prescriptive path. As the baseline was improved in the 2012 version of the NGBS, the mandatory baseline was moved to Section 703.1.6, which applies only to the prescriptive compliance option. Code-compliant fenestration is crucial to energy efficiency, regardless of the other measures implemented in Chapter 7. The NGBS currently permits considerable flexibility in the use of fenestration, allowing design professionals to use fenestration to reduce lighting loads, improve the indoor environment, and to provide a better connection between occupants and the outdoors. Regardless of the amount of glazing, however, there must be some minimal requirements for efficiency. Even the most efficient windows currently available do not achieve the same thermal resistance as a wall with very minimal insulation. Without restricting design freedom, this proposal restores the fenestration requirements to Section 701 to ensure that the requirements specified in the base code (in this case, the 2015 IECC) will apply to both the prescriptive and performance alternatives, maintaining at least a minimum level of fenestration efficiency.</p>																																	
<b>TG Recommendation (AS or AM or D):</b>																																		
<b>Modification of Proposed Change:</b>																																		
<b>TG Reason:</b>																																		
<b>TG Vote:</b>																																		

Proposal ID TBD	LogID 5213	701.1 Mandatory requirements (Energy Efficiency)
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>701.1 Mandatory requirements.</b> The building shall comply with the IECC and with either Section 702 (Performance Path) or Section 703 (Prescriptive Path). Items listed as "mandatory" in Section 701.4 apply to both the Performance and Prescriptive Paths.	
<b>Reason:</b>	This proposal helps ensure that buildings certified as "green" meet, at a minimum, the national model energy code for residential construction, the IECC. It is likely that many homes built to ICC-700 will exceed the requirements of the ICC, and for these homes, this requirement will not require any additional effort. However, this proposal would help prevent a scenario in which a home is certified as "green," yet fails a reasonable minimum energy code. States are required, under federal law, to review the provisions of each new edition of the IECC found by DOE to be more efficient than the previous edition. As a result, the vast majority of states, counties, and cities, have adopted the IECC as the residential energy code. ICC-700 should be positioned as a natural outgrowth of the existing residential energy code, not a stand-alone standard with potentially conflicting requirements. This proposal will also make ICC-700 more adoptable and will enhance the Standard's credibility at the state and local level. We believe that including an IECC backstop in all compliance paths will make it much easier for jurisdictions to allow ICC-700 certification as an acceptable compliance option to the IECC by removing some of the guesswork and subjectivity involved with IECC Section R102.1.1 Above Code Programs. If the home has already been certified as IECC-compliant as part of the ICC-700 certification process, this will significantly reduce the burden on the local code official to evaluate the energy efficiency qualities of the home.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5299	701.1.1 Minimum Performance Path requirements
<b>Submitter:</b>	aaron gary, US-EcoLogic	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	...exceed baseline performance of ICC 2012 IECC by 5%...  Note: Prescriptive Path would need to be updated to align with 2012 IECC + 5% accordingly so that both paths have equal balance.	
<b>Reason:</b>	As 2012 IECC adoption continues across the country updating to 2012 IECC becomes important so NGBS 2015 remains an "above code" program. 2012 IECC does present challenges though for many constituents. The incremental cost of improvement above each successive code (2006 to 2009 to 2012) increase substantially also because of the diminishing return of upgrades as the baseline increases. Moving to 5% in lieu of 15% responds to this reality such that 2015 NGBS remains a viable option.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

<b>Proposal ID TBD</b>	<b>LogID 5215</b>	<b>701.1.1 Minimum Performance Path requirements</b>
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<b>Submitter:</b>	Eric Lacey, RECA
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<b>Requested Action:</b>	Revise as follows
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<b>Proposed Change:</b>	<p><b>701.1.1 Minimum Performance Path requirements.</b> A building complying with Section 702 shall exceed the baseline minimum performance required by the <del>ICC 2015</del> <u>2015</u> IECC by <del>45</del> <u>10</u> percent and shall include a minimum of two practices from Section 704.</p>	
	<p><b>702.2.2 Energy cost performance analysis.</b> Energy cost savings levels above the <del>ICC 2015</del> IECC are determined through an analysis consistent with Section R405 of the IECC that includes improvements in building envelope, air infiltration, heating system efficiencies, cooling system efficiencies, duct sealing, water heating system efficiencies, lighting, and appliances.</p>	POINTS
	(1) <del>45</del> <u>10</u> percent	30
	(2) <del>30</del> <u>20</u> percent	60
	(3) <del>40</del> <u>30</u> percent	80
	(4) <del>50</del> <u>40</u> percent	100

<b>Reason:</b>	<p>This proposal updates the reference to the IECC in the performance path with the latest edition of the IECC and revises the percentage improvement required for various point levels. It also standardizes the method used for modeling energy cost by referencing the IECC performance path methodology (Section R405). This will simplify compliance verification by only requiring a single calculation for energy cost savings for the IECC and the NGBS. It will also apply a consistent baseline to both codes to ensure that the NGBS maintains pace with the IECC. The NGBS should not lag behind the national model energy code in its energy conservation requirements. While it is important to allow considerable flexibility in a voluntary, “above-code” program, great care must be taken to ensure that it remains above-code. This proposal does that by making the 2015 IECC performance path the new baseline. By updating the current reference to the 2009 IECC to the 2015 IECC, the NGBS will capture the second half of a roughly 30% improvement in the IECC since 2006, and will make the 2015 NGBS consistent by referencing the 2015 edition of the IECC. Although we would not oppose leaving the percentage improvements beyond code as they are in Section 702.2.2, we are proposing that the first level be reduced to a 10% improvement over the base code. This is generally consistent with the approach used in Section 605.1.1 of the 2012 IGCC, which requires the building thermal envelope to exceed the requirements of the IECC by 10%.</p>
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<b>TG Recommendation (AS or AM or D):</b>	
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<b>Modification of Proposed Change:</b>	
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<b>TG Reason:</b>	
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<b>TG Vote:</b>	
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Proposal ID TBD	LogID 5116	701.1.1 Minimum Performance Path requirements
<b>Submitter:</b>	Jawanda Jackson, Michigan State University	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p>There are very few green building rating systems that require a monitoring process before certification is awarded. Monitoring tools are often expensive and require specific skill sets to analyze. I think that a credit that awarded a additional points and more importantly, a special seal of recognition in addition to certification could address the need for monitoring and reporting actual performance for energy and water usage.</p> <p>This option could be especially attractive to local governments as a condition for incentives or the maximum amount where varied levels are awarded. This would allow owners to monitor their energy and water usages as well.</p>	
<b>Reason:</b>	There is a need to ensure that green buildings are performing at the energy and water reduction levels that they have been designed or model.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 754	701.1.2 Minimum Prescriptive Path Requirements
<b>Submitter:</b>	Matthew Dobson, Vinyl Siding Institute	
<b>Requested Action:</b>		
<b>Proposed Change:</b>	703.1.2.2 (3) Exterior rigid insulationed <u>sheathing or siding ...</u>	
<b>Reason:</b>	Change for further clarity.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5216	701.1.3 Alternative bronze level compliance
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>701.1.3 Alternative bronze level compliance.</b> As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Qualified Home or <del>that meets all mandatory practices of Chapter 7 and demonstrates a 10% improvement over either compliance with the 2015 2012 IECC or Chapter 11 of the 2012 2015 IRC is deemed to meet all mandatory practices of Chapter 7 and</del> achieves the bronze level for Chapter 7. The buildings achieving compliance under Section 701.1.3 are not eligible for achieving a rating level above bronze.</p>	
<b>Reason:</b>	<p>This proposal acknowledges that if the new baseline for ICC-700 is the 2015 IECC or IRC Chapter 11, the Alternative Bronze Level Compliance option must be updated to reflect a meaningful improvement over the base code. Because the 2012 and 2015 IECC are already more energy efficient than the 2009 IECC, we believe that a 10% improvement over the code would put ICC-700 on the “leading edge” of energy conservation, while still allowing considerable flexibility to code users. The proposal also applies the mandatory requirements of Chapter 7 to the alternative bronze compliance option to ensure that key requirements of ICC-700 still apply. The mandatory requirements were selected because they are fundamental measures and practices for all modern, efficient homes. Every home certified to ICC-700 should meet these basic requirements.</p>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5118	701.4 Mandatory practices
<b>Submitter:</b>	Marie Nisson, TexEnergy/US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p><b>701.4.1.3 HVAC System set up.</b> Performance of the heating and/or cooling system is verified by the HVAC contractor in accordance with manufacturer’s instructions including all of the following:</p> <p><u>(1) Start up procedure is performed in accordance with the manufacturer’s instructions</u></p> <p><u>(2) Refrigerant charge is verified by the super heat and/or sub cooling method</u></p> <p><u>(3) Burner is set to fire at input level listed on nameplate</u></p> <p><u>(4) Air handler setting/fan speed is set in accordance with manufacturer’s instructions</u></p>	
<b>Reason:</b>	Recommend moving the following from 704.4.2 to mandatory practice	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5119	701.4 Mandatory practices
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	<u>701.4.1.4 HVAC Controls.</u> Use controls that can start and stop the system under at least two different time schedules per week.	
Reason:	A programmable thermostat promotes more efficient use of heating and cooling equipment. It is a mandatory requirement in ASHRAE 90.1 and 2012 Residential Energy code for forced air systems	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5084	701.4 Mandatory practices
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	701.4.1.X HVAC systems installation, and documentation. Space heating and cooling systems are to be installed documented in accordance with ACCA QI 5-2010	
Reason:	Other places in the document the same requirements are either awarded points or are mandatory.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5300	701.4 Mandatory practices
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	Add 701.4.2.4. Duct Leakage Entire HVAC duct system...is tested by a third party...and maximum leakage is equal to or less than 6% of design flow.	
Reason:	Many multifamily projects that follow NGBS certification are not currently required to do duct testing, if the are 4 stories or taller. Duct testing is not required by Commercial IECC (which these projects will follow) nor is it an input for ASHRAE 90.1 modeling (which is how Commercial projects should be modeled per the IECC). By having duct testing called out only in the Prescriptive Path only and not as a mandatory for all projects divergent certification requirements now become the rule within the protocol.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		



Proposal ID TBD	LogID 5085	701.4.1.2 Radiant and hydronic space heating
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Add wording: 701.4.1.2 <b>Radiant and hydronic space heating</b> . Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed <u>installed, and documented</u> , using industry-approved guidelines and standards (e.g., ACCA Manual j, AHRI I=B=R, ACCA 5 QI-2010, or an accredited design professional's and manufacturer's recommendation.	
Reason:	Other places in the document the same requirements are either awarded points or are mandatory. Recommend awarding points based on verification since the QI 5 represents the HVAC industry's recognized minimum requirements.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5086	701.4.2.2 Supply ducts
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	701.4.2.2 <b>Supply and Return Ducts</b> . Building cavities are not to be used as supply <u>and Return</u> Ducts.	
Reason:	This change is the only way that the return air path can be designed properly and the only way to meet duct insulation requirements for points in the duct insulation sections (it appears to be required in table 703.3.3 on page 58). Using pan joists and building cavities for return ducting is not a recommended practice where airflow control is desired for balancing an HVAC system. Additionally, Duct leakage can be measured and repaired but cavity space leakage has no remedy.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5302	701.4.3.2 Air sealing and insulation
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Delete and substitute as follows	
Proposed Change:	Revise (1) Testing Option to align with IECC 2012 requirements with different targets for Residential (ACH)and Commercial, i.e. 4+ story multifamily, (CFM per square foot on enclosure). Delete (2) Visual Inspection Option.	
Reason:	(2) Visual Inspection is not allowed under IECC 2012 for Residential buildings but is allowed for Commercial. Requiring testing for both levels the playing field. IECC does have different targets for Residential and Commercial spaces however. Reflecting this makes sense.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5312	701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	Craig Conner, Building Quality	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p>701.4.3.2 Air sealing and insulation. Grade <del>2 and</del> 3 insulation is not permitted.</p> <p>703.1.2.1 Grade 1 <del>and Grade 2</del> insulation installations is required in accordance with the following:  ...[no changes to items 1 to 4]</p> <p><del>703.1.2.2 Grade 1 installation is in accordance with the following:...</del>[no changes to items 1 to 6 except renumbering]</p> <p>(7) Where properly installed ICFs, SIPs, <u>spray foam</u> and other wall systems that provide integral integral insulation are deemed in compliance with Grade 1 installation installation requirements.</p> <p><del>(8) Grade 1 insulation meets or exceeds all requirements for Grade 2 insulation.</del></p> <p>Delete without substitution:  <del>703.1.2.3</del></p>	
<b>Reason:</b>	As a basic requirement, the NGBS should require insulation to be installed correctly. To my knowledge there are no insulation manufacturers that direct their insulation to be install as poorly as Grade 2 insulation. Therefore the NGBS should not allow it. As homes get progressively more energy efficient, the major flaws allowed by Grade 2 insulation significantly undercut the energy savings.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5325	701.4.3.2 Air sealing and insulation.
<b>Submitter:</b>	Robert Hill, Home Innovation Research Labs	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p>(1) Testing option. Building envelope tightness and insulation installation is considered acceptable when air leakage is less than seven air changes per hour (ACH) when tested with a blower door at a pressure of <del>33.5</del> <u>1.04</u> psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:</p>	
<b>Reason:</b>	The value of 33.5 psf does not equate to 50 PA. If psf is to be used the value should be 1.04 psf for equivalence to 50 PA.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5120	701.4.4 High-efficacy lighting
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	<p><b>701.4.4 High-efficacy lighting.</b> Achieve minimum lighting efficiencies through one of the following:</p> <p>(1) A minimum of 50 percent of the total hard-wired lighting fixtures or the bulbs in those fixtures qualify as high efficacy or equivalent</p> <p>(2) In-unit lighting power density, measured in watts/square foot, is 1.1 or less</p>	
Reason:	Provide a lighting power density alternative for mid-rise, multifamily construction	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5272	702.1 Point allocation (Performance Path)																																																						
Submitter:	Neil Leslie, Gas Technology Institute																																																							
Requested Action:	Add new as follows																																																							
Proposed Change:	<p><b>702.3 Annual direct and indirect CO<sub>2</sub>e emissions.</b> CO<sub>2</sub>e emissions calculations shall be performed in accordance with Sections 702.3.1 and 702.3.2. The CO<sub>2</sub>e emissions associated with the proposed design shall be less than or equal to the CO<sub>2</sub>e emissions associated with the standard reference design.</p> <p><b>702.3.1 Electricity.</b> Emissions associated with use of electricity shall be calculated by converting the electricity used by the building at the electric utility meter or measured point of delivery to MWhs and multiplying by the CO<sub>2</sub>e conversion factor in Table 702.3.1 based on the EPA eGRID Sub-region in which the building is located.</p> <p><b>702.3.2 Other Fuels.</b> Emissions associated with the use of fuels other than electricity shall be calculated by the converting the fuel energy used by the building and its site at the utility meter or point of delivery to the site to MWh and multiplying by the emission factors in Table 702.3.2.</p> <p><b>TABLE 702.3.1 ELECTRICITY EMISSION RATE BY EPA eGRID SUB-REGION</b></p> <table border="1"> <thead> <tr> <th><u>eGRID 2012 SUB-REGION ACRONYM</u></th> <th><u>eGRID 2012 SUB-REGION NAME</u></th> <th><u>NON-BASELOAD CO<sub>2</sub>e RATE (lbs/MWh)</u></th> </tr> </thead> <tbody> <tr><td><u>AKGD</u></td><td><u>ASCC Alaska Grid</u></td><td><u>1647</u></td></tr> <tr><td><u>AKMS</u></td><td><u>ASCC Miscellaneous</u></td><td><u>1826</u></td></tr> <tr><td><u>ERCT</u></td><td><u>ERCOT All</u></td><td><u>1449</u></td></tr> <tr><td><u>FRCC</u></td><td><u>FRCC All</u></td><td><u>1579</u></td></tr> <tr><td><u>HIMS</u></td><td><u>HICC Miscellaneous</u></td><td><u>2046</u></td></tr> <tr><td><u>HIOA</u></td><td><u>HICC Oahu</u></td><td><u>2046</u></td></tr> <tr><td><u>MORE</u></td><td><u>MRO East</u></td><td><u>2135</u></td></tr> <tr><td><u>MROW</u></td><td><u>MRO West</u></td><td><u>2432</u></td></tr> <tr><td><u>NYLI</u></td><td><u>NPCC Long Island</u></td><td><u>1678</u></td></tr> <tr><td><u>NEWE</u></td><td><u>NPCC New England</u></td><td><u>1402</u></td></tr> <tr><td><u>NYCW</u></td><td><u>NPCC NYC/Westchester</u></td><td><u>1408</u></td></tr> <tr><td><u>NYUP</u></td><td><u>NPCC Upstate NY</u></td><td><u>1584</u></td></tr> <tr><td><u>RFCE</u></td><td><u>RFC East</u></td><td><u>1874</u></td></tr> <tr><td><u>RFCM</u></td><td><u>RFC Michigan</u></td><td><u>2084</u></td></tr> <tr><td><u>RFCW</u></td><td><u>RFC West</u></td><td><u>2243</u></td></tr> <tr><td><u>SRMW</u></td><td><u>SERC Midwest</u></td><td><u>2463</u></td></tr> <tr><td><u>SRMV</u></td><td><u>SERC Mississippi Valley</u></td><td><u>1504</u></td></tr> </tbody> </table>		<u>eGRID 2012 SUB-REGION ACRONYM</u>	<u>eGRID 2012 SUB-REGION NAME</u>	<u>NON-BASELOAD CO<sub>2</sub>e RATE (lbs/MWh)</u>	<u>AKGD</u>	<u>ASCC Alaska Grid</u>	<u>1647</u>	<u>AKMS</u>	<u>ASCC Miscellaneous</u>	<u>1826</u>	<u>ERCT</u>	<u>ERCOT All</u>	<u>1449</u>	<u>FRCC</u>	<u>FRCC All</u>	<u>1579</u>	<u>HIMS</u>	<u>HICC Miscellaneous</u>	<u>2046</u>	<u>HIOA</u>	<u>HICC Oahu</u>	<u>2046</u>	<u>MORE</u>	<u>MRO East</u>	<u>2135</u>	<u>MROW</u>	<u>MRO West</u>	<u>2432</u>	<u>NYLI</u>	<u>NPCC Long Island</u>	<u>1678</u>	<u>NEWE</u>	<u>NPCC New England</u>	<u>1402</u>	<u>NYCW</u>	<u>NPCC NYC/Westchester</u>	<u>1408</u>	<u>NYUP</u>	<u>NPCC Upstate NY</u>	<u>1584</u>	<u>RFCE</u>	<u>RFC East</u>	<u>1874</u>	<u>RFCM</u>	<u>RFC Michigan</u>	<u>2084</u>	<u>RFCW</u>	<u>RFC West</u>	<u>2243</u>	<u>SRMW</u>	<u>SERC Midwest</u>	<u>2463</u>	<u>SRMV</u>	<u>SERC Mississippi Valley</u>	<u>1504</u>
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<u>SRSO</u>	<u>SERC South</u>	<u>1864</u>
<u>SRTV</u>	<u>SERC Tennessee Valley</u>	<u>2160</u>
<u>SRVC</u>	<u>SERC Virginia/Carolina</u>	<u>1923</u>
<u>SPNO</u>	<u>SPP North</u>	<u>2451</u>
<u>SPSO</u>	<u>SPP South</u>	<u>1818</u>
<u>CAMX</u>	<u>WECC California</u>	<u>1294</u>
<u>NWPP</u>	<u>WECC Northwest</u>	<u>1698</u>
<u>RMPA</u>	<u>WECC Rockies</u>	<u>2088</u>
<u>AZNM</u>	<u>WECC Southwest</u>	<u>1473</u>
<u>None</u>	<u>Not Included</u>	<u>1826</u>

**TABLE 702.3.2 OTHER FUELS EMISSION RATE**

<u>Fuel</u>	<u>CO2e lb/MWh</u>
<u>Propane</u>	<u>600</u>
<u>Fuel Oil (residual)</u>	<u>751</u>
<u>Fuel Oil (distillate)</u>	<u>706</u>
<u>Coal</u>	<u>836</u>
<u>Gasoline</u>	<u>689</u>
<u>Natural Gas</u>	<u>483</u>
<u>Wood and Wood Waste</u>	<u>64</u>
<u>Agricultural Biomass</u>	<u>64</u>
<u>District Chilled Water</u>	<u>332</u>
<u>District Steam</u>	<u>812</u>
<u>District Hot Water</u>	<u>767</u>
<u>Other fuels not specified in this table</u>	<u>1826</u>

**Reason:**

This proposal aligns with the IgCC CO2e compliance requirement. In the 2012 edition of the IgCC primary energy and CO2 equivalents were the metrics chosen to measure building compliance in the performance pathway to ensure that design choices do not inadvertently increase the building's impact on greenhouse gas emissions. CO2e emissions can be based on regional values (here EPA's eGrid for electricity) or national averages for the conversion of all fuel types to a common measurement unit. While there are advantages and disadvantages to each method, the regional method for electricity is more appropriate for this code because it better represents the actual CO2e emissions associated with electricity consumption of the building being constructed in the place where it is constructed. CO2e emissions can be represented based on the average regional generation profile or a non-baseload profile. The non-baseload conversion factors used here better reflect the actual generation impacts avoided by site energy savings proposed in the performance compliance option. ASHRAE Standard 105-2014 uses the regional non-baseload model for electricity because the non-baseload factors reflect the actual displaced generation fuel mix and associated emissions. The baseload and peak (non-baseload) generation fuel profiles will be different for most regions –more natural gas during peak, for example – and the impacts of a reduction in the building energy use will affect that non-baseload generation. For other fuels, Standard 105-2014 uses a national average value that fairly represents the emissions associated with consumption of those fuels in the building. Values for proposed Table 703.1 are from the following peer-reviewed ASHRAE paper published in January 2014: Leslie, N. and Marek Czachorski. 2014. Options for Determining Marginal Primary Energy and Greenhouse Gas Emission Factors (NY-14-C057). ASHRAE Transactions, Vol. 120, pt. 1. Atlanta: American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc. Values for Table 7.3.2 are derived from ASHRAE Standard 189.1-2011 addendum an, with wood and biomass values from the wood industry assuming wood and biomass are considered renewable energy forms. The value for other fuels is the same as the "not included in eGRID" electricity factor in Table 702.3.1 to align with this proposal non-baseload methodology as well as the Standard 189.1 methodology.

**TG Recommendation (AS or AM or D):**

**Modification of Proposed Change:**

**TG Reason:**

**TG Vote:**

**Submitter:** Neil Leslie, Gas Technology Institute

**Requested Action:** Revise as follows

**Proposed Change:** 702.2 Energy ~~cost~~ performance levels

702.2.1 ICC IECC analysis. Energy efficiency features are implemented to achieve energy cost or source energy performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC, Section R405, ~~or ICC IECC Section 506.2 through 506.5~~, applied as defined in the ICC IECC, is required. For heating systems, the standard reference design shall be an air source heat pump. For service water heating, the standard reference design shall be and electric resistance storage water heater. For cooling systems, the standard reference design shall be an air cooled split system air conditioner. Source energy conversion factors for electricity shall be in accordance with Table 7.2.1. Source energy conversion factors for other fuels shall be in accordance with Table 7.2.2.

702.2.2 Energy ~~cost~~ performance analysis. Energy ~~cost~~ savings levels above the ICC IECC are determined through an analysis that includes improvements in building envelope, air infiltration, heating system efficiencies, cooling system efficiencies, duct sealing, water heating system efficiencies, lighting, and appliances.

**7.2.1 ELECTRICITY GENERATION ENERGY CONVERSION FACTORS BY EPA eGRID SUB-REGION**

<u>eGRID 2012 SUB-REGION ACRONYM</u>	<u>eGRID 2012 SUB-REGION NAME</u>	<u>NON-BASELOAD ENERGY CONVERSION FACTOR</u>
<u>AKGD</u>	<u>ASCC Alaska Grid</u>	<u>3.41</u>
<u>AKMS</u>	<u>ASCC Miscellaneous</u>	<u>3.27</u>
<u>ERCT</u>	<u>ERCOT All</u>	<u>2.89</u>
<u>FRCC</u>	<u>FRCC All</u>	<u>2.99</u>
<u>HIMS</u>	<u>HICC Miscellaneous</u>	<u>3.61</u>
<u>HIOA</u>	<u>HICC Oahu</u>	<u>3.53</u>
<u>MORE</u>	<u>MRO East</u>	<u>3.21</u>
<u>MROW</u>	<u>MRO West</u>	<u>3.63</u>
<u>NYLI</u>	<u>NPCC Long Island</u>	<u>3.57</u>
<u>NEWE</u>	<u>NPCC New England</u>	<u>2.80</u>
<u>NYCW</u>	<u>NPCC NYC/Westchester</u>	<u>3.10</u>
<u>NYUP</u>	<u>NPCC Upstate NY</u>	<u>2.82</u>
<u>RFCE</u>	<u>RFC East</u>	<u>3.11</u>
<u>RFCM</u>	<u>RFC Michigan</u>	<u>3.18</u>
<u>RFCW</u>	<u>RFC West</u>	<u>3.26</u>
<u>SRMW</u>	<u>SERC Midwest</u>	<u>3.46</u>
<u>SRMV</u>	<u>SERC Mississippi Valley</u>	<u>3.15</u>
<u>SRSO</u>	<u>SERC South</u>	<u>3.05</u>
<u>SRTV</u>	<u>SERC Tennessee Valley</u>	<u>3.23</u>
<u>SRVC</u>	<u>SERC Virginia/Carolina</u>	<u>3.14</u>
<u>SPNO</u>	<u>SPP North</u>	<u>3.69</u>
<u>SPSO</u>	<u>SPP South</u>	<u>3.31</u>
<u>CAMX</u>	<u>WECC California</u>	<u>2.99</u>
<u>NWPP</u>	<u>WECC Northwest</u>	<u>3.05</u>
<u>RMPA</u>	<u>WECC Rockies</u>	<u>3.41</u>
<u>AZNM</u>	<u>WECC Southwest</u>	<u>2.89</u>
<u>None</u>	<u>Not Included</u>	<u>3.15</u>

**TABLE 7.2.2 OTHER FUEL ENERGY CONVERSION FACTORS**

<u>FUEL TYPE</u>	<u>ENERGY CONVERSION FACTOR</u>
Natural Gas	1.09
Fuel Oil	1.19
LPG	1.15
Purchased Hot Water	1.35
Purchased Steam	1.45
Other	1.1

**Reason:** Aligns with performance path provisions of IgCC and IECC. Includes fuel-agnostic single mechanical system baselines for maximum consumer choice and equitable societal benefits. Source energy can be based on regional values (here EPA’s eGrid) or national averages for the conversion of all fuel types to a common measurement unit. While there are advantages and disadvantages to each method as noted in ASHRAE Standard 105-2014 "Standard Methods of Determining, Expressing and Comparing Building Energy Performance and Greenhouse Gas Emissions", the regional method is more appropriate for this code because it better represents the actual primary energy use of the building being constructed in the place where it is constructed. Similarly, primary energy savings can be represented based on the average regional generation profile or a non-baseload profile. The non-baseload conversion factors used here better reflect the actual generation impacts avoided by site energy savings in the performance compliance option. ASHRAE Standard 105-2014 is using the regional non-baseload model because the non-baseload factors reflect the actual displaced generation fuel mix. The baseload and peak generation fuel profiles will be different for most regions –more natural gas during peak, for example – and the impacts of a reduction in the building energy use will affect that non-baseload generation. Values for Table 7.2.1 are from the following peer-reviewed ASHRAE paper published in January 2014. Leslie, N. and Marek Czachorski. 2014. Options for Determining Marginal Primary Energy and Greenhouse Gas Emission Factors (NY-14-C057). ASHRAE Transactions, Vol. 120, pt. 1. Atlanta: American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc.

<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

<b>Proposal ID TBD</b>	<b>LogID 5247</b>	<b>702.2.1 ICC IECC analysis</b>
------------------------	-------------------	----------------------------------

<b>Submitter:</b>	Jeremy Velasquez, US-EcoLogic
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	Provide explicit clarification for approved modeling softwares and methods for energy modeling (to address different building types and scenarios)  1. 3 stories and below is REM RATE. 2. 4 Story+ is ASHRAE 90.1 - 2007 (CARRIER HAP)  Are there situations other than alternative bronze that we can use REM RATE for 4 or 5 story buildings?
<b>Reason:</b>	Right now the protocol references code for modeling, but this leads to confusion and may not lead to correct and appropriate energy modeling. 1. For example - We understand that REM RATE models are appropriate for LOW-RISE, but sometimes we have 4-5 story projects that would typically require an ASHRAE 90.1-2007 model - based on our interpretation of commercial code, but RESNET, ENERGYSTAR and other entities allow REM RATE modeling for up to 5 stories.
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

Proposal ID TBD	LogID 5301	702.2.2 Energy cost performance analysis
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	Add clarification through protocol or VRG that reflects modeling requirements of Commercial IECC.	
Reason:	Though modeling per IECC 506 is mentioned all Comments and Notes currently are written to reflect 405 modeling requirements. 4+ stories multifamily projects should be modeled using ASHRAE 90.1 per IECC 506 and include all building spaces, not residential space only. NGBS 2015 protocol should reflect this such that multifamily projects can flow more easily through certification.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5276	703.1.2 Insulation installation						
Submitter:	Shelly Leonard, Green Space Consultants LLC							
Requested Action:	Revise as follows							
Proposed Change:	<table> <thead> <tr> <th>Grade</th> <th>Points</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><del>7</del> <u>10</u></td> </tr> <tr> <td>2</td> <td><del>4</del> <u>5</u></td> </tr> </tbody> </table>		Grade	Points	1	<del>7</del> <u>10</u>	2	<del>4</del> <u>5</u>
Grade	Points							
1	<del>7</del> <u>10</u>							
2	<del>4</del> <u>5</u>							
Reason:	Current points seem underweighted in relation to impact on this section.							
TG Recommendation (AS or AM or D):								
Modification of Proposed Change:								
TG Reason:								
TG Vote:								

Proposal ID TBD	LogID 5058	703.1.2.1 Grade 1 and Grade 2 installations
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Delete without substitution	
Proposed Change:	delete the practice	
Reason:	Since 703.1.1 requires grade 1 and it contains a table for points by climate zone and % improvement in UA, it seems illogical that a home could get more points in 703.1.2.1 than for a 20% improvement in climate zone 1 or 10% improvement in climate zone 6-8. Perhaps the approach should be re-do table 703.1.1(b) to cover grade 1 when no US improvement has been demonstrated.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5048	703.1.5 Building envelope leakage																					
Submitter:	Carl Seville, Seville Consulting																						
Requested Action:	Revise as follows																						
Proposed Change:	Expand table 703.1.5 to include points for Envelope Leakage Ratio at 50 Pa (ELR50) as an alternate to ACH50. An example of comparable points for climate zone 3 is shown below as an example: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th><u>Max.</u></th> <th><u>ELR50</u></th> <th><u>Point</u></th> </tr> <tr> <th><u>ACH50</u></th> <th></th> <th><u>CZ3</u></th> </tr> </thead> <tbody> <tr> <td>5</td> <td>0.33</td> <td>3</td> </tr> <tr> <td>4</td> <td>0.28</td> <td>5</td> </tr> <tr> <td>3</td> <td>0.23</td> <td>6</td> </tr> <tr> <td>2</td> <td>0.18</td> <td>8</td> </tr> <tr> <td>1</td> <td>0.13</td> <td>8</td> </tr> </tbody> </table>		<u>Max.</u>	<u>ELR50</u>	<u>Point</u>	<u>ACH50</u>		<u>CZ3</u>	5	0.33	3	4	0.28	5	3	0.23	6	2	0.18	8	1	0.13	8
<u>Max.</u>	<u>ELR50</u>	<u>Point</u>																					
<u>ACH50</u>		<u>CZ3</u>																					
5	0.33	3																					
4	0.28	5																					
3	0.23	6																					
2	0.18	8																					
1	0.13	8																					
Reason:	ACH50 is a less accurate measurement than ELR and benefits larger buildings over smaller ones. Units below 1200 SF frequently have much higher ACH50 measurements than less well sealed larger buildings. An excel file showing equivalent leakage at both measurements will be sent via email.  <b>[SEE ATTACHMENTS TO PUBLIC COMMENTS FOR ADDITIONAL INFORMATION]</b>																						
TG Recommendation (AS or AM or D):																							
Modification of Proposed Change:																							
TG Reason:																							
TG Vote:																							

Proposal ID TBD	LogID 5220	703.1.6.1 Fenestration Specifications																								
Submitter:	Eric Lacey, RECA																									
Requested Action:	Revise as follows																									
Proposed Change:	<table border="1" style="width: 100%;"> <tr> <td style="width: 80%;"><b>703.1.6 Fenestration</b></td> <td style="width: 20%;"></td> </tr> <tr> <td> <p><b>703.1.6.1</b> NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in <del>are in accordance with</del> Table 703.1.6.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.</p> <p style="text-align: center;"><b>Table 703.1.6.1</b> <b>Fenestration Specifications</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Climate Zones</th> <th>U-Factor</th> <th>SHGC</th> </tr> <tr> <th colspan="2">Windows and Exterior Doors (maximum certified ratings)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><del>0.65</del> <u>0.50</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>2</td> <td><del>0.65</del> <u>0.40</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>3</td> <td><del>0.40</del> <u>0.35</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>4 to 8</td> <td>0.35</td> <td><del>Any</del> <u>0.40</u></td> </tr> <tr> <td>5 to 8</td> <td><u>0.32</u></td> <td><del>Any</del></td> </tr> </tbody> </table> </td> <td style="text-align: center; vertical-align: middle;"><b>Mandatory</b></td> </tr> </table>		<b>703.1.6 Fenestration</b>		<p><b>703.1.6.1</b> NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in <del>are in accordance with</del> Table 703.1.6.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.</p> <p style="text-align: center;"><b>Table 703.1.6.1</b> <b>Fenestration Specifications</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Climate Zones</th> <th>U-Factor</th> <th>SHGC</th> </tr> <tr> <th colspan="2">Windows and Exterior Doors (maximum certified ratings)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><del>0.65</del> <u>0.50</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>2</td> <td><del>0.65</del> <u>0.40</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>3</td> <td><del>0.40</del> <u>0.35</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>4 to 8</td> <td>0.35</td> <td><del>Any</del> <u>0.40</u></td> </tr> <tr> <td>5 to 8</td> <td><u>0.32</u></td> <td><del>Any</del></td> </tr> </tbody> </table>	Climate Zones	U-Factor	SHGC	Windows and Exterior Doors (maximum certified ratings)		1	<del>0.65</del> <u>0.50</u>	<del>0.30</del> <u>0.25</u>	2	<del>0.65</del> <u>0.40</u>	<del>0.30</del> <u>0.25</u>	3	<del>0.40</del> <u>0.35</u>	<del>0.30</del> <u>0.25</u>	4 to 8	0.35	<del>Any</del> <u>0.40</u>	5 to 8	<u>0.32</u>	<del>Any</del>	<b>Mandatory</b>
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<p><b>703.1.6.1</b> NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in <del>are in accordance with</del> Table 703.1.6.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.</p> <p style="text-align: center;"><b>Table 703.1.6.1</b> <b>Fenestration Specifications</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Climate Zones</th> <th>U-Factor</th> <th>SHGC</th> </tr> <tr> <th colspan="2">Windows and Exterior Doors (maximum certified ratings)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><del>0.65</del> <u>0.50</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>2</td> <td><del>0.65</del> <u>0.40</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>3</td> <td><del>0.40</del> <u>0.35</u></td> <td><del>0.30</del> <u>0.25</u></td> </tr> <tr> <td>4 to 8</td> <td>0.35</td> <td><del>Any</del> <u>0.40</u></td> </tr> <tr> <td>5 to 8</td> <td><u>0.32</u></td> <td><del>Any</del></td> </tr> </tbody> </table>	Climate Zones	U-Factor	SHGC	Windows and Exterior Doors (maximum certified ratings)		1	<del>0.65</del> <u>0.50</u>	<del>0.30</del> <u>0.25</u>	2	<del>0.65</del> <u>0.40</u>	<del>0.30</del> <u>0.25</u>	3	<del>0.40</del> <u>0.35</u>	<del>0.30</del> <u>0.25</u>	4 to 8	0.35	<del>Any</del> <u>0.40</u>	5 to 8	<u>0.32</u>	<del>Any</del>	<b>Mandatory</b>					
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	Skylights and TDDs (maximum certified ratings)	
<del>1 and 2</del>	0.75	0.30
<del>2-3</del>	0.65	0.30
<del>3 4 to 8</del>	<del>0.60</del> 0.55	<del>Any</del> <u>0.30</u>
<u>4</u>	<u>0.55</u>	<u>0.40</u>
<u>5 to 8</u>	<u>0.55</u>	<u>Any</u>

<b>Reason:</b>	<p>This proposal updates the minimum fenestration requirements for the prescriptive path from the 2009 IECC to the 2015 IECC values. The 2015 IECC residential fenestration requirements, which are identical to the 2012 IECC requirements, represent a moderate improvement over the 2009 IECC in efficiency for all climate zones. We note also that the 2012 and 2015 IECC provide an exception that allows skylight SHGC to meet a slightly higher SHGC (0.30) than vertical fenestration (0.25) in climate zones 1-3. We have made that exception part of the base requirement. The U.S. Department of Energy determined that the 2012 IECC, including the upgraded fenestration requirements, represents an energy efficiency improvement as compared to the 2009 IECC. See 77 Fed. Reg. 29322 (May 17, 2012). DOE also found the 2012 IECC residential requirements to be a cost-effective upgrade in every state it studied, and in the vast majority of cases, the cost savings were substantial. See <a href="http://www.energycodes.gov/development/residential/iecc_analysis/">http://www.energycodes.gov/development/residential/iecc_analysis/</a>. Efficient fenestration, in particular, is highly cost-effective because it often requires simply selecting a climate-appropriate frame or piece of glass, and the net cost increase, if any, is generally very small. The NGBS should at least keep pace with the IECC requirements, and should go beyond the requirements wherever practicable. This simple upgrade to the fenestration table will bring consistency between the 2015 NGBS and the 2015 IECC and will yield improved comfort and substantial energy and cost savings to homeowners over the useful lifetime of the green home.</p>
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

Proposal ID TBD	LogID 5297	703.1.6.1 Fenestration Specifications
<b>Submitter:</b>	Jeff Inks, Window & Door Manufacturers Assn.	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	Revise the minimum fenestration specifications for the 2015 NGBS to the 2012 IECC specifications consistent with the 2012 NGBS based on the 2009 IECC.	
<b>Reason:</b>	This is to update the mandatory minimum fenestration requirements of the 2015 NGBS in accordance with the basis for the 2012 minimum requirements based on the 2009 IECC	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

**Submitter:** Jeff Inks, Window & Door Manufacturers Assn.

**Requested Action:** Revise as follows

**Proposed Change:**

**Table 703.1.6.2(a)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	POINTS
1	<del>0.60</del> 0.40	<del>0.27</del> 0.25	<del>0.70</del> 0.60	<del>0.30</del> 0.28	<del>40</del> TBD
2	<del>0.60</del> 0.40	<del>0.27</del> 0.25	<del>0.70</del> 0.60	<del>0.30</del> 0.28	<del>5</del> TBD
3	0.350	0.3025	0.573	0.300.28	<del>6</del> TBD
4	0.320	0.40	0.553	0.4035	<del>2</del> TBD
5	<del>0.30</del> 0.27 <sup>a,b</sup>	Any	<del>0.55</del> 0.50	Any	<del>5</del> TBD
6	<del>0.30</del> 0.27 <sup>a,b</sup>	Any	<del>0.55</del> 0.50	Any	<del>5</del> TBD
7	<del>0.30</del> 0.27 <sup>a,b</sup>	Any	<del>0.55</del> 0.50	Any	<del>5</del> TBD
8	<del>0.30</del> 0.27 <sup>a,b</sup>	Any	<del>0.55</del> 0.50	Any	<del>5</del> TBD

a.) For Climate Zones 5-8 an equivalent energy performance is permitted based on either (1) windows with a U-factor = 0.31 and an SHGC = 0.35, or, a U-factor = 0.32 and an SHGC = 0.40 or (2) fenestration meeting the ENERGY STAR Equivalent Energy Performance in Eligibility Criteria Version 6.0.  
Effective January 1, 2016 in accordance

**Reason:** In accordance with convention set for the 2012 NGBS, this first level of enhanced fenestration is based on ENERGY STAR Version 6.0, effective 2015 & 2016 respectively.

**TG Recommendation (AS or AM or D):**

**Modification of Proposed Change:**

**TG Reason:**

**TG Vote:**

Proposal ID TBD	LogID 5292	703.1.6.1 Fenestration Specifications
<b>Submitter:</b>	Thomas Culp, Birch Point Consulting LLC	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<u>Dynamic glazing shall be permitted to satisfy the SHGC requirements of Table 703.1.6.1 provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4, and the dynamic glazing is automatically controlled to modulate the amount of solar gain into the space in multiple steps. Dynamic glazing shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted. Dynamic glazing is not required to comply with this section when both the lower and higher labeled SHGC already comply with the requirements of Table 703.1.6.1.</u>	
<b>Reason:</b>	On behalf of Dr. Helen Sanders, SAGE Electrochromics, Inc. Consistency with IECC. This adds the same language from the 2015 IECC clarifying how to determine compliance for dynamic glazing. Dynamic glazing offers the unique ability to reversibly change properties such as SHGC and VT to optimize energy performance, daylighting, and glare based on changing situations during the day, and over different seasons. As such, dynamic glazing represents a key technology on the route to zero energy buildings. The NFRC label for dynamic glazing lists two values for SHGC, representing the range over which the SHGC varies. It was previously not clear how this label should be used to determine compliance with maximum or minimum SHGC requirements, so this language was added to the 2015 IECC, including provisions for dynamic range (ratio of the high to low SHGC) and automatic control to ensure optimum performance. This should be a straightforward proposal for consistency with the IECC, but please contact me if you would like further information.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5293	703.1.6.2 Enhanced Fenestration Specifications
<b>Submitter:</b>	Thomas Culp, Birch Point Consulting LLC	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<u>Dynamic glazing shall be permitted to satisfy the SHGC requirements of Tables 703.1.6.2(a), 703.1.6.2(b), and 703.1.6.2(c) provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4, and the dynamic glazing is automatically controlled to modulate the amount of solar gain into the space in multiple steps. Dynamic glazing shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted. Dynamic glazing is not required to comply with this section when both the lower and higher labeled SHGC already comply with the requirements of Tables 703.1.6.2(a), 703.1.6.2(b), and 703.1.6.2(c).</u>	
<b>Reason:</b>	On behalf of Dr. Helen Sanders, SAGE Electrochromics Inc. Consistency with IECC. This adds the same language from the 2015 IECC clarifying how to determine compliance for dynamic glazing. Dynamic glazing offers the unique ability to reversibly change properties such as SHGC and VT to optimize energy performance, daylighting, and glare based on changing situations during the day, and over different seasons. As such, dynamic glazing represents a key technology on the route to zero energy buildings. The NFRC label for dynamic glazing lists two values for SHGC, representing the range over which the SHGC varies. It was previously not clear how this label should be used to determine compliance with maximum or minimum SHGC requirements, so this language was added to the 2015 IECC, including provisions for dynamic range (ratio of the high to low SHGC) and automatic control to ensure optimum performance. This should be a straightforward proposal for consistency with the IECC, but please contact me if you would like further information.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

**Proposal ID TBD      LogID 5296      703.1.6.2 Enhanced Fenestration Specifications**

<b>Submitter:</b>	Jeff Inks, Window & Door Manufacturers Assn.																																																						
<b>Requested Action:</b>	Revise as follows																																																						
<b>Proposed Change:</b>	<p style="text-align: center;"><b>Table 703.1.6.2(b)</b> <b>Enhanced Fenestration Specifications</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Climate Zones</th> <th>U-Factor Windows &amp; Exterior Doors</th> <th>SHGC Windows &amp; Exterior Doors</th> <th>U-Factor Skylights &amp; TDD's</th> <th>SHGC Skylights &amp; TDD's</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td><del>0.40</del> 0.38</td> <td>0.25</td> <td>0.50</td> <td>0.30</td> <td><del>13</del> TBD</td> </tr> <tr> <td>2</td> <td><del>0.40</del> 0.38</td> <td>0.25</td> <td>0.50</td> <td>0.30</td> <td><del>9</del> TBD</td> </tr> <tr> <td>3</td> <td>0.30</td> <td>0.25</td> <td>0.50</td> <td>0.35</td> <td><del>9</del> TBD</td> </tr> <tr> <td>4</td> <td>0.28</td> <td>0.40</td> <td>0.50</td> <td>0.40</td> <td>4 TBD</td> </tr> <tr> <td>5</td> <td>0.25</td> <td>Any</td> <td><del>0.50</del> 0.49</td> <td>Any</td> <td><del>8</del> TBD</td> </tr> <tr> <td>6</td> <td>0.25</td> <td>Any</td> <td><del>0.50</del> 0.49</td> <td>Any</td> <td><del>9</del> TBD</td> </tr> <tr> <td>7</td> <td>0.25</td> <td>Any</td> <td><del>0.50</del> 0.49</td> <td>Any</td> <td><del>9</del> TBD</td> </tr> <tr> <td>8</td> <td>0.25</td> <td>Any</td> <td><del>0.50</del> 0.49</td> <td>Any</td> <td>9</td> </tr> </tbody> </table>	Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's		1	<del>0.40</del> 0.38	0.25	0.50	0.30	<del>13</del> TBD	2	<del>0.40</del> 0.38	0.25	0.50	0.30	<del>9</del> TBD	3	0.30	0.25	0.50	0.35	<del>9</del> TBD	4	0.28	0.40	0.50	0.40	4 TBD	5	0.25	Any	<del>0.50</del> 0.49	Any	<del>8</del> TBD	6	0.25	Any	<del>0.50</del> 0.49	Any	<del>9</del> TBD	7	0.25	Any	<del>0.50</del> 0.49	Any	<del>9</del> TBD	8	0.25	Any	<del>0.50</del> 0.49	Any	9
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<b>TG Vote:</b>																																																							

**Proposal ID TBD      LogID 5277      703.1.6.2 Enhanced Fenestration Specifications**

<b>Submitter:</b>	Shelly Leonard, Green Space Consultants LLC
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	<p>Table 703.1.6.2(a) Climate Zone    Points 2                    <del>5</del> <u>6</u> 4                    <del>2</del> <u>4</u></p> <p>Table 703.1.6.2(b) Climate Zone    Points 1                    <del>13</del> <u>12</u> 4                    4    <u>6</u></p> <p>Table 703.1.6.2(c) Climate Zone    Points 4                    <del>5</del> <u>7</u></p>
<b>Reason:</b>	Points seem under/over weighted in climate zones listed. Streamlines points allocation. All zones not listed and other chart data remain as is.
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

**Submitter:** Eric Lacey, RECA

**Requested Action:** Revise as follows

**Proposed Change:**

**703.1.6.2** The NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in accordance with Table 703.1.6.2(a), (b), or (c). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

**Table 703.1.6.2(a)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
<u>1 and 2</u>	<u>0.60 0.40</u>	<u>0.27 0.25</u>	<u>0.70 0.60</u>	<u>0.30 0.28</u>	10
<u>2</u>	<u>0.60</u>	<u>0.27</u>	<u>0.70</u>	<u>0.30</u>	<u>5</u>
<u>3</u>	<u>0.35 0.30</u>	<u>0.30 0.25</u>	<u>0.57 0.53</u>	<u>0.30 0.28</u>	6
<u>4</u>	<u>0.32 0.30</u>	0.40	<u>0.55 0.53</u>	<u>0.40 0.35</u>	2
<u>5 to 8</u>	<u>0.30 0.27</u>	Any	<u>0.55 0.50</u>	Any	5
<u>6</u>	<u>0.30</u>	Any	<u>0.55</u>	Any	<u>5</u>
<u>7</u>	<u>0.30</u>	Any	<u>0.55</u>	Any	<u>5</u>
<u>8</u>	<u>0.30</u>	Any	<u>0.55</u>	Any	<u>5</u>

Per Table 703.1.6.2(a)

**Reason:** This proposal is intended to update table (a) of the Enhanced Fenestration Specifications tables in Section 703.1.6.2. The NGBS currently has three enhanced fenestration tables, including table (a) based on current Energy Star (Version 5.0) requirements and two tables that go beyond Energy Star. This proposal would address only table (a) and update it from the previous Energy Star requirements to the values that will go into effect in 2015-2016 (Version 6.0). These values are moderate improvements over every climate zone in the current Table 703.1.6.2(a) that have been developed by the U.S. EPA. The proposal also simplifies the requirements by creating a single simplified table (a) with four climate zone categories, consistent with the Energy Star requirements.

**TG Recommendation (AS or AM or D):**

**Modification of Proposed Change:**

**TG Reason:**

**TG Vote:**

**Submitter:** Eric Lacey, RECA

**Requested Action:** Revise as follows

**Proposed Change:** 703.1.6.2 The NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in ~~are in accordance with~~ Table 703.1.6.2(a), (b), or (c). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

**Table 703.1.6.2(a)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
1	0.60	0.27	0.70	0.30	10
2	0.60	0.27	0.70	0.30	5
3	0.35	0.30	0.57	0.30	6
4	0.32	0.40	0.55	0.40	2
5	0.30	Any	0.55	Any	5
6	0.30	Any	0.55	Any	5
7	0.30	Any	0.55	Any	5
8	0.30	Any	0.55	Any	5

**Table 703.1.6.2(b)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
1	0.40	0.25	0.50	0.30	13
2	0.40	0.25	0.50	0.30	9
3	0.30	0.25	0.50	0.35	9
4	0.28	0.40	0.50	0.40	4
5	0.25	Any	0.50	Any	8
6	0.25	Any	0.50	Any	9
7	0.25	Any	0.50	Any	9
8	0.25	Any	0.50	Any	9

**Table 703.1.6.2(c)  
Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
4	0.25	0.40	0.40	0.40	5
5	0.22	Any	0.40	Any	9

**Reason:** This proposal is one of two options to simplify and improve the Enhanced Fenestration Specifications tables in Section 703.1.6.2 by modifying or eliminating tables (b) or (c). (A separate proposal has been submitted to update table (a).) This proposal focuses on tables (b) and (c) and does not address table (a). The NGBS currently has three enhanced fenestration tables, including a table based on current Energy Star (Version 5.0) requirements and two tables that go beyond Energy Star – one of which only applies to two climate zones. The three enhanced options are unnecessarily complicated. This proposal would eliminate tables (b) and (c) as unnecessary and confusing and focus any enhanced fenestration on the Energy Star level under table (a).

**TG Recommendation (AS or AM or D):**

**Modification of Proposed Change:**

**TG Reason:**

**TG Vote:**

**Submitter:** Eric Lacey, RECA

**Requested Action:** Revise as follows

**Proposed Change:**

**703.1.6.2** The NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in accordance with Table 703.1.6.2(a), ~~or (b), or (c).~~ Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m<sup>2</sup>) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

Per Table 703.1.6.2(a) or Table 703.1.6.2(b) ~~or Table 703.1.6.2(c)~~

**Table 703.1.6.2(a)**  
**Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
1	0.60	0.27	0.70	0.30	10
2	0.60	0.27	0.70	0.30	5
3	0.35	0.30	0.57	0.30	6
4	0.32	0.40	0.55	0.40	2
5	0.30	Any	0.55	Any	5
6	0.30	Any	0.55	Any	5
7	0.30	Any	0.55	Any	5
8	0.30	Any	0.55	Any	5

**Table 703.1.6.2(b)**  
**Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
1 to 3	<del>0.40</del> 0.30	<del>0.25</del> 0.23	<del>0.50</del> 0.45	<del>0.30</del> 0.25	13
<del>2</del>	0.40	0.25	0.50	0.30	9
<del>3</del>	0.30	0.25	0.50	0.35	9
4	0.28	0.40 0.30	<del>0.50</del> 0.45	<del>0.40</del> 0.30	4
5 to 8	0.25	Any	<del>0.50</del> 0.40	Any	8
<del>6</del>	0.25	Any	0.50	Any	9
<del>7</del>	0.25	Any	0.50	Any	9
<del>8</del>	0.25	Any	0.50	Any	9

**Table 703.1.6.2(c)**  
**Enhanced Fenestration Specifications**

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
4	0.25	0.40	0.40	0.40	5
5	0.22	Any	0.40	Any	9

**Reason:** This proposal is one of two options to simplify and improve the Enhanced Fenestration Specifications tables in Section 703.1.6.2 by modifying or eliminating tables (b) or (c). (Note that another proposal has been submitted to update table (a). This proposal focuses on (b) and (c) and does not address table (a).) The NGBS currently has three enhanced fenestration tables, including a table based on current Energy Star (Version 5.0) requirements and two tables that go beyond Energy Star. The three enhanced options are unnecessarily complicated. This proposal would modify table (b) and eliminate (c) as unnecessary. This proposal would modify table (b) to reduce it to three climate zone categories, with improvements that push the envelope on today's fenestration technologies. Our proposed table (b) is at least as stringent as the current table (b), and in most cases is about 10-25% more stringent than the current table.

TG Recommendation (AS or AM or D):	
Modification of Proposed Change:	
TG Reason:	
TG Vote:	

Proposal ID TBD	LogID 5289	703.2.2 Furnace and/or boiler efficiency					
Submitter:	Neil Leslie, Gas Technology Institute						
Requested Action:	Add new as follows						
Proposed Change:	<b>GREEN BUILDING PRACTICES</b>						<b>POINTS</b>
	(5) Electric Furnace						
	<b>Table 703.2.2(5) Electric Furnace</b>						
	<b>AFUE</b>	<b>Climate Zone</b>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6-8</u>	
	<b>POINTS</b>						
<u>=100% AFUE</u>	<u>-2</u>	<u>-3</u>	<u>-6</u>	<u>-9</u>	<u>-12</u>	<u>-12</u>	
Reason:	To provide a prescriptive option for electric resistance furnaces that aligns with IECC Section R405 electric heating system minimum performance requirements that are the basis of the performance requirements in Section 702.						
TG Recommendation (AS or AM or D):							
Modification of Proposed Change:							
TG Reason:							
TG Vote:							

Proposal ID TBD	LogID 5087	703.2.3 Heat pump heating efficiency					
Submitter:	Donald Prather, ACCA						
Requested Action:	Revise as follows						
Proposed Change:	703.2.3 Heat pump heating efficiency is in accordance with Table 703.2.3. Refrigerant charge is verified for compliance with manufacturer's instructions <i>utilizing methods approved in ACCA 5 QI-2010.</i>						
Reason:	Every OEM approved method is included or accepted in the QI 5 instruction set. Later in the document this instruction is contradicted by selecting superheat and subcooling methods. ACCA will also recommend a similar change there to clarify instructions provided in this standard.						
TG Recommendation (AS or AM or D):							
Modification of Proposed Change:							
TG Reason:							
TG Vote:							



Proposal ID TBD	LogID 5088	703.2.4 Cooling efficiency
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	703.2.4 Cooling efficiency is in accordance with Table 703.2.3. Refrigerant charge is verified for compliance with manufacturer's instructions <i>utilizing methods approved in ACCA 5 QI-2010.</i>	
Reason:	Every OEM approved method is included or accepted in the QI 5 instruction set. Later in the document this instruction is contradicted by selecting superheat and subcooling methods. ACCA will also recommend a similar change there to clarify instructions provided in this standard.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5089	703.2.5 Water source cooling and heating efficiency
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Add the following wording to table 703.2.5: <i>Refrigerant charge is verified for compliance with manufacturer's instructions utilizing methods approved in ACCA 5 QI-2010.</i>	
Reason:	For consistency with previous sections, these systems are charged systems too.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5090	703.2.6 Ground source heat pump installation
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	<div style="border: 1px solid black; padding: 5px;">           Add the following wording to table 703.2.6: <i>Refrigerant charge is verified for compliance with manufacturer's instructions utilizing methods approved in ACCA 5 QI-2010.</i> </div>	
Reason:	For consistency with previous sections, these systems are charged systems too.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5070	703.3.4 Duct Leakage
<b>Submitter:</b>	Philip LaRocque, LaRocque Business Management Services, LLC	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	703.3.4 Duct Leakage. The entire central HVAC duct system, including air handlers and register boots, is tested by a third party for total leakage at a pressure differential of 0.1 inches w.g. (25 Pa) and maximum air leakage is equal to or less than 8 percent of the system design flow rate.	
<b>Reason:</b>	This change reflects the ENERGY STAR version 3 (later addendums) changes from 6% to 8% of the system design flow rate. This should have been changed in the 2012 NGBS but was not if we care to be consistent with ENERGY STAR in this regard.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 769	703.4 Water heating design, equipment, and installation
<b>Submitter:</b>	Gary Klein, Affiliated International Management, LLC	
<b>Requested Action:</b>		
<b>Proposed Change:</b>	<p>New Sections</p> <p>Demand recirculation system is installed in single family units.  Points awarded per circulation zone    1  Maximum points per building                2</p> <p>Demand recirculation system is installed in multi-family units in place of a standard circulation pump and control.  Points awarded per circulation zone    2  Maximum points per building                4</p>	
<b>Reason:</b>	Waiting for hot water to arrive at fixtures wastes energy as well as water. In fact, the waste of energy gets worse as the flow rate goes down because the amount of water wasted goes up as the flow rate goes down. In multi-family buildings, a demand recirculation system can reduce the hours of operation of a typical system to less than 2 hours per day in retrofit applications, even lower in new buildings where the hot water piping is installed in accordance with the NGBS. There is electricity saved by reduced pumping energy, but the big savings is in the reduced heat loss in the loop. The reason for the large number of points is that water heating in multi-family buildings is equal to or larger than space heating in much of the country now and will certainly be true in buildings built in accordance with the NGBS.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 761	703.4.1 Water Heater Energy Factor							
<b>Submitter:</b>	Gary Klein, Affiliated International Management, LLC								
<b>Requested Action:</b>									
<b>Proposed Change:</b>	Add a new line to Table 703.4.1(1)(b)  <table border="0"> <tr> <td>Size (gallons</td> <td>Energy Factor<sup>1</sup></td> <td>POINTS</td> </tr> <tr> <td><u>Any</u></td> <td><u>0.97</u></td> <td><u>10</u></td> </tr> </table> <p><u>1. Electric instantaneous water heaters have either an Energy Factor (capacity less than or equal to 12 kW) or a Thermal Efficiency (capacity greater than 12kW)</u></p>			Size (gallons	Energy Factor <sup>1</sup>	POINTS	<u>Any</u>	<u>0.97</u>	<u>10</u>
Size (gallons	Energy Factor <sup>1</sup>	POINTS							
<u>Any</u>	<u>0.97</u>	<u>10</u>							
<b>Reason:</b>	Electric instantaneous water heaters come in a wide variety of sizes (kW) and can be located very close to the points of use. This can reduce the energy needed for heating water by as much as 50 percent. Even when not located closer to the points of use, they are more efficient to operate than electric storage water heaters. They should be included in the table within the standard in the same way that gas instantaneous water heaters are.								
<b>TG Recommendation (AS or AM or D):</b>									
<b>Modification of Proposed Change:</b>									
<b>TG Reason:</b>									
<b>TG Vote:</b>									

Proposal ID TBD	LogID 5322	703.5.1 (2)	
<b>Submitter:</b>	John M Schneider, City of Moundsville		
<b>Requested Action:</b>	Revise as follows		
<b>Proposed Change:</b>			
<b>Reason:</b>	Practice 703.5.1 (2) refers to a minimum efficiency of 40 Lumens / Watt for exterior lighting. Efficiency is a unit less value (watts out / watts in). Efficacy is a measure comparing different units of measure (lumens / watt). Practice 701.4.4 uses the correct Efficacy term. I believe Efficacy should be used in Practice 703.5.1 (2) as well?????		
<b>TG Recommendation (AS or AM or D):</b>			
<b>Modification of Proposed Change:</b>			
<b>TG Reason:</b>			
<b>TG Vote:</b>			

Proposal ID TBD	LogID 5294	703.6.2 Window shading
<b>Submitter:</b>	Thomas Culp, Birch Point Consulting LLC	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>703.6.2 Window shading.</b> Automated solar protection <u>or dynamic glazing</u> is installed to provide shading for windows.	
<b>Reason:</b>	On behalf of Dr. Helen Sanders, SAGE Electrochromics Inc. Dynamic glazing provides an equivalent method for window shading as traditional methods, by directly varying the SHGC and VT of the window rather than secondarily modifying it through an attachment. As such, dynamic glazing is already included as an alternative to exterior shading requirements in both the International Green Construction Code and ASHRAE 189.1, and its inclusion here is also appropriate.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5121	704.1 Additional Practice Points
<b>Submitter:</b>	Marie Nisson, TexEnergy/US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<b>704.2.4 Non-unit lighting design.</b> <u>In multi-family design interior, non-residential lighting to achieve the following lighting power density</u> <u>(1) Less than or equal to 0.7 watts/sf</u> <u>(2) Less than or equal to 0.5 watts/sf</u> <u>(3) Less than or equal to 0.3 watts/sf</u>	
<b>Reason:</b>	Encourage efficient lighting design in MF residential associated and non-unit spaces	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5091	704.2.1 Occupancy sensors (Lighting)
<b>Submitter:</b>	Donald Prather, ACCA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p>704.2.1 <b>Occupancy sensors.</b> Occupancy sensors are installed on indoor lights, and motion photo sensors are installed on outdoor lights to control lights <u>and/or occupancy sensors are installed with setback thermostats for HVAC equipment and hot water heaters.</u></p> <p>(1) 25 Percent of lighting  (2) 50 Percent of lighting  <u>(3) HVAC System set back plus occupancy</u>  <u>(4) Hot water heater occupancy</u></p>	
<b>Reason:</b>	Since HVAC and hot water heating use more energy they should be considered too as options for occupancy sensors. The two additional items recommended would result in a much larger energy savings than the lighting options and should be awarded more points.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5053	704.2.2 TDDs and skylights
<b>Submitter:</b>	Angelo Marasco, ODL	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	ENERGY STAR or equivalent tubular daylighting device (TDD) or skylight with sealed, insulated, low-E glass is installed in rooms without windows.	
<b>Reason:</b>	Similar to other NGBS sections that reference ENERGY STAR compliant or equivalent glazing this assures that the TDD being used meets a minimum standard of energy efficient performance.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5092	704.4.2 HVAC performance verification
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	<p>Change to make this section align with mandatory requirements in other sections:</p> <p>704.4.2 Performance of the heating and/or cooling system is verified <u>by a third-party on-site inspection</u> the HVAC contractor in accordance with all of the following QI-5 2010 procedures:</p> <p>(1) Start-up procedure <u>documentations is completed and within OEM tolerances</u> is performed in accordance with the manufacturer's instructions.</p> <p>(2) Refrigerant Charge is verified by super-heat and /or sub-cooling method <u>recorded results are verified (when required)</u></p> <p>(3) <u>When required, verification that:</u> Burner is set to fire at input level listed on nameplate.</p> <p>(4) <u>Verification that:</u> Air handler setting/fan speed is set in accordance with manufacturer's instructions.</p> <p>(5) <u>Verification that:</u> Total airflow is within 10 percent of design flow. <u>The OEM required operating range at all speeds the system will operate and within 20% of the design value.</u></p> <p>(6) <u>Verification that:</u> Total external system static does not exceed equipment capability at rated airflow.</p>	
Reason:	Change to make this section align with mandatory requirements in other sections: ACCA recommends making the minimum requirements for installing an HVAC system mandatory in section 701.4.1 and providing points for 3rd party verification. That verification could be done by the builder or another subcontractor.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5117	704.4.2 HVAC performance verification
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	<p><b>701.4.1.3 HVAC System set up.</b> Performance of the heating and/or cooling system is verified by the HVAC contractor in accordance with manufacturer's instructions including all of the following:</p> <p><del>(1) Start up procedure is performed in accordance with the manufacturer's instructions</del></p> <p><del>(2) Refrigerant charge is verified by the super heat and/or sub-cooling method</del></p> <p><del>(3) Burner is set to fire at input level listed on nameplate</del></p> <p><del>(4) Air handler setting/fan speed is set in accordance with manufacturer's instructions</del></p> <p>(1) Total airflow is within 10% of design flow</p> <p>(2) Total external system static does not exceed equipment capacity at rated airflow</p>	
Reason:	704.4.2 (1-4) are basic requirements and recommended to be moved to mandatory practices [701.4.1.3(1-4)]. 704.4.2 (5) and (6) would change to (1) and (2) for credit	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 5250	704.4.2 HVAC performance verification
<b>Submitter:</b>	Jeremy Velasquez, US-EcoLogic	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	subsection (1) Start-up & subsection (2) Ref. Charge should be made Mandatory.  Award the 3+ points for completions of subsections (3) through (6) - which will need to be performed by the HVAC contractor.	
<b>Reason:</b>	Proper refrigerant charge and start-up procedure is extremely important and affect the efficiency of the unit. Most MF teams will not choose this credit - and as a result the HVAC systems start up and charge are not properly performed or documented. subsections 3-6 will require equipment that contractors typically do not possess - and this is time consuming for a rater to self verify.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5303	704.5.2 Testing
<b>Submitter:</b>	aaron gary, US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	Add 704.5.2.3 Duct Leakage (for Multifamily projects ONLY). The entire HVAC duct system...to be tested by third party...maximum air leakage is equal to or less than X (to be determined based on IECC baseline of 2015 NGBS) percent of system fan flow.	
<b>Reason:</b>	Duct leakage is not required under IECC Commercial Code (2009 or 2012). As this testing is not required by Code, multifamily projects should be rewarded for going beyond baseline CODE requirements to improve the energy efficiency of their project.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5128	704.5.2 Testing
<b>Submitter:</b>	Marie Nisson, TexEnergy/US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<u>704.5.2.3 Test ventilation in accordance with design</u> <u>(1) Test spot exhaust at point of origin or termination</u> <u>(2) Test supply and/or exhaust ventilation in accordance with Appendix B</u>	
<b>Reason:</b>	ENERGY STAR performance compliance is tested in Ch 7, these practices should be available for testing under other paths. Testing at exhaust termination is not safe or practical for many multifamily projects	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5076	704.5.2 Testing
<b>Submitter:</b>	Robert Hill, Home Innovation Research Labs	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	Testing <del>above mandatory requirements</del> is conducted to verify performance.	
<b>Reason:</b>	It is not clear what "above mandatory requirements" is intended to mean. If the blower door result is supposed to be less than the 7 ACH50 of 701 then that should be specified.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5093	704.5.2.2 HVAC airflow testing
<b>Submitter:</b>	Donald Prather, ACCA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	Change to make this section align with mandatory requirements in other sections:  (1) Measured flow at each supply and return register is <del>within 25 percent of design flow</del> <i>meets or exceeds the requirements in QI-5-2010</i>  Total airflow is <del>within 10% of design flow</del> <i>meets or exceeds the requirements in QI-5-2010</i>	
<b>Reason:</b>	Recommend changing the balancing verification requirements to align with QI-5. QI-5 took into account the accuracy of the tools used to measure and verify in the tolerances allowed. Thus, this third party check would be a natural fit with those requirements. For example if the contractor's tool was off by 5% when balancing to plus or minus 10% and the verifiers tool was off by 5% when verifying a properly done balance was within 10% could be given a failing grade.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		



Proposal ID TBD	LogID 5307	705.5 Additional renewable energy options
<b>Submitter:</b>	Lorraine Ross, L Ross Consulting Inc	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><del>705.5 Additional On-site renewable energy system options. An on-site renewable Renewable energy system(s) is installed on the property: (e.g., solar photovoltaic panels, building integrated photovoltaic system, wind energy system, on-site micro-hydro power system, active solar space heating system, solar thermal hydronic heating system, photovoltaic hybrid heating system).</del></p> <p><del>Points: 1 (Points awarded per 100 W of system rating per 2,000 square feet of total conditioned floor area of the building.)</del></p> <p><u>Points: 1 Points awarded for every 100 W of system rating installed for every 2,000 square feet of total conditioned floor area of the building.</u></p> <p><u>No points shall be awarded in this section for solar thermal or geothermal systems that provide space heating, space cooling or water heating. Points for these systems are awarded in section 703.</u></p> <p><u>Note:: Also revise these definitions:</u></p> <p><u>ON-SITE RENEWABLE ENERGY SYSTEM. An energy generation system located on the building or building site that derives its energy from a renewable energy source.</u></p> <p><u>RENEWABLE ENERGY. Energy derived from renewable energy sources that are regenerative or cannot be depleted.</u></p> <p><u>RENEWABLE ENERGY SOURCE. Source of energy (excluding minerals) Energy derived from incoming solar radiation, including natural solar radiation itself, photosynthetic processes; from phenomenon resulting therefrom, including wind, hydropower, waves, and tides, biogas, biomass, or geothermal energy, and lake or pond thermal differences; from decomposition of waste material, including methane from landfills; from processes that use regenerated materials, including wood and bio-based products; and from the internal heat of the earth, including nocturnal thermal exchanges.</u></p>	
<b>Reason:</b>	Reason: Adding and revising definitions for accuracy and to be in line with the I-codes. Several editorial changes are made for clarity and accuracy. The examples of systems have been deleted. Laundry lists such as these are not appropriate. The term Renewable Energy System is defined. There is a potential conflict that exists with solar thermal and geothermal heating, cooling, and water heating systems. These systems already get points via section 703. To avoid double counting a statement has been added to point users of these systems to the correct location for obtaining credit.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5071	Other for Chapter 7 (include section number and title below)
<b>Submitter:</b>	Philip LaRocque, LaRocque Business Management Services, LLC	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p>704.6 ENERGY STAR or equivalent appliance(s) are installed:</p> <p>(1) refrigerator <u>5</u></p> <p>(2) dishwasher <u>2</u></p> <p>(3) washing machine <u>4</u></p>	
<b>Reason:</b>	<p>This change returns to the 2008 NGBS where a builder is rewarded for ENERGY STAR appliances as an excellent energy conservation tool (more cost effective than the 705 ENERGY SMART practice -though that should be retained)and returns to consistency with ES kilowatt hours saved factors. I recognize that the NGBS REM-based cost comparison report may reflect and reward this energy savings practice but this amendment is much more instructive and promotional for greater energy efficiency with a direct practice point structure for the ES appliance investment. In addition, we give water conservation points for ES dishwashers and washing machines in Chapter 8 so we should have some consistency on direct ES appliance rewards in Chapter 7. This should be available and keep the ENERGY SMART appliance practice points under Innovative Practices to further motivate the builder/buyer to do even more.</p>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5152	Other for Chapter 7 (include section number and title below)
<b>Submitter:</b>	Stephen J Holzer, eM8s, LLC	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p><b>705.7 Building Information Modeling (BIM)</b></p> <p>Project Team uses BIM to develop a whole house energy model, and applies the model to optimize energy efficiency.</p>	
<b>Reason:</b>	<p>Building Information Modeling (BIM) is a computer generated model based process that simulates planning, design, construction and operations for buildings. It is a single repository for both three-dimensional, two-dimensional, and material properties information that allows data interoperability of all stakeholders to better inform design and construction decisions with the goal of producing the best product possible. This information technology will increase design and construction efficiencies and decrease costs for builders and end users. BIM may also facilitate better communication, collaboration and coordination among building industry professionals and trades working on the same project. Credit should be given to Builders utilizing the open industry standards as defined in the National Building Information Modeling Standard.</p>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

**Submitter:** Randall Melvin, Winchester Homes, Inc.

**Requested Action:** Add new as follows

**Proposed Change:** **701.1.4 Alternate Compliance Path 2**  
Any building achieving a HERS Index score, corresponding to the scores shown in Table 701.1.4, shall be deemed to comply with the indicated threshold level (bronze, silver, gold or emerald) for the NGBS Energy Chapter and receive the baseline NGBS Energy Chapter points established for that threshold level. Two additional NGBS points shall be awarded for each HERS Index point below the minimum required threshold levels shown.

**Table 701.1.4**

<u>Climate Zone</u>	<u>Bronze Compliance Maximum Allowable HERS Index Score and base NGBS</u>	<u>Silver Compliance Maximum Allowable HERS Index Score</u>	<u>Gold Compliance Maximum Allowable HERS Index Score</u>	<u>Emerald Compliance Maximum Allowable HERS Index Score</u>
<u>1 and 2</u>	<u>59</u>	<u>55</u>	<u>45</u>	<u>39</u>
<u>3</u>	<u>59</u>	<u>55</u>	<u>45</u>	<u>39</u>
<u>4</u>	<u>63</u>	<u>59</u>	<u>49</u>	<u>43</u>
<u>5</u>	<u>63</u>	<u>59</u>	<u>49</u>	<u>43</u>
<u>6</u>	<u>62</u>	<u>58</u>	<u>48</u>	<u>42</u>
<u>7 and 8</u>	<u>60</u>	<u>56</u>	<u>46</u>	<u>40</u>

**Reason:** The HERS Index is now an approved voluntary national standard - ANSI/RESNET 301-2014 making it available as a direct reference from the NGBS. The HERS index has widespread acceptance and use by builders, code officials, energy raters and consumers alike. Leveraging the benefits of the well established HERS Index will provide a familiar streamlined alternative for compliance with the Energy Chapter of the NGBS. The threshold HERS Index score provided for the Bronze level in Table 701.1.4, corresponds with the historical practice of the committee of making the bronze level of the Energy Chapter of the NGBS approximately 15% more stringent than the baseline energy code which in this case could be either the 2012 or 2015 IECC, as they are nearly identical in their stringencies. The Emerald threshold has been set at the “practical achievable” limit and silver and gold levels set at intermediary interpolated levels between bronze and emerald. The additional 2NGBS points awarded for every additional point reduction in HERS Index scores, below the established threshold limit, were added to parallel a recent improvement made to the NGBS. The NGBS now recognizes and provides incentive for performance efficiency improvements beyond achieving the base threshold points.

**TG Recommendation (AS or AM or D):**

**Modification of Proposed Change:**

**TG Reason:**

**TG Vote:**

Proposal ID TBD	LogID 5249	Other for Chapter 7 (include section number and title below)
<b>Submitter:</b>	Jeremy Velasquez, US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p>Under SECTION 704 - Additional practices:</p> <ol style="list-style-type: none"> <li>1. Add option for "light" commissioning for unitary water heating systems - 5 pts</li> <li>2. Add option for "light" commissioning for Lighting systems and controls - 5 pts</li> </ol> <p>(this particular scope of work would have to be clearly defined at a future date - or "borrowed" from LEED-NC type commissioning for water heating and lighting systems.</p>	
<b>Reason:</b>	Commissioning of systems does provide some additional quality assurance that systems are installed and working properly- and therefore makes the project more energy efficient.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 5234	Other for Chapter 7 (include section number and title below)																
<b>Submitter:</b>	Eric DeVito, BBRS																	
<b>Requested Action:</b>	Add new as follows																	
<b>Proposed Change:</b>	<p style="text-align: center;"><b>Chapter 2</b></p> <p style="text-align: center;"><b>DEFINITIONS</b></p> <p><b>VISIBLE TRANSMITTANCE (VT).</b> <u>The ratio of visible light entering the space through the fenestration product assembly to the incident visible light, Visible Transmittance, includes the effects of glazing material and frame and is expressed as a number between 0 and 1.</u></p> <p style="text-align: center;"><b>Chapter 7</b></p> <p style="text-align: center;"><b>ENERGY EFFICIENCY</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="3"><b>704.2 Lighting</b></td> </tr> <tr> <td colspan="3"><b>704.2.4 Visible Light.</b> <u>In climate zones 1-4, windows, glazed doors (with more than 50% glazing) and skylights meet the requirements of Table 703.1.6.2(a), have a total area equal to at least 15% of conditioned floor area and, on an area-weighted average basis, have an NFRC-certified (or equivalent) VT that exceeds the following applicable minimum values:</u></td> </tr> <tr> <td style="width: 50%;"><b>Windows</b></td> <td style="width: 30%; text-align: center;"><u>0.42</u></td> <td rowspan="3" style="width: 20%; text-align: center;"><u>5</u></td> </tr> <tr> <td style="padding-left: 20px;">Fixed</td> <td style="text-align: center;"><u>0.32</u></td> </tr> <tr> <td style="padding-left: 20px;">Operable</td> <td style="text-align: center;"><u>0.49</u></td> </tr> <tr> <td><b>Skylights</b></td> <td></td> <td></td> </tr> </table>		<b>704.2 Lighting</b>			<b>704.2.4 Visible Light.</b> <u>In climate zones 1-4, windows, glazed doors (with more than 50% glazing) and skylights meet the requirements of Table 703.1.6.2(a), have a total area equal to at least 15% of conditioned floor area and, on an area-weighted average basis, have an NFRC-certified (or equivalent) VT that exceeds the following applicable minimum values:</u>			<b>Windows</b>	<u>0.42</u>	<u>5</u>	Fixed	<u>0.32</u>	Operable	<u>0.49</u>	<b>Skylights</b>		
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<b>Skylights</b>																		
<b>Reason:</b>	<p>Natural light provides a variety of benefits to the occupants of a green home, many of which are not credited in the current ICC-700. Aside from the potential energy savings associated with the incorporation of daylight into lighting design, more natural light can increase indoor aesthetics, improve occupant health and provide a better connection between the occupants and the outdoors. The vast majority of residential windows are labeled with an NFRC label that includes a measurement of the visible light transmittance of the window unit, but currently there is no reference to visible light transmittance in ICC-700. The proposal above adopts the IECC definition of Visible Transmittance into ICC-700 and sets a very achievable minimum VT requirement. We have limited this proposal to climate zones 1-4 to coincide with the current fenestration requirements under the IECC and ICC-700 for climate zones 1-4 that include low-SHGC requirements. Although there are many products that achieve both a low SHGC and a high VT, there are also products and methods that reduce the amount of VT to levels that do not provide adequate natural light to the indoors. This proposal simply gives a credit for: (a) installing a reasonable amount of fenestration to increase the likelihood of windows placed to provide daylight, (b) selecting fenestration products that allow a moderate amount of natural light into the living space, and (c) selecting enhanced fenestration products (table 703.1.6.2(a)) to offset the impact of any increase in installed fenestration. For reference, because VT is expressed as a measurement between 0 and 1, a window unit (including frame) with a 0.32 VT is allowing 32% of the visible light into the interior space.</p>																	
<b>TG Recommendation (AS or AM or D):</b>																		
<b>Modification of Proposed Change:</b>																		
<b>TG Reason:</b>																		
<b>TG Vote:</b>																		

Proposal ID TBD		LogID 5109	1301 General (Referenced documents)
<b>Submitter:</b>	Donald Prather, ACCA		
<b>Requested Action:</b>	Revise as follows		
<b>Proposed Change:</b>	Add sections as required based on accepted ACCA recommendations		
<b>Reason:</b>	New locations for QI -5 citations should be included		
<b>TG Recommendation (AS or AM or D):</b>			
<b>Modification of Proposed Change:</b>			
<b>TG Reason:</b>			
<b>TG Vote:</b>			

Proposal ID TBD		LogID 5110	1302 Referenced Documents
<b>Submitter:</b>	Donald Prather, ACCA		
<b>Requested Action:</b>	Revise as follows		
<b>Proposed Change:</b>	Change Manual J to 2011 version		
<b>Reason:</b>	Latest update for code compliance		
<b>TG Recommendation (AS or AM or D):</b>			
<b>Modification of Proposed Change:</b>			
<b>TG Reason:</b>			
<b>TG Vote:</b>			

Proposal ID TBD		LogID 5111	1302 Referenced Documents
<b>Submitter:</b>	Donald Prather, ACCA		
<b>Requested Action:</b>	Revise as follows		
<b>Proposed Change:</b>	Change Manual D to 2014 Version		
<b>Reason:</b>	Latest update for code compliance		
<b>TG Recommendation (AS or AM or D):</b>			
<b>Modification of Proposed Change:</b>			
<b>TG Reason:</b>			
<b>TG Vote:</b>			

Proposal ID TBD	LogID 5112	1302 Referenced Documents	
<b>Submitter:</b>	Donald Prather, ACCA		
<b>Requested Action:</b>	Revise as follows		
<b>Proposed Change:</b>	Change Manual S to version 2014		
<b>Reason:</b>	Latest update for code compliance		
<b>TG Recommendation (AS or AM or D):</b>			
<b>Modification of Proposed Change:</b>			
<b>TG Reason:</b>			
<b>TG Vote:</b>			

Proposal ID TBD	LogID 5214	1302 Referenced Documents	
<b>Submitter:</b>	Eric Lacey, RECA		
<b>Requested Action:</b>	Revise as follows		
<b>Proposed Change:</b>	IECC	<del>2009</del> <u>2015</u>	International Energy Conservation Code 701.1.1, 702.2.2
<b>Reason:</b>	<p>This proposal updates the references to the IECC in the Energy Efficiency Chapter with the latest edition of the IECC. The 2015 National Green Building Standard should support, and be completely integrated with, the complete family of 2015 International Codes. Although the 2012 IBC, IRC, and IECC are generally consistent in requirements and cross-references, the 2012 NGBS references the 2009 IECC. This inconsistency creates a host of problems, particularly for local building officials who must apply two different baselines to the IECC and ICC-700. It has been our experience that states, counties, and cities that support the use of "green" codes such as ICC-700 are more likely to be current in their mandatory energy conservation codes, so it makes sense to reference the 2015 IECC in the 2015 ICC-700. Although this proposal would effectively move the baseline IECC ahead two editions, the 2012 and 2015 IECC residential requirements are very close in terms of overall efficiency, so states, counties, or cities that have already adopted and are applying the 2012 IECC are most likely already meeting the 2015 IECC as well. The current inconsistency between ICC-700 and the IECC editions can be easily corrected in 2015 by updating all references to the International Codes to be internally consistent. If, for some reason, the Committee is reluctant to the update to the 2015 IECC, there is no reason to fail to update the NGBS, at a minimum, to the 2012 IECC.</p>		
<b>TG Recommendation (AS or AM or D):</b>			
<b>Modification of Proposed Change:</b>			
<b>TG Reason:</b>			
<b>TG Vote:</b>			