

# Proposed Changes

April 12, 2017

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## TG-5: Energy Efficiency

### Chapter 7: Energy Efficiency

Proposal ID TBD	LogID 6503	701.1 Mandatory requirements (Energy Efficiency)
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>701.1 Mandatory requirements.</b> The building shall comply with Section 702 (Performance Path), Section 703(Prescriptive Path), or Section 704 (HERS Index Target Path). Items listed as “mandatory” in Section 701.4 apply to all Paths. Unless otherwise noted, buildings in the Tropical Climate Zone shall comply with Climate Zone 1 requirements.</p> <p><u>Exceptions:</u></p> <p><u>A building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0Rev. 03 building achieves the bronze level for Chapter 7.</u></p> <p><u>A building that qualifies as an ENERGY STAR Version3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03(with the baseline at ASHRAE 90.1-2010) building achieves the silver level for Chapter 7.</u></p> <p><u>In the Tropical Climate Zone, a building that meets all of the requirements in IECC Section R401.2.1 (Tropical Zone) achieves the silver level for Chapter 7.</u></p> <p><u>A building achieving compliance under Section701.1.4 is not eligible for achieving a rating level above silver.</u></p> <p><del><b>701.1.4 Alternative bronze and silver level compliance.</b> As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 building achieves the bronze level for Chapter 7. As an alternative, any building that qualifies as an ENERGY STAR Version 3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0Rev. 03 (with the baseline at ASHRAE 90.1-2010) building achieves the silver level for Chapter 7. As an alternative in the Tropical Climate Zone, any building that meets all of the requirements in IECC Section R401.2.1 (Tropical Zone) achieves the silver level for Chapter 7. The buildings achieving compliance under Section 701.1.4 are not eligible for achieving a rating level above silver.</del></p>	
<b>Reason:</b>	If analysis shows these alternatives are equivalent or more conservative compared to the requirements in 701.1.1, 701.1.2, and 701.1.3, then revise the charging language of 701.1 to include these “alternatives” as compliance paths.	
<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 6393	701.1 Mandatory requirements (Energy Efficiency)
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>701.1 Mandatory requirements.</b> The building shall comply with Section 702 (Performance Path), Section 703 (Prescriptive Path), or Section 704 (HERS Index Target Path). <u>The building shall also comply with all provisions <del>Items</del> listed as “mandatory” in the 2018 IECC and in Section 701.4 apply to all Paths.</u> Unless otherwise noted, buildings in the Tropical Climate Zone shall comply with Climate Zone 1 requirements.</p>	
<b>Reason:</b>	This proposal is intended to revise and clarify the requirements regarding mandatory requirements/measures. As revised, this section will improve the quality and consistency of homes built to ICC-700 by requiring compliance, under all compliance options, with: <ul style="list-style-type: none"> <li>• all mandatory requirements in ICC-700; and</li> <li>• all mandatory provisions of the 2018 IECC. First, ICC-700 includes a set of minimum mandatory requirements for prescriptive-based compliance. These are carefully-selected requirements that should be met irrespective of the number of points achieved for other efficiency measures. Minimum requirements for components and assemblies in a building – such as the air barrier, HVAC system sizing, and minimal thermal envelope efficiencies – should be met whether the home complies via prescriptive,</li> </ul>	

	<p>performance, or the HERS Index Target path. Second, the vast majority of states have adopted the IECC for residential and commercial construction. Like ICC-700, the IECC contains its own limited list of mandatory requirements, most of which are similar to the mandatory requirements of ICC-700. In the IECC, the mandatory requirements already apply across all compliance paths – prescriptive, performance, and ERI, and they apply to all “above code” programs under IECC Section R102.1.1. Because of this, a home cannot be built in these states without complying with at least this shortlist of minimum features. If these mandatory measures are mandatory for all homes to comply with the ICC’s minimum energy efficiency code, they should also be mandatory for the ICC’s green construction code. In order for ICC-700 to continue to gain market acceptance and be recognized as a legitimate green code, it is important that ICC-700 not be seen as a “workaround” to avoid the IECC’s requirements. While we would prefer that every home that complies with ICC-700 to first demonstrate compliance with the complete IECC, we recommend at least establishing compliance with the mandatory requirements of the IECC. This will help builders avoid the pitfall of designing a home that meets ICC-700, but fails the minimum energy code requirements in that state or jurisdiction. The 2018 IECC mandatory requirements are an appropriate reference point. We expect that the 2018 ICC-700 will build upon the efficiencies of the 2018 IECC, and by the time ICC-700 is published, the compliance software available (such as DOE’s REScheck) will be based on the 2018 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>	

Proposal ID TBD	LogID 6501	701.1.1 Minimum Performance Path requirements
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>701.1.1 Minimum Performance Path requirements.</b> A building complying with Section 70 shall <del>include a minimum of two practices</del> obtain a minimum of 4 points from Section 705.</p> <p><b>701.1.2 Minimum Prescriptive Path requirements.</b> A building complying with Section 703 shall obtain a minimum of 30points from Section 703 and shall <del>include a minimum of two practices</del> <u>obtain a minimum of 4 points</u> from Section 705.</p> <p><b>701.1.3 HERS Index Target Path requirements.</b> A building complying with Section 704 shall obtain a minimum of 30points from Section 704 and shall <del>include a minimum of two practices</del> <u>obtain minimum of 4 points</u> from Section 705.</p>	
<b>Reason:</b>	The term “two practices” is ambiguous. Suggest the term be revised to specify a minimum number of points to be attained from Section 705.	
<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 6157	701.1.1 Minimum Performance Path requirements
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	701.1.1 Minimum Performance Path Requirements. A building complying with Section 702 shall include a minimum of <del>two</del> <u>three</u> practices from Section 705, <u>or a minimum of two practices from Section 705 and a minimum of one practice from Section 706.</u>	
<b>Reason:</b>	This revision will allow for more flexibility to choose more options, while requiring three instead of two practices.	

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

Proposal ID TBD	LogID 6159	701.1.2 Minimum Prescriptive Path requirements
Submitter:	Steven Rosenstock, Edison Electric Institute	
Requested Action:	Revise as follows	
Proposed Change:	<b>701.1.2 Minimum Prescriptive Path requirements.</b> A building complying with Section 703 shall obtain a minimum of 30 points from Section 703 and shall include a minimum of <del>two</del> <u>three</u> practices from Section 705, <u>or a minimum of two practices from Section 705 and a minimum of one practice from Section 706.</u>	
Reason:	This revision will allow for more flexibility to choose more options, while requiring three instead of two practices.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 6404	701.1.3 HERS Index Target Path requirements																																													
Submitter:	Eric Lacey, RECA																																														
Requested Action:	Revise as follows																																														
Proposed Change:	<p><b>701.1.3 Energy Rating HERS Index Target Path requirements.</b> A building complying with Section 704 shall <u>meet the requirements of</u> <del>obtain a minimum of 30 points from</del> Section 704 and shall include a minimum of two practices from Section 705.</p> <p><b>704 ENERGY RATING HERS INDEX TARGET PATH</b></p> <p><b>704.1 ERI HERS index target compliance.</b> <u>The project complies with Section R406 of the 2018 IECC, and the ERI for the project is less than or equal to the Energy Rating Index Scores as detailed in Table 704.2 for the corresponding climate zone and rating level. Compliance with the energy chapter shall be permitted to be based on the EPA HERS Index Target Procedure for Energy Star Qualified Homes.</u> <del>Points from Section 704 (HERS Index Target) shall not be combined with points from Section 702 (Performance Path) or Section 703 (Prescriptive Path).</del></p> <p><b>Table 704.2 ERI Point calculation score thresholds<sup>a</sup>.</b> Points for Section 704 shall be computed based on Steps “1a” through “1d” of the EPA HERS Index Target Procedure. Points shall be computed individually for each building as follows:  <math>30 + (\text{percent less than EnergyStar HERS Index Target for that building}) * 2.</math></p> <table border="1"> <thead> <tr> <th>Climate Zone</th> <th>Bronze</th> <th>Silver</th> <th>Gold</th> <th>Emerald</th> </tr> </thead> <tbody> <tr><td><u>1</u></td><td><u>57</u></td><td><u>52</u></td><td><u>47</u></td><td><u>42</u></td></tr> <tr><td><u>2</u></td><td><u>57</u></td><td><u>52</u></td><td><u>47</u></td><td><u>42</u></td></tr> <tr><td><u>3</u></td><td><u>57</u></td><td><u>52</u></td><td><u>47</u></td><td><u>42</u></td></tr> <tr><td><u>4</u></td><td><u>62</u></td><td><u>57</u></td><td><u>52</u></td><td><u>47</u></td></tr> <tr><td><u>5</u></td><td><u>61</u></td><td><u>56</u></td><td><u>51</u></td><td><u>46</u></td></tr> <tr><td><u>6</u></td><td><u>61</u></td><td><u>56</u></td><td><u>51</u></td><td><u>46</u></td></tr> <tr><td><u>7</u></td><td><u>58</u></td><td><u>53</u></td><td><u>48</u></td><td><u>43</u></td></tr> <tr><td><u>8</u></td><td><u>58</u></td><td><u>53</u></td><td><u>48</u></td><td><u>43</u></td></tr> </tbody> </table>		Climate Zone	Bronze	Silver	Gold	Emerald	<u>1</u>	<u>57</u>	<u>52</u>	<u>47</u>	<u>42</u>	<u>2</u>	<u>57</u>	<u>52</u>	<u>47</u>	<u>42</u>	<u>3</u>	<u>57</u>	<u>52</u>	<u>47</u>	<u>42</u>	<u>4</u>	<u>62</u>	<u>57</u>	<u>52</u>	<u>47</u>	<u>5</u>	<u>61</u>	<u>56</u>	<u>51</u>	<u>46</u>	<u>6</u>	<u>61</u>	<u>56</u>	<u>51</u>	<u>46</u>	<u>7</u>	<u>58</u>	<u>53</u>	<u>48</u>	<u>43</u>	<u>8</u>	<u>58</u>	<u>53</u>	<u>48</u>	<u>43</u>
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	a. <u>When on-site renewable energy is included for compliance using the ERI analysis per Section 704.1, the building shall meet the mandatory requirements in 2018 IECC Section R406.2 and the building thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table R402.1.2 or Table R402.1.4 of the 2015 IECC.</u>
<b>Reason:</b>	This proposal revises the HERS Index-based compliance option in Section 704 to be more consistent with the IECC's Energy Rating Index. The current Section 704 uses only part of the Energy Star HERS Index Target Procedure, even though Section 701.1.4 already provides a compliance alternative for homes rated to Energy Star. Given the number of states that have now adopted the IECC Energy Rating Index, we see an opportunity to increase the usability and reach of ICC-700 by incorporating an ERI-based compliance option directly in ICC-700. We believe this will greatly benefit builders and energy raters who are trying to certify new homes and multifamily dwellings to multiple code and above-code programs, while providing a good testing ground for future improvements to the IECC ERI. As revised, ICC-700 Section 704 would require compliance with the Energy Rating Index section of the 2018 IECC for a bronze rating. For each rating above bronze, we have proposed an additional 5 point ERI index improvement. As an alternative, we could support a reasonable percentage improvement for each level instead of the 5-point increments, or a reference to another outside standard (such as the draft ASHRAE Standard 90.2, which is very close to the Emerald level numbers). In any case, this approach is intended to serve at least as a starting point for discussion. The 2018 IECC slightly increased the required ERI scores (making them less stringent than the 2015 IECC) as part of a broader compromise that included more stringent thermal envelope requirements for homes that incorporate renewable on-site power production into the ERI calculation. Consistent with that compromise, this proposal includes the higher 2018 ERI scores, along with the new footnote "a" in Table 704.2 as we believe it will appear in the 2018 IECC.
<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 6160	701.1.3 HERS Index Target Path requirements
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>701.1.3 HERS Index Target Path requirements.</b> A building complying with Section 704 shall obtain a minimum of 30 points from Section 704 and shall include a minimum of <del>two</del> <u>three</u> practices from Section 705, <u>or a minimum of two practices from Section 705 and a minimum of one practice from Section 706.</u>	
<b>Reason:</b>	This revision will allow for more flexibility to choose more options, while requiring three instead of two practices.	
<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 6292	701.1.4 Alternative bronze and silver level compliance
<b>Submitter:</b>	Aaron Gary, US-EcoLogic	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>701.1.4 Alternative bronze and silver level compliance.</b> As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 building <u>or demonstrates compliance with the 2018 IECC or Chapter 11 of the 2018 IRC</u> achieves the bronze level for Chapter 7. As an alternative, any building that qualifies as an ENERGY STAR Version 3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 (with the baseline at ASHRAE 90.1-2010) building achieves the silver level for Chapter 7. As an alternative in the	

	Tropical Climate Zone, any building that meets all of the requirements in IECC Section R401.2.1 (Tropical Zone) achieves the silver level for Chapter 7. The buildings achieving compliance under Section 701.1.4 are not eligible for achieving a rating level above silver.
<b>Reason:</b>	Recognizing the 2018 IECC as an alternative makes sense.
<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 6451	701.1.4 Alternative bronze and silver level compliance
<b>Submitter:</b>	Craig Conner, Building Quality	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	701.1.4 Alternative <del>bronze and silver</del> levels of compliance. As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 building achieves the bronze level for Chapter 7. As an alternative, any building that qualifies as an ENERGY STAR Version 3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 (with the baseline at ASHRAE 90.1-2010) building achieves the silver level for Chapter 7. As an alternative in the Tropical Climate Zone, any building that meets all of the requirements in IECC Section R401.2.1 (Tropical Zone) achieves the <del>silver-gold</del> level for Chapter 7. <del>The Buildings achieving compliance under Section 701.1.4 are not eligible for achieving a rating levels above silver those in this section.</del>	
<b>Reason:</b>	This change gives the Tropical Home a Gold level of compliance based on energy savings well above Gold. Each point in energy is a 1/2 % of the energy savings. The difference between Bronze and Gold is 30 points or 15% of the energy cost. The PNNL report on the impact of the 2018 IECC (link below) gives the costs by energy end use for 2018 IECC (Table 11 of the PNNL report). The costs for each end use are below with last column giving the Tropical home impact on the end uses. End Use \$\$ 2018 IECC & % Tropical Home Impact Heating \$7.09	
<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 6392	701.1.4 Alternative bronze and silver level compliance
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<del>701.1.4 Alternative bronze and silver level compliance.</del> As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 building achieves the bronze level for Chapter 7. As an alternative, any building that qualifies as an ENERGY STAR Version 3.1 Rev. 08 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 (with the baseline at ASHRAE <del>90.1-2010</del> 90.1-2013) building achieves the silver level for Chapter 7. As an alternative in the Tropical Climate Zone, any building that meets all of the requirements in IECC Section R401.2.1 (Tropical Zone) achieves the silver level for Chapter 7. The buildings achieving compliance under Section 701.1.4 are not eligible for achieving a rating level above silver.	
<b>Reason:</b>	This proposal is intended to update the Energy Star compliance option for single-family and multifamily buildings. For single-family homes (and low-rise multifamily homes), the proposal retains and updates (by citing the most recent version) the option to demonstrate silver-level compliance using Energy Star Version 3.1, but eliminates Energy Star Version 3.0 for bronze-level compliance. For mid- and high-rise multifamily buildings, the proposal updates the reference baseline from ASHRAE 90.1-2010 to 90.1-2013. We believe that the 2018 ICC-700 should build upon the efficiency of the most recent edition of the IECC	

	<p>and ASHRAE. For single-family and low-rise multifamily buildings, Energy Star Version 3.0 was developed to correspond with the 2009 IECC, but is now outdated, since a good number of efficiency improvements have been incorporated into the IECC since then. It does not make sense to continue to allow alternative compliance with Version 3.0 in the national model green code, even for bronze-level compliance. We support an Energy Star alternative, but ICC-700 should require the most recent version of the Energy Star program that most closely corresponds with the 2018 IECC. This proposal is consistent with U.S. EPA's policy of rolling out Energy Star Version 3.1. Simply put, where a state adopts the 2012 or 2015 IECC as its mandatory statewide code, EPA updates the state's Energy Star program requirements to Version 3.1, twelve months after the effective date. As such, Energy Star Version 3.0 is phased out and is no longer available in such states. Likewise, for mid- and high-rise multifamily homes in states that have adopted the 2012 or 2015 IECC or ASHRAE 90.1-2010 or 2013, U.S. EPA has also updated the baseline that applies to the multifamily standard to a 15% improvement over a baseline of ASHRAE 90.1-2013. More and more states are adopting the 2012 IECC or more recent versions; since ICC-700 is the national model green code, it should reflect this fact. Similarly, given that the ICC has published a 2015 IECC (and will soon publish a 2018 version) and ASHRAE has published Standard 90.1-2013, it makes sense that the newest version of ICC-700 reflect the version of Energy Star that most closely corresponds with the most recent version of the IECC and ASHRAE 90.1. Allowing compliance with Version 3.0 or Standard 90.1-2010 may result in buildings that would not even comply with the version of the IECC or ASHRAE 90.1 that applies for statewide construction. This is particularly important when it is considered that the version of ICC-700 that will be published as a result of this process will be in effect more than a decade after the 2009 IECC and ASHRAE 90.1-2010 were published and after they have been superseded by two or three more recent editions. As a result, we recommend setting a single Energy Star standard – the most recent standard, and the one that most closely corresponds with the most recently published IECC or ASHRAE – as the single option for alternative compliance under Section 701.1.4.</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 6502	701.1.4 Alternative Bronze and silver level compliance
<b>Submitter:</b>	John Woestman	
<b>Requested Action:</b>	Delete without substitution	
<b>Proposed Change:</b>	<p><del><b>701.1.4 Alternative bronze and silver level compliance.</b> As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 building achieves the bronze level for Chapter 7. As an alternative, any building that qualifies as an ENERGY STAR Version 3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 03 (with the baseline at ASHRAE 90.1-2010) building achieves the silver level for Chapter 7. As an alternative in the Tropical Climate Zone, any building that meets all of the requirements in IECC Section R401.2.1 (Tropical Zone) achieves the silver level for Chapter 7. The buildings achieving compliance under Section 701.1.4 are not eligible for achieving a rating level above silver.</del></p>	
<b>Reason:</b>	Recommend deleting these alternatives unless analysis is available which indicates these defined alternatives are equivalent or more conservative compared to the requirements of this standard.	
<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 6504	701.2 Emerald level points
<b>Submitter:</b>	John Woestman	
<b>Requested Action:</b>	Revise as follows	



<b>Proposed Change:</b>	<b>701.2 Emerald level points.</b> The Performance Path shall be <u>the only path</u> used to achieve the emerald level.
<b>Reason:</b>	We think this is consistent with the intent. If so, this may help with understanding.
<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 6573</b>	<b>701.2 Emerald level points</b>
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<b>Submitter:</b>	Craig Conner, Building Quality
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	<p>701.3 <b><u>Simplified Equivalent Compliance Alternative.</u></b></p> <p><u>701.3.1 Equivalent building option. Dwellings that meet both of the following criteria shall be deemed in compliance with the thermal envelop requirements of this chapter.</u></p> <p><u>1. The ratio of the air-conditioning capacity to conditioned space is less than or equal to 1.5 tons per 1000square feet.</u></p> <p><u>2. The ratio of the heating system capacity to floor area of conditioned space is less than or equal to</u></p> <p><u>10,000 Bth/h per 1000 square feet for zone 2</u></p> <p><u>15,000 Bth/h per 1000 square feet for zone 3</u></p> <p><u>18,000 Bth/h per 1000 square feet for zone 4 5</u></p> <p><u>20,000 Bth/h per 1000 square feet for zone 6 &amp; 7.</u></p> <p><u>25,000 Bth/h per 1000 square feet for zone 8</u></p> <p><u>701.3.2 Equivalent hot water.</u></p> <p><u>The horizontal distance from the hot water supply outlet to the hot water entry to a room where hot water is used shall be no more than 10ft. This shall apply to the kitchens, bathrooms with showers or tub, and rooms with a clothes washer.</u></p> <p><u>701.3.3 Equivalent lighting.</u></p> <p><u>Dwellings in compliance with at least one of the following requirements shall be deemed in compliance with the lighting requirements:</u></p> <p><u>1. Lamps over 15 watts shall be CFL, LED, or have an efficacy not less than 70 lumens per watt, or.</u></p> <p><u>2. At least 90% of the lamps or fixtures shall have an efficacy not less than 75 lumens per watt. Where compliance is based on efficacy the efficacy shall be on a manufacturer designation of efficacy on the lamp or fixture; or the lighting efficacy shall be on the construction plans.</u></p> <p><u>701.3.4 Compliance with all three items above plus the mandatory portion of this chapter shall be deemed compliance with the NGBS energy requirements at the silver level.</u></p>
<b>Reason:</b>	This prescribes a simple way to show NGBS energy compliance
<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 6068</b>	<b>701.4 Mandatory practices</b>
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<b>Submitter:</b>	Michelle Foster, Home Innovation Research Labs
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	Clarify that the mandatory items are applicable to the method of construction being verified.

<b>Reason:</b>	The mandatory items are designed to ensure that the code provisions are complied with, however, code varies if the building is SF or MF. The proposed change would clarify that the mandatory practices are relevant depending on the specific method of construction.
<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 6394</b>	<b>701.4.3.1 Building Thermal Envelop Air Sealing</b>
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<b>Submitter:</b>	Eric Lacey, RECA
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<b>Requested Action:</b>	Add new as follows
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<b>Proposed Change:</b>	<b>701.4.3.X Minimum Thermal Envelope Efficiency.</b> For all compliance paths, the minimum R-values, maximum U-factors, and maximum SHGC meet or exceed the efficiency level specified in Table 701.4.3.X.
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**Table 701.4.3.X  
Minimum Thermal Envelope Efficiency**

<u>CLIMATE ZONE</u>	<u>FENESTRATION U-FACTOR</u>	<u>SKY-LIGHT U-FACTOR</u>	<u>GLAZED FENESTRATION SHGC</u>	<u>CEILING R-VALUE</u>	<u>WOOD FRAME WALL R-VALUE</u>	<u>MASS WALL R-VALUE</u>	<u>FLOOR R-VALUE</u>	<u>BASEMENT WALL R-VALUE</u>	<u>SLAB R-VALUE &amp; DEPTH</u>	<u>CRAWL SPACE WALL R-VALUE</u>
1	<u>1.20</u>	<u>0.75</u>	<u>0.30</u>	<u>30</u>	<u>13</u>	<u>3/4</u>	<u>13</u>	<u>0</u>	<u>0</u>	<u>0</u>
2	<u>0.65</u>	<u>0.75</u>	<u>0.30</u>	<u>30</u>	<u>13</u>	<u>4/6</u>	<u>13</u>	<u>0</u>	<u>0</u>	<u>0</u>
3	<u>0.50</u>	<u>0.65</u>	<u>0.30</u>	<u>30</u>	<u>13</u>	<u>5/8</u>	<u>19</u>	<u>5 / 13</u>	<u>0</u>	<u>5 / 13</u>
4 except Marine	<u>0.35</u>	<u>0.60</u>	<u>NR</u>	<u>38</u>	<u>13</u>	<u>5/10</u>	<u>19</u>	<u>10 / 13</u>	<u>10. 2ft</u>	<u>10 / 13</u>
5 and Marine 4	<u>0.35</u>	<u>0.60</u>	<u>NR</u>	<u>38</u>	<u>20 or 13+5</u>	<u>13/17</u>	<u>30</u>	<u>10 / 13</u>	<u>10. 2ft</u>	<u>10 / 13</u>
6	<u>0.35</u>	<u>0.60</u>	<u>NR</u>	<u>49</u>	<u>20 or 13+5</u>	<u>15/19</u>	<u>30</u>	<u>15 / 19</u>	<u>10. 4ft</u>	<u>10 / 13</u>
7 and 8	<u>0.35</u>	<u>0.60</u>	<u>NR</u>	<u>49</u>	<u>21</u>	<u>19/21</u>	<u>38</u>	<u>15 / 19</u>	<u>10. 4ft</u>	<u>10 / 13</u>

<b>Reason:</b>	<p>This proposal would require that, for all projects, the efficiency levels of the building thermal envelope components meet or exceed the prescriptive thermal envelope efficiency required by the 2009 IECC. There are several reasons why this backstop should be implemented in the 2018 ICC-700:</p> <ul style="list-style-type: none"> <li>• The 2009 IECC already serves as the trade-off backstop for the 2015 and 2018 IECC Energy Rating Index. Every state that has adopted the 2015 IECC ERI so far has maintained or improved upon this backstop.</li> <li>• The 2009 IECC (or more stringent code) has been adopted in over three-quarters of the states.</li> <li>• The 2009 IECC is the foundation for the 2009 American Recovery and Reinvestment Act (ARRA), which distributed \$3.4 billion in incentive funding to states that committed to adopt the 2009 IECC for residential construction.</li> <li>• Nationwide, new homes must show compliance with the 2009 IECC in order to be eligible for federally-insured mortgages. Effective building trade-off options need reasonable minimum-level mandatory backstops. It would strain the credibility of the 2018 ICC-700 as an “above-code program” to allow homes to be built with extremely weak thermal envelopes with an efficiency level below the 2009 IECC. The proposed backstop still permits significant trade-off flexibility, considering the improvements made to the IECC between 2009 and 2018, as well as additional efficiency requirements imposed by ICC-700. But this proposal helps builders avoid a scenario in which the green building’s thermal envelope may fail compliance with a state or</li> </ul>
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	local code (or a federal requirement) based on the 2009 IECC. We do not expect that this will be any burden to today's green builders.
<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 6505	701.4.3.1 Building Thermal Envelope Air Sealing
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>701.4.3.1 Building Thermal Envelope Air Sealing.</b> The building thermal envelope is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film, or solid material:</p> <p><b>(g)</b> <u>Walls, and ceilings, and floors separating a garage from conditioned spaces from unconditioned space.</u></p> <p><b>(k)</b> <u>Rim joist junction. Joints of framing members at rim joists.</u></p> <p><b>(l)</b> <u>Top and bottom plates.</u></p> <p><b>(m)</b> <u>Other sources of infiltration.</u></p>	
<b>Reason:</b>	Suggest revising several of the items in the list to more thoroughly identify the locations where air sealing is required.	
<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 6507	701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>701.4.3.2 Air <u>barrier, air sealing, building envelope testing, and insulation.</u></b> <del>Grade II and III insulation installation is not permitted.</del> Building envelope air <u>barrier, air sealing, envelope tightness, and insulation</u> installation is verified to be in accordance with <u>this Section 701.4.3.2(1) and 701.4.3.2(2) and Section 701.4.3.2.1.</u></p> <p><b>701.4.3.2.1</b> <del>Grade I insulation installations are</del> <b><u>Insulation installation.</u></b> <u>Field-installed insulation products to ceilings, walls, floors, and joists, rim joists, conditioned attics, basements, and crawlspaces, except as specifically noted, are verified by a third-party in accordance with the following:</u></p> <p><b>(1)</b> <del>Grading applies to field-installed insulation products.</del></p> <p><b>(2)</b> <del>Grading applies to ceilings, walls, floors, and joists, rim joists, conditioned attics basements and crawlspaces, except as specifically noted.</del></p> <p><del>Re-number items(3) through (11), and revise item (11)</del></p> <p><b>(11)</b> <u>Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with the Grade 1 insulation installation requirements this section.</u></p>	

	<b>703.2.1 UA improvement.</b> The total building thermal envelope UA is less than or equal to the total UA resulting from the U-factors provided in Table 703.2.1(a) or IECC Tables C402.1.4 and C402.4, as applicable. Where insulation is used to achieve the UA improvement, the insulation installation is in accordance with <del>Grade I requirements as graded</del> Section 701.4.3.2.1 as verified by a third-party. Total UA is documented using a RESCheck, COMCheck, or equivalent report to verify the baseline and the UA improvement.
<b>Reason:</b>	Removing all mentions of “Grade” pertaining to insulation installation, as Grade is not defined or described in the standard. Also revising 701.4.3.2.1 to move the “what” and “where” specifics of the first two items into the charging language. Also, adding requirement insulation installation is verified by a third-party consistent either requirement in 703.2.1.
<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 6506	701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<del>701.4.3.2 Air barrier, air sealing, building envelope testing, and insulation. Grade II and III insulation installation is not permitted.</del> Building envelope air barrier, air sealing, envelope tightness, and insulation installation is verified to be in accordance with <u>this Section 701.4.3.2(1) and 701.4.3.2(2) and Section 701.4.3.2.1.</u> Insulation installation other than Grade 1 is not permitted.	
	<del>701.4.3.2.1</del> Grade I Insulation installations are in accordance with the following:	
<b>Reason:</b>	Removing the phrase regarding “Grade II and III” insulation installation as these are not defined, described, or referenced in the standard, and instead refer to “Grade I” which has requirements described in the standard. Revising the text to add explicit requirement to comply with the insulation installation requirements in Section 701.4.3.2.1.	
<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 1517	701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	Rachel Della Valle, Southern Energy Management	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	I suggest using the language: “Air sealing and insulation. Grade II and III insulation installation is not permitted. Building envelope air tightness and insulation installation is verified to be in accordance with Section 701.4.3.2(1) <del>and or</del> 701.4.3.2(2).”	
<b>Reason:</b>	701.4.3.2: “Air sealing and insulation. Grade II and III insulation installation is not permitted. Building envelope air tightness and insulation installation is verified to be in accordance with Section 701.4.3.2(1) and 701.4.3.2(2).” I noticed this item requires 701.4.3.2(1) and 701.4.3.2(2) whereas the 2012 Standard required 701.4.3.2(1) or 701.4.3.2(2). Is this accurate? I believe the first draft had the ‘or’. The 2012 NGBS was definitely ‘or’.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		

TG Reason:	
TG Vote:	

Proposal ID TBD	LogID 6396	701.4.3.4 Fenestration air leakage		
Submitter:	Eric Lacey, RECA			
Requested Action:	Add new as follows			
Proposed Change:	<table border="1"> <tr> <td> <p><b>701.4.3.X Fenestration U-factor and SHGC.</b> U-factors of fenestration products (windows, doors and skylights) are determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer. The solar heat gain coefficient (SHGC) of glazed fenestration products (windows, glazed doors, and skylights) are determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer.</p> </td> <td> <p><b>Mandatory</b></p> </td> </tr> </table> <p><b>703.2.5.1</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 Table 703.2.5.1. 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><b>701.4.3.X Fenestration U-factor and SHGC.</b> U-factors of fenestration products (windows, doors and skylights) are determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer. The solar heat gain coefficient (SHGC) of glazed fenestration products (windows, glazed doors, and skylights) are determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer.</p>	<p><b>Mandatory</b></p>
<p><b>701.4.3.X Fenestration U-factor and SHGC.</b> U-factors of fenestration products (windows, doors and skylights) are determined in accordance with NFRC 100 by an accredited, independent laboratory, and labeled and certified by the manufacturer. The solar heat gain coefficient (SHGC) of glazed fenestration products (windows, glazed doors, and skylights) are determined in accordance with NFRC 200 by an accredited, independent laboratory, and labeled and certified by the manufacturer.</p>	<p><b>Mandatory</b></p>			
Reason:	This proposal clarifies that fenestration U-factors and SHGCs should be determined in accordance with NFRC certified ratings, consistent with the requirements of the IECC and the Energy Star Windows program. This has been a requirement in the IECC since the mid-1990s, and it is a requirement in nearly every state for residential construction. The vast majority of residential windows, doors, and skylights are already certified and labeled according to NFRC standards, so we do not expect this requirement to create any issues or any added cost. Requiring uniform, objectively-determined ratings for fenestration will help to ensure the expected performance and quality of green homes and will simplify certification for green raters.			
TG Recommendation (AS or AM or D):				
Modification of Proposed Change:				
TG Reason:				
TG Vote:				

Proposal ID TBD	LogID 1503	701.4.3.4 Fenestration air leakage
Submitter:	Roger LeBrun, VELUX America Inc.	
Requested Action:	Revise as follows	
Proposed Change:	<p>701.4.3 701.4.3.4 Fenestration air leakage.</p> <p>Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m<sup>2</sup>), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/m<sup>2</sup>), when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled. <del>This practice does not apply to site-built windows, skylights, and doors.</del></p>	
Reason:	A green code should not leave a gaping hole by exempting "site-built" windows, skylights and doors. Only rated products meeting the mandatory requirements are acceptable, no matter how they are built, otherwise what does mandatory really mean?	
TG Recommendation (AS or AM or D):		

<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

Proposal ID TBD	LogID 1504	701.4.3.4 Fenestration air leakage
<b>Submitter:</b>	Craig Conner, Building Quality	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	701.4.3.4 Fenestration air leakage. <u>Jalousie windows shall have an air infiltration rate of no more than 1.3 cfm per square foot.</u>	
<b>Reason:</b>	Jalousie windows are tropical windows made to admit breezes. Sealing them tight is expensive and nonsensical.	
<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 6508	701.4.3.5 Recessed lighting
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<del>701.4.3.5 Recessed lighting</del> <u>Lighting in building thermal envelope</u> . Recessed luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All <del>recessed</del> luminaires in the building thermal envelope are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All <del>recessed</del> luminaires <u>in the building thermal envelope</u> are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.	
<b>Reason:</b>	The vast majority of lighting luminaires are recessed in the building thermal envelope. However, the scope of the requirements of this section should apply to all lighting luminaires in the building thermal envelope, not just recessed lighting. With fast changing lighting technology, it's possible lighting luminaires will penetrate the building thermal envelope but not be considered recessed lighting. The revisions would apply to all lighting luminaires "in" the building thermal envelope, but would not apply to luminaires "on" the building thermal envelope. Consider, for example, ½" thick LED lighting panels which are installed in place of ½" drywall on the ceiling. These panels may not be considered recessed but clearly should be included in the requirements of this section.	
<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 6509	701.4.5 Boiler supply piping
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<del>701.4.5 Boiler supply piping</del> . Boiler supply piping in unconditioned space <u>supplying or returning heated water or steam</u> is insulated.	

<b>Reason:</b>	It seems this more clearly describes the intent of the requirements of this section.
<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 6395	702.2.1 ICC IECC analysis (Energy performance levels)
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<del>702.2.1 ICC IECC analysis. The building complies with Section R405 or Section C407 of the 2018 IECC, the IECC Simulated Performance Alternative, using either the Energy efficiency features are implemented to achieve energy cost or source energy performance option, that meets the ICC IECC. A documented analysis using software in accordance with IGC IECC, Section R405, or IGC IECC Section C407.2 through C407.5, applied as defined in the ICC IECC, is required.</del>	
<b>Reason:</b>	This proposal will simplify and clean up the language for the performance compliance option in Section 702.2.1, but should not materially change the requirements of that section. While 702.2.1 already requires compliance with the IECC's Simulated Performance Alternative, it does so in an ambiguous and confusing way. We propose a very simple solution: clarify that compliance with the IECC performance path is required to comply under this option. This could easily be accomplished by deleting the confusing language and replacing it with simple references to Sections R405 and C407. These two sections contain all of the assumptions, references, and documentation requirements necessary to complete a full simulated performance analysis. This would also eliminate the separate requirement for documentation in the second sentence, since that documentation is included in Sections R405.4 and C407.4.	
<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 6485	702.2.1 ICC IECC analysis (Energy performance levels)
<b>Submitter:</b>	Steven Armstrong, ESG Energy	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	Leave current IECC code as is for 2018 Standard	
<b>Reason:</b>	Need to consider not changing the current IECC code level for the 2018 Standard. Fear is that we are going to code ourselves out of work. At present many areas do not subscribe to the 2015 IECC and or some derivation of the code.	
<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 6470	702.2.1 ICC IECC analysis (Energy performance levels)
<b>Submitter:</b>	Chuck Foster, Charles R. Foster Associates	

<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	Energy efficiency features are implemented to achieve energy cost or <del>source energy</del> performance that meets the ICC IECC.
<b>Reason:</b>	Source energy is an unstable metric for estimating energy performance, especially in a time of rapidly changing electric generation fleets. In addition, source energy overtly discriminates against the use of renewable energy sources, thereby putting it at tension with the goals and purpose of 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 6172	702.2.1 ICC IECC analysis (Energy performance levels)
<b>Submitter:</b>	Keith Dennis, NRECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>702.2.1 ICC IECC Analysis.</b> Energy efficiency features are implemented to achieve energy cost or <u>site energy</u> or source energy performance that meets the ICC IECC.	
<b>Reason:</b>	The source energy calculations contain flaws, which is why DOE recently underwent a process to adjust them. Some of the issues are that source energy for renewable energy treats that energy as if it were from a fossil fuel plant and multiplies it by about 3, creating a counterproductive result. Similarly, nuclear energy, which makes up 20% of our national fuel mix and generates no emissions, is treated worse than fossil fuel because nuclear reactions are hot. This has little to do with CO2 emissions goals or energy efficiency. Using site and source energy provides flexibility.	
<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 6150	702.2.1 ICC IECC analysis (Energy performance levels)
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	702.2.1 ICC IECC Analysis. Energy efficiency features are implemented to achieve energy cost or <del>source</del> <u>site</u> energy performance that meets the ICC IECC.	
<b>Reason:</b>	Site energy is measurable, verifiable, and is directly correlated to energy costs in a remodeled building. Source energy estimates are widely variable and can be easily used to "game" the system. In addition, source energy proponents claim that grid-based renewables have the highest "source" factors, penalizing builders and customers that use renewable forms of electricity. Site energy is also consistent with the equipment energy efficiency metrics shown in this chapter. ASHRAE has also stated that site energy is the preferred choice when looking at "net zero" energy buildings or energy comparisons.	
<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 6329	702.2.1 ICC IECC analysis (Energy performance levels)
<b>Submitter:</b>	Neil Leslie, Gas Technology Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>702.2.1 ICC IECC analysis.</b> 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 C407.2 through C407.5, applied as defined in the ICC IECC, is required. <u>For heating systems, the standard reference design shall be an air source heat pump. For service water heating, the standard reference design shall be an electric resistance storage water heater. For cooling systems, the standard reference design shall be an air cooled split system air conditioner.</u></p>	
<b>Reason:</b>	<p>A single technology-blind baseline performance requirement is critical for a uniform and consistent implementation of the Standard 700 primary intent. Shifting to a single baseline design provides an equitable credit to all technologies that have lower annual costs compared to the single baseline level irrespective of energy form or technology design. It establishes fixed reference home performance requirements BEFORE making the technology and energy choices for the rated home. A single reference design methodology creates a level playing field for all technology and energy forms and provides equitable treatment of advanced renewable, waste heat recovery, hybrid, and multi-fuel technology options. It is especially important for equitable and consistent evaluation of on-site power generation and combined heat and power systems.</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 6510	702.2.2 Energy performance analysis
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>702.2.2 Energy performance analysis.</b> Energy 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. Points are assigned using the following formula:</p> <p style="text-align: center;"><b>Points = 30 + (percent above ICC IECC 2015)* 2</b></p> <p><del><b>Multifamily Building Note:</b></del> Modeling <b>702.2.2.1 Multifamily buildings.</b> Multifamily building energy performance analysis is completed building-wide using one of the following methods: whole building energy modeling, a unit-by-unit <u>energy modeling</u> approach, or a building average of a unit-by-unit <u>energy modeling</u> approach.</p>	
<b>Reason:</b>	<p>This non-mandatory Note appears to be a mandatory requirement. Revising the language as such. Also, the requirements may be better stated with "Modeling" revised out of the first part of the sentence.</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 6533	702.2.2 Energy performance analysis
<b>Submitter:</b>	Craig Conner, Building Quality	
<b>Requested Action:</b>	Revise as follows	

<b>Proposed Change:</b>	2.2.2 Energy performance analysis. Energy 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, <del>and appliances,</del> <u>and on-site renewable energy.</u> Points are assigned using the following formula:
<b>Reason:</b>	On-site renewable energy reduces the net energy used by the residence. Use of on-site renewables lowers the use of non-renewable fossil fuels. On-site renewables are almost essential to highly efficient homes and sometimes the only practical way to get to zero or near zero energy homes.
<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 6512	703.1.1 UA Compliance
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>703.1.1 UA-Building thermal envelope C-compliance.</b> The building thermal envelope is in compliance with Section 703.1.1.1 or 703.1.1.2. <b>Exception:</b> Section 703.1.1 is not required for Tropical Climate Zone.	
<b>Reason:</b>	UA is one of the two options for compliance required by 703.1.1. The other is compliance via prescriptive R-values and prescriptive fenestration requirements – but no UA calculation is required.	
<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 6398	703.1.1.1 Maximum UA
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>703.1.1.1 Maximum UA and SHGC.</b> For IECC residential <u>buildings</u> , the total building UA is less than or equal to the total maximum UA as computed by <u>2018 2015</u> IECC Section R402.1.5. <u>The SHGC requirements for fenestration in Table R402.1.2 are also met.</u> For IECC commercial <u>buildings</u> , the total UA is less than or equal to the sum of the UA for <u>2018 2015</u> IECC Tables C402.1.4 and C402.4, including the U-factor times the area and C-factor or F-factor times the perimeter. <u>The SHGC requirements for fenestration in Table C402.4 are also met.</u> The total UA proposed and baseline calculations are documented. REScheck or COMcheck is deemed to provide UA calculation documentation.	
<b>Reason:</b>	This proposal clarifies that the fenestration SHGC requirements from the IECC have to be met whether the user chooses the UA compliance method (section 703.1.1.1) or the prescriptive-components compliance method (section 703.1.1.2). It also updates the referenced IECC from the 2015 to the 2018 Edition. The current prescriptive component compliance option (section 703.1.1.2) already recognizes that SHGC requirements also need to be met, but this requirement was inadvertently not mentioned in the Maximum UA option (section 703.1.1.1), potentially creating confusion. This proposal corrects this issue. SHGC requirements are a critical part of the thermal envelope and must be met regardless of how U-factor compliance is determined.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		

TG Reason:	
TG Vote:	

Proposal ID TBD	LogID 6399	703.1.1.2 Prescriptive R-values and fenestration requirements
Submitter:	Eric Lacey, RECA	
Requested Action:	Revise as follows	
Proposed Change:	<b>703.1.1.2 Prescriptive R-values and fenestration requirements.</b> The building thermal envelope is in accordance with the insulation <del>and fenestration</del> requirements of <del>2018</del> <u>2015</u> IECC Table <u>R402.1.2</u> <del>R402.1.4</del> or Tables C402.1.3. The fenestration U-factors and SHGCs are in accordance with Table <u>703.2.5.1</u> and or <u>2018</u> IECC Table C402.4. <del>The SHGC is in accordance with the 2015 IECC requirements.</del>	
Reason:	The next Edition of ICC-700 should correspond with, and build upon the efficiency of, the 2018 IECC. While we expect that generic references to the IECC will be updated to the 2018 Edition in the Chapter 13 Referenced Standards, wherever there is a reference to a specific IECC Edition in the text (and particularly where there is a citation to a specific table or section), we generally support updating the reference to the 2018 IECC. This proposal applies the 2018 IECC prescriptive table as the prescriptive baseline for insulation requirements in the 2018 ICC-700. It also references ICC-700 Table 703.2.5.1 for fenestration U-factor and SHGC, which we expect will be updated to correspond with the 2018 IECC in a separate proposal. Not only will this replace an external reference with an internal reference, but it will also eliminate any conflicts between fenestration requirements in ICC-700 and the IECC. The combination of this proposal and a separate proposal to adopt the 2018 IECC fenestration requirements will result in a small improvement in efficiency in most climate zones because of improvements to fenestration U-factors, and will not result in any rollbacks in efficiency in ICC-700. We also note that the section reference in the 2015 ICC-700 to the 2015 IECC prescriptive table is incorrect – it should be Table R402.1.2. (We recommend that Staff correct this in the 2015 ICC-700 in future printings.) However, because we do not yet have a published version of the 2018 IECC, we ask that Staff ensure that the section numbers are consistent for the 2018 editions of the IECC and ICC-700.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 6511	703.1.1.2 Prescriptive R-values and fenestration requirements
Submitter:	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
Requested Action:	Revise as follows	
Proposed Change:	<p><b>703.1.1.2 Prescriptive R-values and fenestration requirements.</b> The building thermal envelope is in accordance with the insulation and fenestration requirements of <del>2015-ICC</del> <u>2015</u> IECC Table R402.1.1 or Tables C402.1.3 and C402.4. The SHGC is in accordance with the <del>2015-ICC</del> <u>2015</u> IECC requirements.</p> <p><b>703.1.2 Building Envelope Leakage.</b> The building thermal envelope is in accordance with <del>2015-ICC</del> <u>2015</u> IECC R402.4.1.2or C402.5 as applicable.  <b>Exception:</b> Section 703.1.2 is not required for Tropical Climate Zone.</p> <p><b>703.1.3 Duct Testing.</b> The duct system is in accordance with <del>2015-ICC</del> <u>2015</u> IECC R403.3.2 through R403.3.5 as applicable.</p> <p><b>705.6.2.1 Air leakage validation of building or dwelling units.</b> A visual inspection is performed as described in 701.4.3.2(2) and air leakage testing is performed in accordance with ASTM E779or ASTM E1827.</p> <p style="text-align: center;"><b>(Points awarded only for buildings where building envelope leakage testing is not required by <del>2015</del> <u>2015</u> ICC IECC.)</b></p> <p><b>(Points not awarded if points are taken under Section 703.2.4)</b></p>	

<b>Reason:</b>	Suggesting the reference to ICC IECC be consistent throughout the document. There are currently references to “International Energy Conservation Code”, “IECC”, “2015 IECC”, and “ICC IECC”. Our recommendation is “ICC IECC” should be used consistently in the standard.
<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 1518</b>	<b>703.1.3 Duct Testing</b>
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<b>Submitter:</b>	Rachel Della Valle, Southern Energy Management
<b>Requested Action:</b>	
<b>Proposed Change:</b>	
<b>Reason:</b>	703.1.3 Duct Testing. Requires duct testing per 2015 IECC unless ducts and hvac system are within the building thermal envelope. Correct?
<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 6513</b>	<b>703.2.1 UA improvement</b>
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<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	<p><b>703.2.1 UA improvement.</b> The total building thermal envelope UA is less than or equal to the <u>baseline</u> total UA resulting from the U-factors provided in Table 703.2.1(a) or <u>ICC IECC Tables C402.1.4 Group R and C402.4</u>, as applicable. Where insulation is used to achieve the UA improvement, the insulation installation is in accordance with <del>Grade 1 requirements as graded</del> <u>Section 701.4.3.2.1 as verified</u> by a third-party. Total UA is documented using a RESCheck, COMCheck, or equivalent report to verify the baseline and the UA improvement.</p> <p style="text-align: center;"><b>Table 703.2.1(a)</b> <b>Equivalent <u>Baseline</u> U-Factors<sup>a</sup></b></p> <p style="text-align: center;"><b>Table 703.2.1(b)</b> <b>Points for Improvement in Total Building Thermal Envelope UA <u>Compared to Baseline UA</u></b></p> <p>Exception: <del>For the Tropical Climate Zone,</del> crawl space, basement, <u>and</u> floor u-factors are <del>not applicable</del> excluded from the total building thermal envelope UA improvement calculation.</p>
<b>Reason:</b>	Primarily, attempting to clarify the baseline UA and that the points attained for improving the total building thermal envelope UA are compared to the baseline determined from the U-factors in Table 703.2.1(a). Also, replacing the reference to Grade I with reference to Section 701.4.3.2.1, as the term “Grade 1” is based on requirements not defined, described, or referenced in the standard. And, revising the text of the Exception to Table 703.2.1(b) to what we surmise is the intent of the exception.
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	

TG Reason:	
TG Vote:	

Proposal ID TBD	LogID 6514	703.2.4 Building envelope leakage
Submitter:	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
Requested Action:	Revise as follows	
Proposed Change:	<b>703.2.4 Building envelope leakage.</b> The maximum building envelope leakage rate is <u>verified by a third-party</u> in accordance with Table 703.2.4 and whole building ventilation is provided in accordance with Section 902.2.1.	
Reason:	Considering points are being awarded for this practice, it is important the building envelope leakage is verified by a third-party.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 1519	703.2.5 Building envelope leakage
Submitter:	Carl Seville, SK Collaborative	
Requested Action:	Revise as follows	
Proposed Change:	Add an alternative leakage measurement of CFM per Square foot of building envelope at 50 PA (ELR50) in addition to ACH50 for points in this section. I recommend adding an additional column to table 703.2.4 as noted below: Max Env Leakage Climate Zone Rate ELR50 ACH50 Balance of table remains the same .28 4 .23 3 .18 2 .13 1	
Reason:	A recent study by CARB has determined that ACH50 is an inaccurate measurement for small multifamily apartment and unfairly penalizes units that are only measured via ACH50.	
Concurrent Review Staff Note:	This proposal is also being reviewed by TG-6 (Multifamily) as the proposal will affect multifamily buildings.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 6066	703.2.5.1 Fenestration Specifications
Submitter:	Thomas Culp, Aluminum Extruders Council	
Requested Action:	Revise as follows	
Proposed Change:	<b>703.2.5.1</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 Table 703.2.6.1 or IECC Table C402.4 where applicable.  (rest of section unchanged)	
Reason:	While sections 703.2.6.1 and 703.2.6.2 are very appropriate for low-rise residential, they are still incorrect for high-rise residential. In fact, by referring to U-factors that originate from the residential chapter of the IECC and the Energy Star program for Windows, they are already inconsistent with Sections 703.1.1.1, 703.1.1.2, and 703.2.1 which properly refer to 2015 IECC table C402.4 as the baseline for windows in buildings that fall under the commercial IECC, including multifamily four stories and above. (Note: The	

	Energy Star program for Windows is applicable only to windows in residential buildings three stories or less in height, and specifically excludes windows intended to be installed in buildings four stories or higher – see attached “Energy Star Product Specification Residential Windows, Doors, and Skylights, Eligibility Criteria Version 6.0”, sections 2A, 2B, and 1M.) Corrections have been made to other parts of Section 703 to accommodate high-rise multifamily, but not here yet. To avoid a technical inconsistency with 703.1.1.2, Section 703.2.5.1 also needs to be revised as shown with the reference to IECC Table C402.4, either using the phrase “as applicable” or specifically stating for residential buildings four stories or higher above grade. Additionally, the main criteria in sections 703.2.5.1 and enhanced criteria in 703.2.5.2 will presumably be reviewed in accordance with changes to the 2018 IECC. As such, this would be an appropriate time to establish new fenestration criteria for buildings four stories and higher based on the correct baseline from the commercial IECC, similar to how requirements for mid and high-rise multifamily buildings were addressed in other sections last cycle (air leakage, radiant barriers, HVAC efficiency, water heating). I will gladly assist in this process. Not only will this improve technical consistency and usability of the NGBS for high-rise residential (think 10, 20, 30 stories, not just 4), but it will also make it more attractive for adoption into standards such as ASHRAE 189.1.
<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 6400	703.2.5.1 Fenestration Specifications
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>703.2.5 Fenestration</b></p> <p><b>703.2.5.1</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 Table 703.2.5.1. 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 m2) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.</p>	<b>Mandatory for Section 703</b>
	<p><del><b>703.2.5.1.1 Dynamic glazing.</b> Dynamic glazing is permitted to satisfy the SHGC requirements of Table 703.2.5.1 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. Fenestration with dynamic glazing is considered separately from other fenestration and area-weighted averaging with fenestration that does not use dynamic glazing is not permitted. Dynamic glazing is not required to be automatically controlled</del></p> <p>or comply with minimum SHGC ratio when both the lower and higher labeled SHGC already comply with the requirements of Table 703.2.5.1.</p> <p><b>Table 703.2.5.1</b> <b>Fenestration Specifications</b> <b>[No Change to Table]</b></p>	<b>Mandatory for Section 703</b>
	<p><u><b>703.2.5.1.1 Dynamic glazing.</b> Dynamic glazing is permitted to satisfy the SHGC requirements of Table 703.2.5.1 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. Fenestration with dynamic glazing is considered separately from other fenestration and area-weighted averaging with fenestration that does not use dynamic glazing is not permitted. Dynamic glazing is not required to be automatically controlled</u></p> <p>or comply with minimum SHGC ratio when both the lower and higher labeled SHGC already comply with the requirements of Table 703.2.5.1.</p>	

	<p><b>703.2.5.2</b> The NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with Table 703.2.5.2(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.</p>	<p><b>Per Table 703.2.5.2(a) or Table 703.2.5.2(b) or Table 703.2.5.2(c)</b></p>
	<p><del><b>703.2.5.2.1 Dynamic glazing.</b> Dynamic glazing is permitted to satisfy the SHGC requirements of Tables 703.2.5.2(a), 703.2.5.2(b), and 703.2.5.2(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. Fenestration with dynamic glazing is considered separately from other fenestration, and area-weighted averaging with fenestration that does not use dynamic glazing is not permitted. Dynamic glazing is not required to be automatically controlled or comply with minimum SHGC ratio when both the lower and higher labeled SHGC already comply with the requirements of Tables 703.2.5.2(a), 703.2.5.2(b), and 703.2.5.2(c).</del></p>	
	<p><b>703.2.5.2(a) and (b) and (c) [No changes to tables]</b></p>	
	<p><u><b>703.2.5.2.1 Dynamic glazing.</b> Dynamic glazing is permitted to satisfy the SHGC requirements of Tables 703.2.5.2(a), 703.2.5.2(b), and 703.2.5.2(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. Fenestration with dynamic glazing is considered separately from other fenestration, and area-weighted averaging with fenestration that does not use dynamic glazing is not permitted. Dynamic glazing is not required to be automatically controlled or comply with minimum SHGC ratio when both the lower and higher labeled SHGC already comply with the requirements of Tables 703.2.5.2(a), 703.2.5.2(b), and 703.2.5.2(c).</u></p>	

**Reason:** This proposal is purely editorial, but critical for proper application of the fenestration requirements of ICC-700. As Section 703.2.5.1 is currently presented in the published ICC-700, it is confusing, and we are concerned that code users may misinterpret the requirements. Likewise, Section 703.2.5.2 and its accompanying tables are similarly formatted and should also be fixed to better match the intent of the sections. Section 703.2.5.1 is the charging section that implements mandatory requirements for fenestration in the prescriptive path. These requirements are pulled directly from the 2015 IECC prescriptive table, which is reproduced in part as Table 703.2.5.1. An exception that applies only to dynamic glazing was added in the 2015 Edition, but it is just that – an exception to the table requirements. However, because of a page break and text formatting, Table 703.2.5.1 (mandatory fenestration requirements) appears to be a subsection of the dynamic glazing exception (Section 703.2.5.1.1). In addition, the designation of “mandatory” appears on page 58 with the charging language, but does not appear on page 59 alongside the fenestration requirements. It should be clearer to the user that both the charging language and table are mandatory for the prescriptive path. This proposal presents the fenestration table as intended: Table 703.2.5.1 should directly follow the charging language of Section 703.2.5.1, and it should be clearly noted as “mandatory.” This section and table should be followed by the exception dealing with dynamic glazing. We ask Staff to make this very clear through formatting and numbering. Similarly, we recommend moving Tables 703.2.5.2(a) through (c) to directly follow the charging language, Section 703.2.5.2. The dynamic glazing exception to the tables should be placed at the end of the tables so that the user is not confused about the application of these options.

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

**Modification of Proposed Change:**

**TG Reason:**

**TG Vote:**

<b>Proposal ID TBD</b>	<b>LogID 6401</b>	<b>703.2.5.1 Fenestration Specifications</b>
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>Table 703.2.5.1</b>	

Fenestration Specifications		
Climate Zone	U-factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	.50	.25
2	.40	.25
3	<del>.35</del> 0.32	.25
4	<del>.35</del> 0.32	.40
5 to 8	<del>.32</del> 0.30*	Any
Skylights and TDDs (maximum certified ratings)		
1	.75	.30
2	.65	.30
3	.55	.30
4	.55	.40
5 to 8	.55	Any

\* **Exception:** A maximum U-factor of 0.32 shall apply in climate zones 5 – 8 to vertical fenestration products installed in buildings located: (i) above 4000 feet in elevation above sea level or (ii) in windborne debris regions where protection of openings is required under IRC section R301.2.1.2.

**Reason:** This proposal does two things. First, it incorporates the improvements to fenestration U-factors in climate zones 3-8 approved for the 2018 IECC. Second, it adopts a limited exception to these U-factors for climate zones 5-8 for fenestration products installed in buildings located in high-altitude areas or windborne debris regions, and permits fenestration in those locations to comply with the current U-factor requirement for the 2015 ICC-700 (0.32). To be clear, we support improving fenestration U-factors in the 2018 ICC-700 consistent with improvements in the 2018 IECC, with or without the limited exception that we propose. The lower 2018 U-factors will bring about a significant improvement in comfort and energy performance in buildings from climate zones 3-8. This improvement was widely supported in the process that established the 2018 IECC by homebuilders, energy efficiency advocates, and the U.S. DOE. As noted in the supporting documents for several of these proposals, the vast majority of residential fenestration available in these climate zones meets or exceeds these efficiency levels, and U.S. DOE has found these improved U-factors to be clearly cost-effective. We also believe, however, that there are certain efficiency disadvantages for fenestration installed in high-altitude or wind-borne debris regions. In high-altitude areas, a breather tube is often installed in the insulating unit, which eliminates the use of argon fill and slightly increases the overall U-factor. In wind-borne debris regions, the use of laminated glass can reduce the gap width in an insulating unit, again resulting in a slight U-factor increase. In climate zones 5-8 (where the updated U-factor requirement would be 0.30), for fenestration installed in high-altitude regions (over 4,000 feet) or where fenestration is required to be impact-resistant, we recommend an exception that would continue to allow a 0.32 U-factor, which is the current requirement in the 2015 IECC and the 2015 ICC-700 for these climate zones. We note that this exception, which was contained in Proposal RE19-16 for the 2018 IECC, had more than 2/3 support among Governmental Member Voting Representatives at the Public Comment Hearing for the 2018 IECC, but it narrowly missed the required 2/3 majority in the online CDPAccess voting. Regardless, we believe this exception will be welcomed by builders and developers in both coastal and high-altitude regions, and it should be a part of ICC-700.

<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 6402</b>	<b>703.2.5.2 Enhanced Fenestration Specifications</b>																																							
<b>Submitter:</b>	Eric Lacey, RECA																																								
<b>Requested Action:</b>	Revise as follows																																								
<b>Proposed Change:</b>	<p style="text-align: center;"><b>Table 703.2.5.2(a)</b> <b>Enhanced Fenestration Specifications</b></p> <table border="1"> <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; TDDs</th> <th>SHGC Skylights &amp; TDDs</th> <th>POINTS</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>.50</td> <td>.25</td> <td>.25</td> <td>.25</td> <td></td> </tr> <tr> <td>2</td> <td>.40</td> <td>.25</td> <td>.25</td> <td>.25</td> <td></td> </tr> <tr> <td>3</td> <td><del>.35</del> 0.32</td> <td>.25</td> <td>.25</td> <td>.25</td> <td></td> </tr> <tr> <td>4</td> <td><del>.35</del> 0.32</td> <td>.40</td> <td>.40</td> <td>.40</td> <td></td> </tr> <tr> <td>5 to 8</td> <td><del>.32</del> 0.30*</td> <td>Any</td> <td>Any</td> <td>Any</td> <td></td> </tr> </tbody> </table>					Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-factor Skylights & TDDs	SHGC Skylights & TDDs	POINTS	1	.50	.25	.25	.25		2	.40	.25	.25	.25		3	<del>.35</del> 0.32	.25	.25	.25		4	<del>.35</del> 0.32	.40	.40	.40		5 to 8	<del>.32</del> 0.30*	Any	Any	Any	
Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-factor Skylights & TDDs	SHGC Skylights & TDDs	POINTS																																				
1	.50	.25	.25	.25																																					
2	.40	.25	.25	.25																																					
3	<del>.35</del> 0.32	.25	.25	.25																																					
4	<del>.35</del> 0.32	.40	.40	.40																																					
5 to 8	<del>.32</del> 0.30*	Any	Any	Any																																					



1	0.40	0.25	0.60	0.28	1
2	0.40	0.25	0.60	0.28	1
3	0.30	0.25	0.53	0.28	2
4	0.30	0.40	0.53	0.35	3
5	0.27 <sup>a</sup>	Any	0.50	Any	3
6	0.27 <sup>a</sup>	Any	0.50	Any	4
7	0.27 <sup>a</sup>	Any	0.50	Any	4
8	0.27 <sup>a</sup>	Any	0.50	Any	4

Exception: For Sun-tempered designs meeting the requirements of Section 703.7.1, the SHGC is permitted to be 0.40 or higher on south facing glass.  
~~a. An equivalent energy performance is permitted based on fenestration meeting the requirements of Section B. Equivalent Energy Performance in ENERGY STAR Product Specification Residential Windows, Doors, and Skylights, Eligibility Criteria Version 6.0.~~

**Reason:** This proposal is intended to remove a high SHGC trade-off (footnote a) from this prescriptive option as unnecessary and potentially inefficient in this context. This type of trade-off is not permitted by the IECC and has been rejected many times. Whether high SHGC fenestration can be beneficial in some northern climates is very dependent on window orientation, overhangs and other factors. Typically, high SHGC is problematic particularly on eastern and western orientations, where it causes problems with comfort, cooling system design and other issues, but it may be beneficial on southern orientations, particularly with overhangs. This fact is already recognized in the sun-tempered design section of ICC-700 (Section 703.7.1), which establishes a specific compliance option for this type of design tailored to these considerations. By contrast, the trade-off in footnote a allows a less efficient U-factor without any regard to these issues. Section 703.7.1 is the appropriate approach to this issue. A continued exception (in footnote a) that does not reflect these important considerations is a bad idea. The exception trades a lower U-factor (which guarantees energy savings) for a higher SHGC (which may or may not produce savings, or could even raise costs), which illustrates why it has been consistently rejected for the IECC. The current SHGC exception is particularly problematic now that the IECC prescriptive U-factor requirements for 2018 are already set at 0.30 for climate zones 5-8. Table 703.2.5.2(a) should represent at least a small step in U-factor above the prescriptive requirements that will apply in states adopting the 2018 IECC.

<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 6067</b>	<b>703.2.5.2 Enhanced Fenestration Specifications</b>
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<b>Submitter:</b>	Thomas Culp, Aluminum Extruders Council
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	Also see comment ID 6066 on Section 703.2.5.1. Need to add parallel fenestration criteria for multifamily buildings four stories and higher based on the correct commercial IECC baseline. Alternately, it could simply reference the 2018 IgCC as follows (proper section number to be added following development of 2018 IgCC): <b>703.2.5.2</b> The NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with Table 703.2.5.2(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. <u>Fenestration in multifamily buildings four or more stories in height shall be considered in compliance with Table 703.2.5.2(a) if the U-factor and SHGC are in accordance with the prescriptive fenestration requirements of the <i>International Green Construction Code</i>.</u>
<b>Reason:</b>	Also see comment #6066 on Section 703.2.5.1. While sections 703.2.6.1 and 703.2.6.2 are very appropriate for low-rise residential, they are still incorrect for high-rise residential. In fact, by referring to U-factors that originate from the residential chapter of the IECC and the Energy Star program for

	Windows, they are already inconsistent with Sections 703.1.1.1, 703.1.1.2, and 703.2.1 which properly refer to 2015 IECC table C402.4 as the baseline for windows in buildings that fall under the commercial IECC, including multifamily four stories and above. (Note: The Energy Star program for Windows is applicable only to windows in residential buildings three stories or less in height, and specifically excludes windows intended to be installed in buildings four stories or higher – see attached “Energy Star Product Specification Residential Windows, Doors, and Skylights, Eligibility Criteria Version 6.0”, sections 2A, 2B, and 1M.) Corrections have been made to other sections to accommodate high-rise multifamily (air leakage, radiant barriers, HVAC efficiency, water heating), but not here yet. The main criteria in sections 703.2.5.1 and enhanced criteria in 703.2.5.2 will presumably be reviewed in accordance with changes to the 2018 IECC. As such, this would be an appropriate time to establish new fenestration criteria for buildings four stories and higher based on the correct baseline from the commercial IECC, similar to how requirements for mid and high-rise multifamily buildings were addressed in other sections last cycle. I will gladly assist in this process. Not only will this improve technical consistency and usability of the NGBS for high-rise residential (think 10, 20, 30 stories, not just 4), but it will also make it more attractive for adoption into standards such as ASHRAE 189.1.
<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 6161	703.3.3 Heat pump heating efficiency
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Delete without substitution	
<b>Proposed Change:</b>	<del>a. Equipment designed to operate in cold climates is recommended to minimize use of resistance heat when installing a heat pump in Zones 6-8.</del>	
<b>Reason:</b>	This footnote is not needed, as the minimum code requires heat pump supplemental heating control in all climate zones, not just 6-8. See IECC Section R403.1.2 "Heat Pump supplementary heat (Mandatory)". Also, the language discusses the installation of the heat pump, not the operation. The installation may be for one day, while the operation is going to be for 15+ years.	
<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 6168	703.3.3 Heat pump heating efficiency																					
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute																						
<b>Requested Action:</b>	Revise as follows																						
<b>Proposed Change:</b>	Table 703.3.3(3) Gas Engine-Driven Heat Pump Heating  <table style="margin-left: 40px;"> <thead> <tr> <th>Efficiency</th> <th colspan="6">Climate Zone</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6-8</th> </tr> </thead> <tbody> <tr> <td>&gt; 1.3 COP at 47F</td> <td>20</td> <td>7</td> <td>14</td> <td>14</td> <td>16</td> <td>18</td> </tr> </tbody> </table>		Efficiency	Climate Zone							1	2	3	4	5	6-8	> 1.3 COP at 47F	20	7	14	14	16	18
Efficiency	Climate Zone																						
	1	2	3	4	5	6-8																	
> 1.3 COP at 47F	20	7	14	14	16	18																	
<b>Reason:</b>	Gas engine-driven heat pumps have much lower efficiency than electric heat pumps at 47 F (2-3 times less efficient), yet are given more points. They are even given points in climate zone 1 when electric products get no points. This revision equalizes the points, so that the standard does not promote the use of very low efficiency products. In addition, field performance shows even lower efficiency. See <a href="http://www.sciencedirect.com/science/article/pii/S0140700716300603">http://www.sciencedirect.com/science/article/pii/S0140700716300603</a> . Here is a quote from the abstract: "The average COP unit of these systems varied from 0.15 to 0.85 during field operation. The gas engines were found to operate at significantly lower loads than their design capacity, and therefore, produced																						

	overall lower efficiencies." In addition, research by ORNL shows the drop-off in efficiency at lower temperatures. See Table 3 in the report that can be found at <a href="http://info.ornl.gov/sites/publications/files/Pub60271.pdf">http://info.ornl.gov/sites/publications/files/Pub60271.pdf</a>
<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 6065	703.3.6 Ground source heat pump installation
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	Table 703.3.6 Ground Source Heat Pump Climate Zone  5-68	
<b>Reason:</b>	Ground Source Heat Pump have been installed and used successfully in Alaska and Sweden and should receive credit in a green building code. It is estimated that 20% of homes in Sweden use ground source heat pumps. See the following links for information: <a href="http://www.adn.com/energy/article/habitat-humanitys-geothermal-home-paying/2013/07/22/">http://www.adn.com/energy/article/habitat-humanitys-geothermal-home-paying/2013/07/22/</a> <a href="http://www.cchrc.org/sites/default/files/docs/GSHP_YearTwoUpdate_0.pdf">http://www.cchrc.org/sites/default/files/docs/GSHP_YearTwoUpdate_0.pdf</a> <a href="https://pangea.stanford.edu/ERE/db/WGC/papers/WGC/2015/01021.pdf">https://pangea.stanford.edu/ERE/db/WGC/papers/WGC/2015/01021.pdf</a>	
<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 6064	703.3.6 Ground source heat pump installation
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	Table 703.3.6 Ground Source Heat Pump  Efficiency  $\geq 16.0$ EER <sub>1</sub> $\geq 3.6$ COP $\geq 24.0$ EER <sub>1</sub> $\geq 4.3$ COP $\geq 28.0$ EER <sub>1</sub> $\geq 4.8$ COP	
<b>Reason:</b>	This will make the requirements for the minimum efficiency consistent with other tables (such as 703.3.4 and 703.3.5, which include the > symbol). Please note that the symbols to be used are "greater than or equal to", not "greater than".	
<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 6468	703.4.4 Duct Leakage
<b>Submitter:</b>	Greg Johnson, Outdoor Power Equipment Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>703.4.4 Aboveground Duct Leakage.</b> 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 6 percent of the system design flow rate or 4 cubic feet per minute per 100 square feet of conditioned floor area.</p>	
	<p><b>703.4.5 Buried Duct Leakage.</b> Prior to backfill the entire central HVAC buried duct system and register boots, is tested by a third party for total leakage at a pressure differential of 2 inches w.g. (500 Pa) and maximum air leakage is equal to or less than 0.1 percent of the system design flow rate or 0.5 cubic feet per minute per 100 square feet of conditioned floor area.</p>	<b>6</b>
<b>Reason:</b>	Buried ducts are capable of much better performance than above grade ducts, particularly with regard to leakage. It is also important for buried ducts to be water tight. In addition to there being lower temperature differentials between the interior and exterior sides of buried ducts versus above ground ducts, buried duct systems with smooth interiors provide less friction in air handling which reduces fan power requirements. Providing a superior ducting system merits a high point award.	
<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 6166	703.5.1 Water heater Energy Factor (Water heating system)
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	All tables and point values need to be revised to account for the different standards for storage water heaters ( $\leq 55$ gallons or above 55 gallons) as well as the Uniform Energy Factors which are based on 4 draw patterns.	
<b>Reason:</b>	<p>Below is the table of Uniform Energy Factors from the Code of Federal Regulations: (d) Water heaters. The uniform energy factor of water heaters shall not be less than the following: Product class Rated storage volume and input rating (if applicable) Draw pattern Uniform energy factor Gas-fired Storage Water Heater =20 gal and =55 gal Very Small 0.3456 - (0.0020 x Vr) Low 0.5982 - (0.0019 x Vr) Medium 0.6483 - (0.0017 x Vr) High 0.6920 - (0.0013 x Vr) &gt;55 gal and =100 gal Very Small 0.6470 - (0.0006 x Vr) Low 0.7689 - (0.0005 x Vr) Medium 0.7897 - (0.0004 x Vr) High 0.8072 - (0.0003 x Vr) Oil-fired Storage Water Heater =50 gal Very Small 0.2509 - (0.0012 x Vr) Low 0.5330 - (0.0016 x Vr) Medium 0.6078 - (0.0016 x Vr) High 0.6815 - (0.0014 x Vr) Electric Storage Water Heaters =20 gal and =55 gal Very Small 0.8808 - (0.0008 x Vr) Low 0.9254 - (0.0003 x Vr) Medium 0.9307 - (0.0002 x Vr) High 0.9349 - (0.0001 x Vr) &gt;55 gal and =120 gal Very Small 1.9236 - (0.0011 x Vr) Low 2.0440 - (0.0011 x Vr) Medium 2.1171 - (0.0011 x Vr) High 2.2418 - (0.0011 x Vr) Tabletop Water Heater =20 gal and =120 gal Very Small 0.6323 - (0.0058 x Vr) Low 0.9188 - (0.0031 x Vr) Medium 0.9577 - (0.0023 x Vr) High 0.9884 - (0.0016 x Vr) Instantaneous Gas-fired Water Heater 50,000 Btu/h Very Small Low 0.80 0.81 Medium 0.81 High 0.81 Instantaneous Electric Water Heater 75 gal Very Small 1.0136 - (0.0028 x Vr) Low 0.9984 - (0.0014 x Vr) Medium 0.9853 - (0.0010 x Vr) High 0.9720 - (0.0007 x Vr) *Vr is the Rated Storage Volume (in gallons), as determined pursuant to 10 CFR 429.17.</p>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		

<b>TG Vote:</b>	
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<b>Proposal ID TBD</b>	<b>LogID 6167</b>	<b>703.5.5 Solar water heater</b>
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	The table and point values need to be revised to account for the different standards for storage water heaters ( $\leq 55$ gallons or above 55 gallons) as well as the Uniform Energy Factors which are based on 4 draw patterns.	
<b>Reason:</b>	Below are the Uniform Energy Factors for residential water heaters from the US Code of Federal Regulations at <a href="http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&amp;SID=ecde6ad3165e6b6f8e74dade3b102976&amp;mc=true&amp;n=pt10.3.430&amp;r=PART&amp;t=y=HTML#se10.3.430_132">http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&amp;SID=ecde6ad3165e6b6f8e74dade3b102976&amp;mc=true&amp;n=pt10.3.430&amp;r=PART&amp;t=y=HTML#se10.3.430_132</a> (d) Water heaters. The uniform energy factor of water heaters shall not be less than the following: Product class Rated storage volume and input rating (if applicable) Draw pattern Uniform energy factor Gas-fired Storage Water Heater =20 gal and =55 gal Very Small 0.3456 - (0.0020 $\times$ Vr) Low 0.5982 - (0.0019 $\times$ Vr) Medium 0.6483 - (0.0017 $\times$ Vr) High 0.6920 - (0.0013 $\times$ Vr) >55 gal and =100 gal Very Small 0.6470 - (0.0006 $\times$ Vr) Low 0.7689 - (0.0005 $\times$ Vr) Medium 0.7897 - (0.0004 $\times$ Vr) High 0.8072 - (0.0003 $\times$ Vr) Oil-fired Storage Water Heater =50 gal Very Small 0.2509 - (0.0012 $\times$ Vr) Low 0.5330 - (0.0016 $\times$ Vr) Medium 0.6078 - (0.0016 $\times$ Vr) High 0.6815 - (0.0014 $\times$ Vr) Electric Storage Water Heaters =20 gal and =55 gal Very Small 0.8808 - (0.0008 $\times$ Vr) Low 0.9254 - (0.0003 $\times$ Vr) Medium 0.9307 - (0.0002 $\times$ Vr) High 0.9349 - (0.0001 $\times$ Vr) >55 gal and =120 gal Very Small 1.9236 - (0.0011 $\times$ Vr) Low 2.0440 - (0.0011 $\times$ Vr) Medium 2.1171 - (0.0011 $\times$ Vr) High 2.2418 - (0.0011 $\times$ Vr) Tabletop Water Heater =20 gal and =120 gal Very Small 0.6323 - (0.0058 $\times$ Vr) Low 0.9188 - (0.0031 $\times$ Vr) Medium 0.9577 - (0.0023 $\times$ Vr) High 0.9884 - (0.0016 $\times$ Vr) Instantaneous Gas-fired Water Heater 50,000 Btu/h Very Small Low 0.80 0.81 Medium 0.81 High 0.81 Instantaneous Electric Water Heater 75 gal Very Small 1.0136 - (0.0028 $\times$ Vr) Low 0.9984 - (0.0014 $\times$ Vr) Medium 0.9853 - (0.0010 $\times$ Vr) High 0.9720 - (0.0007 $\times$ Vr) *Vr is the Rated Storage Volume (in gallons), as determined pursuant to 10 CFR 429.17.	
<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 6447</b>	<b>703.5.5 Solar water heater</b>
<b>Submitter:</b>	Craig Conner, Building Quality	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	703.5.5 Solar water heater. SRCC (Solar Rating & Certification Corporation) OG 300 rated, or equivalent, solar domestic waterheating system is installed. Solar Energy Factor (SEF) as defined by SRCC is in accordance with Table <del>703.4.5</del> <u>703.5.5</u> .	
<b>Reason:</b>	Correct the reference to the table. It is editorial. Change should be only under the name of Howard C. Wiig, State of Hawaii, representing self	
<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 6169</b>	<b>703.6.1 Hard-wired lighting (Lighting and appliances)</b>
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	

<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	<b>(2)</b> A minimum of 80 percent of the exterior lighting wattage has a minimum efficiency <del>40</del> <u>45</u> lumens per watt or is solar-powered.
<b>Reason:</b>	Lighting technologies continue to advance in terms of efficacy, and certain interior lighting has to have an efficacy of 50 or 60 lumens per watt. In addition, at this level, there is a choice of multiple technologies that can be used (LED, compact fluorescent, or metal halide).
<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 6216	703.6.1 Hard-wired lighting (Lighting and appliances)
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>703.6.1 Hard-wired lighting.</b> Hard-wired lighting is in accordance with one of the following: <b><u>(Points shall not be awarded if at least one gas lighting fixture is used)</u></b>	
<b>Reason:</b>	In many codes, gas lighting is exempt from any requirements and is extremely inefficient. A typical gas lighting fixture uses 2,500 Btu's (733 Watts) to put out the same amount of light as a 43-Watt halogen lamp, a 13-Watt CFL, or a 9-Watt LED lamp. In other words, a gas lamp will use 81 times more energy than an LED lamp. In addition, many gas lamps have continuously burning pilot lights, so they use 2,500 Btu's even when no light is produced. As a result, one gas lamp rated at 2,500 Btu/hour with a continuously burning pilot light will use more energy than a gas water heater.	
<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 6403	703.7.1 Sun-tempered design (Passive solar design)
<b>Submitter:</b>	Eric Lacey, RECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>703.7.1 Sun-tempered design.</b> Building orientation, sizing of glazing, and design of overhangs are in accordance with all of the following:</p> <p><b>(1)</b> The long side (or one side if of equal length) of the building faces within 20 degrees of true south.</p> <p><b>(2)</b> Vertical glazing area is between 5 and 7 percent of the gross conditioned floor area on the south face [also see Section 703.7.1(8)] <u>and glazing U-factors meet Table 703.2.5.2(a).</u></p> <p><b>(3)</b> Vertical glazing area is less than 2 percent of the gross conditioned floor area on the west face, and glazing <u>meets Table 703.2.5.2(a) is ENERGY STAR compliant or equivalent.</u></p> <p><b>(4)</b> Vertical glazing area is less than 4 percent of the gross conditioned floor area on the east face, and glazing <u>meets Table 703.2.5.2(a) is ENERGY STAR compliant or equivalent.</u></p> <p><b>(5)</b> Vertical glazing area is less than 8 percent of the gross conditioned floor area on the north face, and glazing <u>meets Table 703.2.5.2(a) is ENERGY STAR compliant or equivalent.</u></p> <p><b>(6)</b> Skylights, where installed, are in accordance with the following:  <b>(a)</b> shades and insulated wells are used, and all glazing <u>meets Table 703.2.5.2(a)</u></p>	

	<p>(b) horizontal skylights are less than 0.5 percent of finished ceiling area</p> <p>(c) sloped skylights on slopes facing within 45 degrees of true south, east, or west are less than 1.5 percent of the finished ceiling area</p>
	<p>(7) Overhangs or adjustable canopies or awnings or trellises provide shading on south-facing glass for the appropriate climate zone in accordance with Table 703.6.1(7):</p> <p style="text-align: center;"><b>Table 703.7.1(7)</b> <b>South-Facing Window Overhang Depth</b> <b>[No Change to Table]</b></p>
	<p>(8) The south face windows have a SHGC of 0.40 or higher.</p>
	<p>(9) Return air or transfer grilles/ducts are in accordance with Section 705.4.</p>

**Reason:** This proposal corrects what appears to be an oversight in the current ICC-700 language as it relates to fenestration requirements in the sun-tempered design option of Section 703.7.1. An exception to ICC-700's low-SHGC requirement was carved out for south-facing glazing in a passive-solar designed home, but the U-factor requirement was inadvertently omitted. Low U-factor windows will not interfere with passive solar design – in fact, a passive solar home should have an extremely efficient thermal envelope in order to work properly, and that would include low U-factor windows. We do not believe it was the intent of ICC-700 to allow unrestricted U-factors on south-facing glazing, since that would more than reverse all of the benefits of a passive-solar designed home. This proposal simply applies the same U-factor requirement that applies to all other fenestration used in the passive solar home, while preserving the SHGC exception in item #8. In addition, for glazing under this option, we propose to substitute compliance with Table 703.2.5.2(a) for "Energy Star compliant or equivalent." Since the values in Table 703.2.5.2(a) are similar to current Energy Star requirements, we believe that it would be better for ICC 700 to reference an internal table rather than external Energy Star requirements, which may change in the future.

<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 6448</b>	<b>703.7.3 Passive cooling design</b>
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<b>Submitter:</b>	Craig Conner, Building Quality
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	(c) covered porches and lanais
<b>Reason:</b>	As evinced by the attached article, lanais are incorporated into Florida's (and perhaps beyond) architecture. The word "lanai" evokes a more comfortable and desirable setting than "covered porch" and encourages spaces designed for prolonged, leisurely outdoor living. Lanais may be equipped with lighting and ceiling fans to accommodate gatherings while using very little energy. This change should be under only the name of "Howard C. Wiig, State of Hawaii, representing self"
<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 1505</b>	<b>703.7.3 Passive cooling design</b>
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<b>Submitter:</b>	Roger L. LeBrun, VELUX America Inc.
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<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	703.7.3(3) Windows and/or venting skylights are located to facilitate cross <u>and stack effect</u> ventilation.
<b>Reason:</b>	The Standard should mention stack effect ventilation. It is more efficient than a whole house fan, particularly in two story dwellings.
<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 1506</b>	<b>703.7.4 Passive solar heating design</b>
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<b>Submitter:</b>	Roger L. LeBrun, VELUX America Inc.
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	Additional glazing, no greater than 12 percent, is permitted on the south wall. This additional glazing is in accordance with the requirements of Section 703.7.1. <u>For every square foot of roof glazing on the south-facing roof slope, three square feet of allowed wall glazing is omitted.</u>
<b>Reason:</b>	Skylights are more efficient solar heaters than windows.
<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 6290</b>	<b>704.2 Point calculation</b>
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<b>Submitter:</b>	Aaron Gary, US-EcoLogic
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	<b><u>NOTE:</u></b> Dwellings must use Confirmed Ratings uploaded to the RESNET National Registry, or equivalent as approved by the Adopting Entity, for calculating points under this Section.
<b>Reason:</b>	Requiring Confirmed Ratings ensures that homes following the HERS Path actually go through the full RESNET Quality Assurance Process. ENERGY STAR does not explicitly require confirmed ratings and thus some Raters exploit this loophole to submit unconfirmed, unsubstantiated energy models with no oversight.
<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 6217</b>	<b>705.2.1 Lighting controls</b>
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<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	<b><u>705.2.1 Lighting controls (Points shall not be awarded if at least one gas lighting fixture is installed)</u></b>



<b>Reason:</b>	In many codes, gas lighting is exempt from any requirements and is extremely inefficient. A typical gas lighting fixture uses 2,500 Btu's (733 Watts) to put out the same amount of light as a 43-Watt halogen lamp, a 13-Watt CFL, or a 9-Watt LED lamp. In other words, a gas lamp will use 81 times more energy than an LED lamp. In addition, many gas lamps have continuously burning pilot lights, so they use 2,500 Btu's even when no light is produced. As a result, one gas lamp rated at 2,500 Btu/hour with a continuously burning pilot light will use more energy than a gas water heater.
<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 6295	705.5.1 Installer Certification (HVAC design and installation)
<b>Submitter:</b>	Aaron Gary, US-EcoLogic	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>705.5.1 Meet one of the following:</b></p> <p><u>(1) HVAC contractor and service technician are is certified by a nationally or regionally recognized program (e.g., North American Technician Excellence, Inc. (NATE), Air Conditioning Contractors of Americas Quality Assured Program (ACCA/QA), EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO), Building Performance Institute (BPI), Radiant Panel Association, or a manufacturer's training program). - 1 Point</u></p> <p><u>(2) HVAC service technician is certified by a nationally or regionally recognized program (e.g., North American Technician Excellence, Inc. (NATE), Air Conditioning Contractors of Americas Quality Assured Program (ACCA/QA), Building Performance Institute (BPI), Radiant Panel Association, or a manufacturer's training program). - 2 Points</u></p>	
<b>Reason:</b>	This aligns with ENERGY STAR for Homes program with the certification of HVAC contractors while preserving and encouraging the direct certification of the installation technician. In practice the certification of the contractor is difficult enough with the certification of the installation technician being rare enough to make this credit its current form next to impossible to legitimately claim.	
<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 6251	705.6.2.1 Air leakage validation of building or dwelling units
<b>Submitter:</b>	Carl Seville, SK Collaborative	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	Provide alternate envelope leakage measurement of ELR (CFM50 per SF of building envelope) in addition to ACH50.	
<b>Reason:</b>	Small home and multifamily units are penalized in regards to ACH50 measurements, which favor larger building volumes. The ELR may vary based on unit/house size per the attached chart.	
<b>Concurrent Review Staff Note:</b>	<i>This proposal is also being reviewed by TG-6 (Multifamily) as the proposal will affect multifamily buildings.</i>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		

TG Vote:	
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Proposal ID TBD	LogID 6333	705.6.2.2 HVAC airflow testing						
Submitter:	Aaron Gary, US-EcoLogic							
Requested Action:	Revise as follows							
Proposed Change:	<table border="1"> <tr> <td><b>705.6.2.2 HVAC airflow testing.</b> Balanced HVAC airflows are demonstrated by flow hood or other acceptable flow measurement tool by a third party. Test results are in accordance with <del>both</del> of the following:</td> <td><b>5</b></td> </tr> <tr> <td>Measured flow at each supply and return register meets or exceeds the requirements in ACCA 5 QI-2010, Section 5.2.</td> <td><b><u>5</u></b></td> </tr> <tr> <td>Total airflow meets or exceeds the requirements in ACCA 5 QI-2010, Section 5.2.</td> <td><b><u>3</u></b></td> </tr> </table>	<b>705.6.2.2 HVAC airflow testing.</b> Balanced HVAC airflows are demonstrated by flow hood or other acceptable flow measurement tool by a third party. Test results are in accordance with <del>both</del> of the following:	<b>5</b>	Measured flow at each supply and return register meets or exceeds the requirements in ACCA 5 QI-2010, Section 5.2.	<b><u>5</u></b>	Total airflow meets or exceeds the requirements in ACCA 5 QI-2010, Section 5.2.	<b><u>3</u></b>	
<b>705.6.2.2 HVAC airflow testing.</b> Balanced HVAC airflows are demonstrated by flow hood or other acceptable flow measurement tool by a third party. Test results are in accordance with <del>both</del> of the following:	<b>5</b>							
Measured flow at each supply and return register meets or exceeds the requirements in ACCA 5 QI-2010, Section 5.2.	<b><u>5</u></b>							
Total airflow meets or exceeds the requirements in ACCA 5 QI-2010, Section 5.2.	<b><u>3</u></b>							
Reason:	HVAC Airflow can be measured multiple ways and measuring Total airflow doesn't necessarily require measuring airflow at individual registers. California Title 24, arguable the most progressive energy standard being applied today on a mass scale recognizes the value of just doing 3rd party Total Airflow measurement. RESNET and the EPA are also working to recognize the value of this as part of the HVAC Grade 1 initiative. NGBS should similarly recognize its stand-alone value instead of tying to the more problematic airflow verification of individual registers.							
TG Recommendation (AS or AM or D):								
Modification of Proposed Change:								
TG Reason:								
TG Vote:								

Proposal ID TBD (multifamily)	LogID 6306	705.6.4.2 Portable hot water demand re-circulation system
Submitter:	Susan Gitlin, US Environmental Protection Agency	
Requested Action:	Revise as follows	
Proposed Change:	Potable hot water demand re-circulation system is installed <u>in a unit within a multifamily building</u> in place of a standard circulation pump and control.	
Reason:	Specify that system needs to be present within each unit.	
Concurrent Review Staff Note:	<i>This proposal is also being reviewed by TG-6 (Multifamily) as the proposal will affect multifamily buildings.</i>	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 6456	705.7 Submetering system
Submitter:	Michael Cudahy, PPFA	
Requested Action:	Revise as follows	

<b>Proposed Change:</b>	705.7 Submetering system. In multifamily buildings, and advanced electric <del>and</del> <u>or</u> fossil fuel submetering system is installed to monitor electricity <del>and</del> <u>or</u> fossil fuel consumption for each unit.  The device provides consumption information on a <u>minimum</u> monthly <del>or to near</del> real time basis. The information is <u>accessible or</u> available to the occupants at a minimum on a monthly basis.
<b>Reason:</b>	Some homes are electric only and have no fossil fuel use. Data could be accessed directly by users. The minimum data rate would be monthly, so I suppose any other rate up to real time is acceptable.
<b>Concurrent Review Staff Note:</b>	<i>This proposal is also being reviewed by TG-6 (Multifamily) as the proposal will affect multifamily buildings.</i>
<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 6284</b>	<b>706.1 Energy consumption control (Innovative Practices)</b>
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<b>Submitter:</b>	Aaron Gary, US-EcoLogic															
<b>Requested Action:</b>	Add new as follows															
<b>Proposed Change:</b>	<table border="1"> <tr> <td><b>706.1 Energy consumption control.</b> A whole-building or whole-dwelling unit device or system is installed that controls or monitors energy consumption.</td> <td style="text-align: center;"><b>3 Max</b></td> </tr> <tr> <td>(1) programmable communicating thermostat with the capability to be controlled remotely</td> <td style="text-align: center;"><b>1</b></td> </tr> <tr> <td>(2) energy-monitoring device or system</td> <td style="text-align: center;"><b>1</b></td> </tr> <tr> <td>(3) energy management control system</td> <td style="text-align: center;"><b>3</b></td> </tr> <tr> <td>(4) programmable thermostat with control capability based on occupant presence or usage pattern</td> <td style="text-align: center;"><b>1</b></td> </tr> <tr> <td>(5) lighting control system</td> <td style="text-align: center;"><b>1</b></td> </tr> <tr> <td>(6) <u>ENERGY STAR qualified thermostat</u></td> <td style="text-align: center;"><b>1</b></td> </tr> </table>	<b>706.1 Energy consumption control.</b> A whole-building or whole-dwelling unit device or system is installed that controls or monitors energy consumption.	<b>3 Max</b>	(1) programmable communicating thermostat with the capability to be controlled remotely	<b>1</b>	(2) energy-monitoring device or system	<b>1</b>	(3) energy management control system	<b>3</b>	(4) programmable thermostat with control capability based on occupant presence or usage pattern	<b>1</b>	(5) lighting control system	<b>1</b>	(6) <u>ENERGY STAR qualified thermostat</u>	<b>1</b>	
<b>706.1 Energy consumption control.</b> A whole-building or whole-dwelling unit device or system is installed that controls or monitors energy consumption.	<b>3 Max</b>															
(1) programmable communicating thermostat with the capability to be controlled remotely	<b>1</b>															
(2) energy-monitoring device or system	<b>1</b>															
(3) energy management control system	<b>3</b>															
(4) programmable thermostat with control capability based on occupant presence or usage pattern	<b>1</b>															
(5) lighting control system	<b>1</b>															
(6) <u>ENERGY STAR qualified thermostat</u>	<b>1</b>															
<b>Reason:</b>	ENERGY STAR has started certifying thermostats again after a several year hiatus as on January 1, 2017. The Standard should recognize this ENERGY STAR product similar to all of the other it already references.															
<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 1507</b>	<b>706.2 Renewable energy service plan</b>
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<b>Submitter:</b>	Todd Jones, Center for Resource Solutions	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	(1) Builder selects a renewable energy service plan provided by the local electrical utility for interim (temporary) electric service, <u>or purchases renewable energy certificates (RECs) to cover electricity used.</u> The builder's local administrative office has renewable energy service <u>or has</u>	

	<u>otherwise been paired with RECs. Green-certified (or equivalent) is required [or recommended] for renewable electricity purchases.</u>
<b>Reason:</b>	(1) Depending on the location of the building site, the local electric utility may not offer a renewable energy service product/option/plan, or may not offer one for interim (temporary) electric service. Therefore, we suggest allowing the builder to procure renewable energy certificates (RECs), which are available everywhere, to meet this requirement. We also recommend that Green-e certification be required, or at least recommended, to ensure that use of renewable electricity has been properly verified. Utility green power programs/products, competitive electricity products, and stand-alone REC products can all be Green-e certified.
<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 6481</b>	<b>706.3 Smart appliances and systems</b>
<b>Submitter:</b>	Michael Cudahy, PPFA	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	Smart appliances and systems: add definition/footnote.	
<b>Reason:</b>	This section could use a definition in chapter two, or a footnote, to describe what counts as a Smart appliance or system. Currently, it seems wide open. Is it a Smart appliance if it has internet or blue tooth connectivity only? If it contains programs that help conserve energy or water based on loads? Occupancy sensors?	
<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 6254</b>	<b>706.5 On-site renewable energy system</b>
<b>Submitter:</b>	Todd Jones, Center for Resource Solutions	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<u>An on-site renewable energy system(s) is installed on the property, and the renewable energy certificates (RECs) are retained and retired on-site for the building's own consumption.</u>	
<b>Reason:</b>	If the intent of this requirement is that buildings use/consume the renewable electricity from an onsite system (as opposed to installing an onsite system and generating green power for other grid consumers, or which the utility could potentially use to meet a state requirement), then the building must retain and retire the renewable energy certificates (RECs) associated with the electricity generated onsite. The previous response to this comment that this change "may not be available in all areas and would add significant record keeping/administrative burden especially for single family construction" is not accurate. RECs are always required for renewable energy claims in the U.S. and are produced in association with all renewable energy generation in all states. Even where a renewable energy system is not registered in an electronic tracking system, the ownership of RECs or environmental attributes can and should be specified in a contract. Retention of the RECs and environmental attributes at the building adds no significant administrative burden or record keeping. It merely needs to be specified in the ownership, lease, or PPA agreement.	
<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 6153</b>	<b>706.8 Electrical vehicle charging station</b>
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>706.8 Electrical vehicle charging station.</b> A Level 2 (208/240V-80 amp) or Level 3 electric vehicle charging station....	
<b>Reason:</b>	This proposal makes an editorial change and includes the specification for Level 2 charging station based on SAE information. In other parts of NGBS, it says 40 amps for Level 2 charging stations. For some battery electric vehicles, a faster charging rate is possible with Level 2 system. The following link has more information: <a href="http://www.sae.org/smartgrid/chargingprimer.pdf">http://www.sae.org/smartgrid/chargingprimer.pdf</a>	
<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 6471</b>	<b>706.8 Electrical vehicle charging station</b>
<b>Submitter:</b>	Chuck Foster, Charles R. Foster Associates	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	±3 points	
<b>Reason:</b>	Electric vehicles are well recognized as an energy efficient and environmentally friendly means of transportation. An impediment to even greater use for EV's, however, is insufficient charging infrastructure. This proposal attempts to incent builders to install more charging stations.	
<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 6534</b>	<b>706.8 Electrical vehicle charging station</b>
<b>Submitter:</b>	Craig Conner, Building Quality	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	706.8 Electrical vehicle charging station. A Level 2 (208/240V 40 amp) or Level 3 electric vehicle charging station is installed on the building site. The charging station shall be in accordance with the NEC (National Electrical Code) Article 625. (Note: Charging station shall not be included in the building energy consumption.)	
<b>Reason:</b>	This more completely specifies an EV charging station. The NEC (National Electric Code) has specifications for connections to EV chargers in Article 625.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		

TG Reason:	
TG Vote:	

Proposal ID TBD	LogID 6554	Other for Chapter 7 (include section number and title below)
Submitter:	Kat Benner, US-EcoLogic / TexEnergy	
Requested Action:	Add new as follows	
Proposed Change:	<u>706 HEALTH AND WELL BEING (...prior to INNOVATIVE PRACTICES)</u>	
Reason:	To include a new sub-section within each chapter of the Protocol, as relevant, immediately preceding (or after) Innovative Practices section, to address health and well being issues that are interconnected to the overall Green certification, but independent/optional, not required. This opens the program to reach lifestyle and living for overall occupant health.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 6539	Other for Chapter 7 (include section number and title below)
Submitter:	Chuck Foster, Charles R. Foster Associates	
Requested Action:	Add new as follows	
Proposed Change:	New section 706.10 as follows:  <u>706.10 Battery storage. A battery storage system is installed with controls to allow charging and discharging in accordance with signals provided by the local serving electric utility.</u>  <u>1 point</u>	
Reason:	Energy storage is an important and necessary component of the overall energy infrastructure as renewable energy supplies a larger and larger share of consumer needs. This proposal provides a small incentive to reward those who invest in that infrastructure.	
TG Recommendation (AS or AM or D):		
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID TBD	LogID 6515	Other for Chapter 7 (include section number and title below)
Submitter:	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
Requested Action:	Add new as follows	
Proposed Change:	<u>706.X Ducts in conditioned space. In climate zones1-4, heating system and cooling system ducts are located in conditioned space. Points= TBD</u>	
Reason:	In cooling dominated climate zones, where basements or crawl spaces are rarely constructed, moving or placing heating and cooling system ducts within (insulated) conditioned space improves the efficiency of the heating / cooling system.	
TG Recommendation (AS or AM or D):		

<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

Proposal ID TBD	LogID 6516	Other for Chapter 7 (include section number and title below)																																			
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)																																				
<b>Requested Action:</b>	Add new as follows																																				
<b>Proposed Change:</b>	<p><b>706.X Ducts in conditioned space.</b> Heating system and cooling system ducts are located entirely in <u>conditioned space.</u></p> <p style="text-align: center;"><b>Table 706.X</b> <b>Ducts in Conditioned Space</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2">Ducts</th> <th colspan="8">Climate Zone</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> </tr> </thead> <tbody> <tr> <td></td> <td colspan="8" style="text-align: center;">Points</td> </tr> <tr> <td><u>Ducts entirely in Conditioned Space</u></td> <td><u>5</u></td> <td><u>4</u></td> <td><u>3</u></td> <td><u>2</u></td> <td><u>2</u></td> <td><u>1</u></td> <td><u>1</u></td> <td><u>1</u></td> </tr> </tbody> </table> <p>-</p>		Ducts	Climate Zone								1	2	3	4	5	6	7	8		Points								<u>Ducts entirely in Conditioned Space</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>
Ducts	Climate Zone																																				
	1	2	3	4	5	6	7	8																													
	Points																																				
<u>Ducts entirely in Conditioned Space</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>																													
<b>Reason:</b>	Option 2. In all climate zones, ducts in conditioned space improve the efficiency of the heating and cooling systems. In cooling dominated climate zones, where basements or crawl spaces are rarely constructed, moving or placing heating and cooling system ducts within (insulated) conditioned space improves the efficiency of the heating / cooling system.																																				
<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 6185	Other for Chapter 7 (include section number and title below)
<b>Submitter:</b>	Aaron Gary, US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p><u>ADD NEW SECTION</u></p> <p><b>706.10 Solar Ready Design.</b></p> <p><u>(1) PV-ready design. Home shall meet ALL of the following:</u></p> <p><u>(i) Location, based on zip code has at least 5 kWh/m2/day average daily solar radiation based on annual solar insolation using PVWatts online tool:</u> <u><a href="http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html">http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html</a> AND:</u></p> <p><u>(ii) Location does not have significant natural shading (e.g., trees, tall buildings on the south-facing roof, AND:</u></p> <p><u>(iii) Home as designed has adequate roof area free from obstruction within +/-45° of true south as noted in the table below.</u></p> <p><u>Conditioned Floor Area of the House (sq. ft.) Minimum Roof Area within +/- 45° of True South for PV-Ready Checklist to Apply (ft2)</u></p> <p><u>&lt; 2000 110</u></p> <p><u>&lt; 4000 220</u></p> <p><u>&lt; 6000 330</u></p> <p><u>&gt; 6000 440 AND:</u></p> <p><u>(iv) The structural design loads for roof dead load and roof live load shall be adequate to support an additional 6 lbs./sq. ft. for future solar system, AND:</u></p> <p><u>(v) Install and label a 4' x 4' plywood panel area for mounting an inverter and balance of system components, AND:</u></p>	

	<p>(vi) Install a 1" metal conduit for the DC wire run from the designated array location to the designated inverter location (cap and label both ends), AND;</p> <p>(vii) Install a 1" metal conduit from designated inverter location to electrical service panel (cap and label both ends), AND;</p> <p>(viii) Install and label a 70-amp dual pole circuit breaker in the electrical service panel for use by the PV system (label the service panel).. - 5 POINTS</p> <p>(2) Solar water heating ready design. Home shall meet ALL of the following:</p> <p>(i) Location, based on zip code has at least 5 kWh/m2/day average daily solar radiation based on annual solar insolation using PVWatts online tool: <a href="http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html">http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html</a> AND;</p> <p>(ii) Location does not have significant natural shading (e.g., trees, tall buildings on the south facing roof), AND;</p> <p>(iii) Home as designed has adequate roof area free from obstructions within +/-45° of true south as noted in the table below.</p> <p>Conditioned Floor Area of the House (sq. ft.)    Minimum Roof Area within +/- 45° of True South for Solar Hot Water-Ready Checklist to Apply (ft2)</p> <table border="1"> <tr><td>&lt; 2000</td><td>40</td></tr> <tr><td>&lt; 4000</td><td>60</td></tr> <tr><td>&lt; 6000</td><td>80</td></tr> <tr><td>&gt; 6000</td><td>100, AND;</td></tr> </table> <p>(iv) The structural design loads for roof dead load and roof live load shall be adequate to support an additional 6 lbs./sq.. ft. for future solar system, AND;</p> <p>(v) 3' x 3' x 7' area in the utility room adjacent to the existing water heater for a solar hot water tank, AND;</p> <p>(vi) 3' x 2' plywood panel area adjacent to the solar hot water tank for the balance of system components/pumping package, AND;</p> <p>(vii) Install an electrical outlet within 6' of the designated wall area, AND;</p> <p>(viii) Install a solar bypass valve on the cold water feed of the water heater (cap and label both ends), AND;</p> <p>(ix) Install a single 4" chase or 2-2" chases from utility room to the attic space below designated array location (cap and label both ends). - 5 POINTS (where points awarded in Section 706.5, points shall not be awarded in 706.10)</p>	< 2000	40	< 4000	60	< 6000	80	> 6000	100, AND;
< 2000	40								
< 4000	60								
< 6000	80								
> 6000	100, AND;								

<b>Reason:</b>	Projects that can not afford to install an active on-site renewable energy system should still be able to gain recognition for installing the infrastructure for such a system to be installed in the future. The listed requirements are borrowed from the DOE ZERH guidelines.
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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 6293	Other for Chapter 7 (include section number and title below)
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<b>Submitter:</b>	Aaron Gary, US-EcoLogic
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<b>Requested Action:</b>	Add new as follows
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<b>Proposed Change:</b>	706.X Alternative Refrigerant. Use of the following in space cooling systems for dwellings. (1) Use alternative refrigerant with a GWP < 1000 (2) Do not use refrigerants
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<b>Reason:</b>	To recognize newer refrigerant technology with better for the environment.
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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 6220	Other for Chapter 7 (include section number and title below)
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<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	<b>706.10 Battery Storage System.</b> A battery storage system is installed that stores electric energy from an on-site renewable electric generation system or is grid-interactive or can perform both functions.
<b>Reason:</b>	As more electric grids and homes install renewable and variable electric generation systems, there is more need for energy storage. In Hawaii, there are now special electric rates for customers that can store electricity from on-site PV systems. This new section will allow more storage technologies to receive credit in the NGBS. Information on Hawaii rates: <a href="https://www.hawaiielectric.com/clean-energy-hawaii/producing-clean-energy/customer-self-supply-and-grid-supply-programs">https://www.hawaiielectric.com/clean-energy-hawaii/producing-clean-energy/customer-self-supply-and-grid-supply-programs</a> Information on different battery storage technologies: <a href="https://cleantechnica.com/2015/05/07/tesla-powerwall-price-vs-battery-storage-competitor-prices-residential-utility-scale/">https://cleantechnica.com/2015/05/07/tesla-powerwall-price-vs-battery-storage-competitor-prices-residential-utility-scale/</a> <a href="https://cleantechnica.com/2015/05/09/tesla-powerwall-powerblocks-per-kwh-lifetime-prices-vs-aquion-energy-eos-energy-imergy/">https://cleantechnica.com/2015/05/09/tesla-powerwall-powerblocks-per-kwh-lifetime-prices-vs-aquion-energy-eos-energy-imergy/</a> <a href="http://www.solarpowerworldonline.com/2016/05/comparison-residential-solar-batteries/">http://www.solarpowerworldonline.com/2016/05/comparison-residential-solar-batteries/</a>
<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 6574</b>	<b>Other for Chapter 7 (include section number and title below)</b>
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<b>Submitter:</b>	Craig Conner, Building Quality
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	701.1.5 Energy recipe based compliance. Compliance as specified in Appendix F shall be compliance for the climate zone and level indicated in Appendix F. Appendix F This appendix includes complete descriptions for homes that meet the NGBS for the climate zone and level listed. Mandatory items in Chapter 7 still apply. Climate zone 6, silver AFUE 94 or HSPF 9.5 HSPF or greater SEER 17 or greater water heating EF .95 or greater hot water source is no more than 10 ft from entrance to rooms using hot water tested ACH50 2.5 or greater Insulation levels within 90% of those in the IECC Window U-factor no more than 0.28 On site renewables supply at least 4% of the annual energy
<b>Reason:</b>	This will be a series of recipes that will meet the requirements for the zone and level indicated. One example is shown.
<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 6334</b>	<b>Other for Chapter 7 (include section number and title below)</b>
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<b>Submitter:</b>	Aaron Gary, US-EcoLogic
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	<b>705.5.3 HVAC Design is verified by 3rd Party as follows:</b> (1) The ENERGY STAR HVAC Design and Rater Design Review Checklists are completed without

	correction needed. - <b>5 POINTS</b> (2) HVAC Installation is inspected and conforms to HVAC design documents and plans. - <b>5 POINTS</b>
<b>Reason:</b>	RESNET and the EPA are in the process of developing a ANSI Standard for the design and installation of Grade 1 HVAC systems. The Standard will not complete the ANSI process until 2018. Since the ANSI Standard they are developing will not be approved in time for NGBS 2018 to recognize, we propose recognizing some of the practices it will be proposing.
<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 6199	Other for Chapter 7 (include section number and title below)
<b>Submitter:</b>	Aaron Gary, US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	ADD NEW SECTION  <u>Smart Ventilation.</u> A whole building ventilation systems is installed with automatic smart ventilation controls to limit ventilation during periods of extreme temperature, extreme humidity, and/or during times of peak utility loads and is in accordance with the specifications of Appendix B.	
<b>Reason:</b>	Initial research in this area, funded by the U.S. Department of Energy (U.S. DOE), investigated the proof-of-concept for smart ventilation and estimated typical ventilation energy savings of 40% (Turner and Walker 2012) or about 15% of total heating and cooling load, with savings increasing to more than 50% on average for economizer-equipped homes. Traditional energy modeling software employed by NGBS Verifiers can not account for this 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 6198	Other for Chapter 7 (include section number and title below)
<b>Submitter:</b>	Aaron Gary, US-EcoLogic	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	ADD NEW SECTION  <u>706.11 District Heating and Cooling:</u> Lot is within a community that has a district heating and/or cooling system.	
<b>Reason:</b>	District cooling and heating can be very efficient as it removes the need for building specific space heating systems, space cooling systems, and/or domestic water heating systems. This energy can be difficult to model effectively using residential software however.	
<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 6352	Other for Chapter 7 (include section number and title below)
<b>Submitter:</b>	Jeremy Velasquez, TexEnergy Solutions	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<b>Section 707</b> - <u>Add a new section as relevant for Health &amp; Well-being credits.</u>	
<b>Reason:</b>	As sustainability protocols evolve, the natural progression is to include measures that have a positive benefit on occupant health and well-being.	
<b>TG Recommendation (AS or AM or D):</b>	Add new as follows	
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Others Assigned to TG-5

Proposal ID TBD	LogID 6170	202 Definitions
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>GROUND SOURCE HEAT PUMP.</b> <del>Where the earth is used as a heat sink in air conditioning or heat source in heating systems. This also applies to systems utilizing subsurface water.</del></p> <p><u>A system that uses the earth or subsurface water as a heat sink for air conditioning and as a heat source for heating.</u></p>	
<b>Reason:</b>	This is a suggested editorial change to clarify and shorten the definition.	
<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 6281	303.1 Green buildings																																																																			
<b>Submitter:</b>	Aaron Gary, US-EcoLogic																																																																				
<b>Requested Action:</b>	Revise as follows																																																																				
<b>Proposed Change:</b>	<p style="text-align: center;"><b>Table 303</b></p> <p style="text-align: center;"><b>Threshold Point Ratings for Green Buildings</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3" rowspan="2">Green Building Categories</th> <th colspan="4">Rating Level Points <sup>(a) (b)</sup></th> </tr> <tr> <th>BRONZE</th> <th>SILVER</th> <th>GOLD</th> <th>EMERALD</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td><b>Chapter 5</b></td> <td>Lot Design, Preparation, and Development</td> <td style="text-align: center;"><b>50</b></td> <td style="text-align: center;"><b>64</b></td> <td style="text-align: center;"><b>93</b></td> <td style="text-align: center;"><b>121</b></td> </tr> <tr> <td>2.</td> <td><b>Chapter 6</b></td> <td>Resource Efficiency</td> <td style="text-align: center;"><b>43</b></td> <td style="text-align: center;"><b>59</b></td> <td style="text-align: center;"><b>89</b></td> <td style="text-align: center;"><b>119</b></td> </tr> <tr> <td>3.</td> <td><b>Chapter 7</b></td> <td>Energy Efficiency</td> <td style="text-align: center;"><del>30</del><b>33</b></td> <td style="text-align: center;"><del>45</del><b>48</b></td> <td style="text-align: center;"><b>60</b></td> <td style="text-align: center;"><b>70</b></td> </tr> <tr> <td>4.</td> <td><b>Chapter 8</b></td> <td>Water Efficiency</td> <td style="text-align: center;"><b>25</b></td> <td style="text-align: center;"><b>39</b></td> <td style="text-align: center;"><b>67</b></td> <td style="text-align: center;"><b>92</b></td> </tr> <tr> <td>5.</td> <td><b>Chapter 9</b></td> <td>Indoor Environmental Quality</td> <td style="text-align: center;"><b>25</b></td> <td style="text-align: center;"><b>42</b></td> <td style="text-align: center;"><b>69</b></td> <td style="text-align: center;"><b>97</b></td> </tr> <tr> <td>6.</td> <td><b>Chapter 10</b></td> <td>Operation, Maintenance, and Building Owner Education</td> <td style="text-align: center;"><b>8</b></td> <td style="text-align: center;"><b>10</b></td> <td style="text-align: center;"><b>11</b></td> <td style="text-align: center;"><b>12</b></td> </tr> <tr> <td>7.</td> <td></td> <td>Additional Points from Any Category</td> <td style="text-align: center;"><b>50</b></td> <td style="text-align: center;"><b>75</b></td> <td style="text-align: center;"><b>100</b></td> <td style="text-align: center;"><b>100</b></td> </tr> <tr> <td colspan="3" style="text-align: right;"><b>Total Points:</b></td> <td style="text-align: center;"><b>231</b></td> <td style="text-align: center;"><b>334</b></td> <td style="text-align: center;"><b>489</b></td> <td style="text-align: center;"><b>611</b></td> </tr> </tbody> </table>		Green Building Categories			Rating Level Points <sup>(a) (b)</sup>				BRONZE	SILVER	GOLD	EMERALD	1.	<b>Chapter 5</b>	Lot Design, Preparation, and Development	<b>50</b>	<b>64</b>	<b>93</b>	<b>121</b>	2.	<b>Chapter 6</b>	Resource Efficiency	<b>43</b>	<b>59</b>	<b>89</b>	<b>119</b>	3.	<b>Chapter 7</b>	Energy Efficiency	<del>30</del> <b>33</b>	<del>45</del> <b>48</b>	<b>60</b>	<b>70</b>	4.	<b>Chapter 8</b>	Water Efficiency	<b>25</b>	<b>39</b>	<b>67</b>	<b>92</b>	5.	<b>Chapter 9</b>	Indoor Environmental Quality	<b>25</b>	<b>42</b>	<b>69</b>	<b>97</b>	6.	<b>Chapter 10</b>	Operation, Maintenance, and Building Owner Education	<b>8</b>	<b>10</b>	<b>11</b>	<b>12</b>	7.		Additional Points from Any Category	<b>50</b>	<b>75</b>	<b>100</b>	<b>100</b>	<b>Total Points:</b>			<b>231</b>	<b>334</b>	<b>489</b>	<b>611</b>
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	<p>(a) In addition to the threshold number of points in each category, all mandatory provisions of each category shall be implemented.</p> <p>(b) For dwelling units greater than 4,000 square feet (372 m<sup>2</sup>), the number of points in Category 7 (Additional Points from Any Category) shall be increased in accordance with Section 601.1. The "Total Points" shall be increased by the same number of points.</p>
<b>Reason:</b>	Due to the delay in implementation of NGBS 2015 by HIRL and the slow rate of adoption of the 2015 IECC around the country the 2018 NGBS Standard should not adjust the baseline in Chapter 7 to anything beyond the 2015 IECC but instead adjust the required points up for Certification by 10%. This strategy has the virtue of pushing projects to adopt additional energy related practices while not increasing the already high barrier of entry. I believe the same adjustment does not need to be implemented at the highest levels of certification (Gold and Emerald) as projects who are performing at that level are already well beyond the baseline.
<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 6405</b>	<b>1302 Referenced Documents</b>
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<b>Submitter:</b>	Eric Lacey, RECA		
<b>Requested Action:</b>	Revise as follows		
<b>Proposed Change:</b>	<b>1302 REFERENCED DOCUMENTS</b>		
	<b>ICC</b>	<i>International Code Council 500 New Jersey Ave, NW, 6th Floor Washington, DC 20001 www.iccsafe.org (888) 422-7233</i>	
	IECC	<u>2015 2018</u>	International Energy Conservation Code  610.1.1(2), 701.1.4, 701.4.3.3, 702.2.1, 702.2.2, 702.2.3, 703.1.1.1, 703.1.1.2, 703.1.2, 703.1.3, 703.2.1, 705.6.2.1, 705.6.2.3(1), 705.6.2.3(2), 705.6.3, 11.610.1.1(2), 11.701.4.0, 11.701.4.3.3, 12.1.610.1.1(2), 12.1.701.4.0
<b>Reason:</b>	This proposal updates the references in ICC-700 from the 2015 IECC to the 2018 IECC. As with previous editions of ICC-700, we think it is most appropriate for the 2018 ICC-700 to build upon the efficiencies of the most recent national model energy code, the 2018 IECC. This will also be consistent with the practice of all International Codes cross-referencing the most recent edition of each code. In terms of energy efficiency, this update will result in a slight overall improvement in efficiency, but there are no significant changes in terms of formatting.		
<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 6518</b>	<b>C300 International Climate Zones</b>
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	Add description or definition of Tropical Climate Zone.	
<b>Reason:</b>	"Tropical" climate zone is used in numerous locations in standard, but not identified, defined, or described in Appendix C, or anywhere else in the standard.	
<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 6575</b>	<b>New Section</b>
<b>Submitter:</b>	Craig Conner, Building Quality	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	Throughout the NGBS Energy Star requirements for devices should be modified to give the key requirements instead of the Energy Star table.	
<b>Reason:</b>	Energy Star is not a consensus program. Energy Star changes over time. The NGBS should use the key measure of the device, not reference the Energy Star name. Some Energy Star requirements have changed and will continue to change.	
<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 6171</b>	<b>305.3.5.1 Energy consumption reduction</b>
<b>Submitter:</b>	Keith Dennis, NRECA	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	The reduction in energy consumption resulting from the remodel shall be based on the estimated annual energy cost savings or <u>site energy savings</u> or source energy savings as determined by	
<b>Reason:</b>	The source energy calculations contain flaws, which is why DOE recently underwent a process to adjust them. Some of the issues are that source energy for renewable energy treat that energy as if it were from a fossil fuel plant and multiplies it by about 3, creating a counterproductive result. Similarly, nuclear energy, which makes up 20% of our national fuel mix and generates no emissions is treated worse than fossil fuel because nuclear reactions are hot. This has little to do with CO2 emissions goals or energy efficiency. Using site and source energy provides flexibility.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		

TG Vote:	
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<b>Proposal ID TBD</b>	<b>LogID 6149</b>	<b>305.3.5.1 Energy consumption reduction</b>
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<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	305.3.5.1 Energy consumption reduction. The reduction in energy consumption resulting from the remodel shall be based on the estimated annual energy cost savings or <del>source</del> <u>site</u> energy savings as determined by....
<b>Reason:</b>	Site energy is measurable, verifiable, and is directly correlated to energy costs in a remodeled building. Source energy estimates are widely variable and can be easily used to "game" the system. In addition, source energy proponents claim that grid-based renewables have the highest "source" factors, penalizing builders and customers that use renewable forms of electricity. Site energy is also consistent with the equipment energy efficiency metrics shown in Chapter 7. ASHRAE has also stated that site energy is the preferred choice when looking at "net zero" energy buildings or energy comparisons.
<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 6464</b>	<b>305.3.5.1 Energy consumption reduction</b>
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<b>Submitter:</b>	Chuck Foster, Charles R. Foster Associates
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	The reduction in energy consumption resulting from the remodel shall be based on the estimated annual energy cost savings or <del>source energy savings</del> as determined by a third-party energy audit and analysis or utility consumption data.
<b>Reason:</b>	Source energy is an unstable metric for estimating energy performance, especially in a time of rapidly changing electric generation fleets. In addition, source energy overtly discriminates against the use of renewable energy sources, thereby putting it at tension with the goals and purpose of 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>	

<b>Proposal ID TBD</b>	<b>LogID 6520</b>	<b>11.701.4.3.1 Building Thermal Envelope Air Sealing</b>
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<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	<p><b>11.701.4.3.1 Building thermal envelope air sealing.</b> The building thermal envelope exposed or created during the remodel is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material:</p> <p><b>(g)</b> Walls, and ceilings, and floors separating a garage from conditioned spaces <u>from unconditioned space.</u></p> <p><b>(k)</b> <del>Rim joist junction.</del> Joints of framing members at rim joists.</p>

	(l) Top and bottom plates. (m) Other sources of infiltration.
<b>Reason:</b>	Suggest revising several of the items in the list to more thoroughly identify the locations where air sealing is required.
<b>Parallel Proposal Staff Note:</b>	A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6505.
<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 6522	11.701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>11.701.4.3.2 Air barrier, air sealing, building envelope testing, and insulation.</b> <del>Grade II and III insulation installation is not permitted.</del> Building envelope air barrier, air sealing, envelope tightness and insulation installation is verified to be in accordance with <u>this</u> Section 11.701.4.3.2(1) and 11.701.4.3.2(2), and Section 11.701.4.3.2.1.</p> <p><b>11.701.4.3.2.1</b> <del>Grade I insulation installations are</del> <b>Insulation installation.</b> Field-installed insulation products to ceilings, walls, floors, band joists, rim joists, conditioned attics, basements, and crawlspaces, except as specifically noted, are verified by a third-party in accordance with the following:  <del>(1) Grading applies to field-installed insulation products.</del>  <del>(2) Grading applies to ceilings, walls, floors, band joists, rim joists, conditioned attics basements and crawlspaces, except as specifically noted.</del></p> <p>Re-number items(3) through (11), and revise item (11)</p> <p><b>(11)</b> Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with <del>the Grade 1 insulation installation requirements</del> <u>this section</u>.</p>	
<b>Reason:</b>	Removing all mentions of “Grade” pertaining to insulation installation, as Grade is not defined or described in the standard. Also revising 11.701.4.3.2.1 to move the “what” and “where” specifics of the first two items into the charging language. Also, adding requirement insulation installation is verified by a third-party.	
<b>Parallel Proposal Staff Note:</b>	A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6507.	
<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 6521	11.701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>11.701.4.3.2 Air barrier, air sealing, building envelope testing, and insulation.</b> <del>Grade II and III insulation installation is not permitted.</del> Building envelope air barrier, air sealing, envelope tightness and insulation installation is verified to be in accordance with <u>this</u> Section 11.701.4.3.2(1) and 11.701.4.3.2(2), and Section 11.701.4.3.2.1. Insulation installation other than Grade 1 is not permitted.</p>	



<b>Reason:</b>	Removing the phrase regarding “Grade II and III” insulation installation as these are not defined, described, or referenced in the standard, and instead refer to “Grade I” which has requirements described in the standard. Revising the text to add explicit requirement to comply with the insulation installation requirements in Section 11.701.4.3.2.1.
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6506.</i>
<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 6524</b>	<b>11.701.4.5 Boiler supply piping</b>
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>11.701.4.5 Boiler supply piping.</b> Boiler supply-piping in unconditioned space <u>supplying or returning heated water or steam</u> that is accessible during the remodel is insulated.	
<b>Reason:</b>	It seems this more clearly describes the intent of the requirements of this section.	
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6509.</i>	
<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 6523</b>	<b>11.701.4.3.5 Recessed lighting</b>
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>11.701.4.3.5 Recessed lighting-Lighting in building thermal envelope.</b> Newly installed <del>recessed</del> luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All <del>recessed</del> luminaires <u>in the building thermal envelope</u> are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm(0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All <del>recessed</del> luminaires <u>in the building envelope</u> are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.	
<b>Reason:</b>	The vast majority of lighting luminaires are recessed in the building thermal envelope. However, the scope of the requirements of this section should apply to all lighting luminaires in the building thermal envelope, not just recessed lighting. With fast changing lighting technology, it’s possible lighting luminaires will penetrate the building thermal envelope but not be considered recessed lighting. The revisions would apply to all lighting luminaires “in” the building thermal envelope, but would not apply to luminaires “on” the building thermal envelope. Consider, for example, ½” thick LED lighting panels which are installed in place of ½” drywall on the ceiling. These panels may not be considered recessed but clearly should be included in the requirements of this section	
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6508.</i>	
<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 6527	12.1.701.4.3.4 Building thermal envelope air sealing
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>12.1.701.4.3.1 Building thermal envelope air sealing.</b> The portions of the building thermal envelope that are exposed or created during the remodel are durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped, or otherwise sealed with an air barrier material, suitable film, or solid material:</p> <p><b>(g)</b> <u>Walls, and ceilings, and floors separating a garage from conditioned spaces from unconditioned space.</u></p> <p><b>(k)</b> <u>Rim joist junction. Joints of framing members at rim joists.</u></p> <p><b>(l)</b> <u>Top and bottom plates.</u></p> <p><b>(m)</b> <u>Other sources of infiltration.</u></p>	
<b>Reason:</b>	Suggest revising several of the items in the list to more thoroughly identify the locations where air sealing is required.	
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 5 – Proposal LogID 6505.</i>	
<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 6529	12.1.701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p><b>12.1.701.4.3.2 Air barrier, air sealing, and insulation.</b> <del>Grade II and III installation is not permitted for newly installed insulation.</del> For the portions of the building envelope that are exposed or created during the remodel, air barrier, air sealing, and insulation <u>is third-party verified as installed in accordance with Section 12.701.4.3.2.1 and items listed in Table 12.1.701.4.3.2(2) are field verified via visual inspection.</u></p> <p><b>12.701.4.3.2.1</b> <del>Grade I insulation installations are</del> <b>Insulation installation.</b> Field-installed insulation products to ceilings, walls, floors, band joists, rim joists, conditioned attics, basements, and crawlspaces, <u>except as specifically noted, are verified by a third-party in accordance with the following:</u></p> <p><del>(1) Grading applies to field-installed insulation products.</del></p> <p><del>(2) Grading applies to ceilings, walls, floors, band joists, rim joists, conditioned attics basements and crawlspaces, except as specifically noted.</del></p> <p>Re-number items(3) through (11), and revise item (11)</p> <p><b>(11)</b> Where properly installed, ICFs, SIPs, and other wall systems that provide integral insulation are deemed in compliance with <del>the Grade 1 insulation installation requirements</del> <u>this section.</u></p>	
<b>Reason:</b>	Removing all mentions of “Grade” pertaining to insulation installation, as Grade is not defined or described in the standard. Also revising 11.701.4.3.2.1 to move the “what” and “where” specifics of the	

	first two items into the charging language. Also, adding requirement insulation installation is verified by a third-party.
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6507.</i>
<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 6528	12.1.701.4.3.2 Air sealing and insulation
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>12.1.701.4.3.2 Air barrier, air sealing, and insulation.</b> <del>Grade II and III installation is not permitted for newly installed insulation.</del> For the portions of the building envelope that are exposed or created during the remodel, air barrier, air sealing, and insulation is third-party verified as installed in accordance with <u>Section 12.701.4.3.2.1</u> and items listed in Table 12.1.701.4.3.2(2) are field verified via visual inspection. <u>Insulation installation other than Grade 1 is not permitted.</u>	
<b>Reason:</b>	Removing the phrase regarding “Grade II and III” insulation installation as these are not defined, described, or referenced in the standard, and instead refer to “Grade I” which has requirements described in the standard. Revising the text to add explicit requirement to comply with the insulation installation requirements in Section 12.701.4.3.2.1.	
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6506.</i>	
<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 6531	12.1.701.4.5 Boiler supply piping
<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>12.1.701.4.5 Boiler supply piping.</b> Insulate all newly installed boiler <del>supply</del> piping in unconditioned space <u>supplying or returning heated water or steam</u> and insulate existing boiler <del>supply</del> piping in unconditioned space <u>supplying or returning heated water or steam</u> where accessible.	
<b>Reason:</b>	It seems this more clearly describes the intent of the requirements of this section.	
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6509.</i>	
<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 6530	12.1.701.4.3.5 Recessed lighting
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<b>Submitter:</b>	John Woestman, Extruded Polystyrene Foam Association (XPSA)
<b>Requested Action:</b>	Revise as follows
<b>Proposed Change:</b>	<b>12.701.4.3.5 Recessed lighting-Lighting in building thermal envelope.</b> Newly installed <del>recessed</del> luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All <del>recessed</del> luminaires <u>in the building thermal envelope</u> are IC-rated and labeled as meeting ASTM E283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All <del>recessed</del> luminaires <u>in the building envelope</u> are sealed with a gasket or caulk between the housing and the interior of the wall or ceiling covering.
<b>Reason:</b>	The vast majority of lighting luminaires are recessed in the building thermal envelope. However, the scope of the requirements of this section should apply to all lighting luminaires in the building thermal envelope, not just recessed lighting. With fast changing lighting technology, it's possible lighting luminaires will penetrate the building thermal envelope but not be considered recessed lighting. The revisions would apply to all lighting luminaires "in" the building thermal envelope, but would not apply to luminaires "on" the building thermal envelope. Consider, for example, 1/2" thick LED lighting panels which are installed in place of 1/2" drywall on the ceiling. These panels may not be considered recessed but clearly should be included in the requirements of this section.
<b>Parallel Proposal Staff Note:</b>	<i>A parallel proposal was submitted by the same proponent for the corresponding section in Chapter 7 – Proposal LogID 6508.</i>
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	