Proposed Changes

October 6, 2014

Preface

Proposal ID P001	LogID TG1-15 Preface
Submitter:	James M Williams, J.M. Williams and Assoc. Inc. / AE URBIA
Requested Action:	Add new text as follows:
Proposed Change:	Add to the Preface a section, "Italicized Terms," and a description of Italicized Terms. Match the Italicized Terms definition and use as found in the 2015 IECC. See 2015 IECC, Preface, page vi. **Italicized Terms** Selected terms set forth in Chapter 2, Definitions, are italicized where they appear in code text. Such terms are not italicized where the definition set forth in Chapter 2 does not impart the intended meaning in the use of the term. The terms selected have definitions that the user should read carefully to facilitate better understanding of the code.
Reason:	To match the format of the other I Codes, and to assist the end users in actually using and applying the standard. Without this, the user is not directed to the actual definition and may not fully understand the intent of the standard, or may apply the standard incorrectly.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	6-0-0

Proposal ID P002	LogID TG1-16 Preface
Submitter:	James M Williams, J.M. Williams and Assoc. Inc. / AE URBIA
Requested Action:	Add new text as follows:
Proposed Change:	Add to the Preface a section describing Marginal Markings, and then use the Marginal Markings as described throughout the publication. The Marginal Markings shall match the Marginal Markings used in the other I Codes (see preface page v of the 2015 IECC). **Marginal Markings** Solid vertical lines in the margins within the body of the code indicate a technical change from the requirements of the previous edition. Deletion indicators in the form of an arrow (show arrow symbol) are provided in the margin where an entire section, paragraph, exception or table has been deleted or an item in a list of items or a table has been deleted. A single asterisk (*) placed in the margin indicates that text or table has been relocated within the code. A double asterisk (**) placed in the margin indicates that the text or table immediately following it has been relocated there from elsewhere in the code.
Reason:	To match the marginal markings in the other ICodes.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	6-0-0

Chapter 1. Scope and Administration

Proposal ID P003	LogID 5047	102 Conformance
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Add new as follows	
Proposed Change:	102.5 Significant Decimals. Values used to determine compliance with minimum or maximum values or for determining point allocations shall be rounded to the same number of decimal places as specified value in the practice.	
Reason:	General industry practice is to round values to the same number of decimal places as in the specification. There is typically uncertainty associated with most values and clarifying how to interpret values would be helpful.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	**902.2.1** One of the following whole building ventilation systems is implemented and is in accordance with the specifications of Appendix B. Mandatory where the maximum air infiltration rate is less than 5 ACH50 <u>@ 50 pa</u> **701.4.3.2 Air sealing and insulation**. Grade 3 insulation installation is not permitted. The compliance of the building envelope air tightness and insulation installation is demonstrated in accordance with Section 701.4.3.2(1) or 701.4.3.2(2). (1)Testing option. Building envelope tightness and insulation installation is considered acceptable when air leakage is less than seven <u>(7.0)</u> air changes per hour (ACH) when tested with a blower door at a pressure of 33.5 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:	
TG Reason:	Will make certification easier	
TG Vote:	9-0-0	

Proposal ID P004	LogID 739	102.1 Applicability
Submitter:	Thomas Culp, Birch Point Consulting LLC	
Requested Action:		
Proposed Change:	**102.1 Applicability.** The provisions of this Standard shall apply to design and construction of the residential portion(s) of any building not classified as an institutional use or R-1 occupancy in all climate zones. This Standard shall also be used for subdivisions, building sites, and the residential portions of alterations, additions, renovations, mixed-use residential buildings, and historic buildings, where applicable. *or if you don't wish to use occupancy classes,* **102.1 Applicability.** The provisions of this Standard shall apply to design and construction of the residential portion(s) of any building not classified as an institutional use, hotel, or motel in all climate zones. This Standard shall also be used for subdivisions, building sites, and the residential portions of alterations, additions, renovations, mixed-use residential buildings, and historic buildings, where applicable.	
Reason:	Hotels and Motels. Currently, the standard does not use the same scope for residential buildings as the IECC or ASHRAE. I understand this is from the desire to cover apartment buildings not just below 3 stories. However, the generic term "residential" can be interpreted as also containing hotels and motels, which are R-1 occupancies, although these have very different construction and use than other residential buildings. For this reason, hotels and motels are treated as commercial buildings in the IECC. As just one example, hotels commonly use commercial windows and curtain wall assemblies rather than residential windows in lobby areas, rooms, or both. HVAC and lighting are also very different. My previous comments attempted to address this in the window section by pointing to the commercial sections of the IECC for these types of buildings. They were rejected because the committee felt windows should not be treated differently than the rest, and also stated "Hotels and motels are covered under commercial building." I agree, but since hotels and motels are group R-1, I think this proposed change in the Applicability section helps clarify this.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Changing the scope is not within purview of task group and proposal is not consistent with NGBS Commentary- hotel/motel is permitted. Substantiation was not compelling.	
TG Vote:	Unanimous	

Proposal ID P005	LogID 5278	Other for Chapter 1 (include section number and title below)
Submitter:	Shelly Leonard, Green Space Consultants LLC	
Requested Action:	Add new as follows	
Proposed Change:	101.6 Commentary. The National Green Building Standard(™) Commentary will be released in conjunction with the current ANSI approved National Green Building Standard(™). The Commentary expands on the compliance language in the Standard including scope and administration, compliance methods, and requirements and prescriptions for all chapters within the Standard.	
Reason:	Given that the Commentary is a published companion to the Standard, it should be listed along with referenced documents and appendices and noted in Chapter 1, Section 101 General. Since the Commentary provides expanded insight and details related to the intent and implementation of practices in the Standard, it should be released/published at the same time as the corresponding Standard and not several months thereafter.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The Commentary is not developed or reviewed by the Consensus Committee or part of the ANSI process and it is not referenced in the text of the NGBS.	
TG Vote:	9-0-0	

Chapter 2. Definitions

Proposal ID P006	LogID 5150	202 Definitions
Submitter:	Stephen J Holzer, eM8s, LLC	
Requested Action:	Add new as follows	
Proposed Change:	**BUILDING INFORMATION MODELING (BIM)** A computer generated model based process that simulates three dimensional planning, design, coordination, construction and operations for buildings.	
Reason:	Building Information Modeling (BIM) is a computer generated model based process that simulates planning, design, construction and operations for buildings. It is a single repository for both three-dimensional, two-dimensional, and material properties information that allows data interoperability of all stakeholders to better inform design and construction decisions with the goal of producing the best product possible. This information technology will increase design and construction efficiencies and decrease costs for builders and end users. BIM may also facilitate better communication, collaboration and coordination among building industry professionals and trades working on the same project. Credit should be given to Builders utilizing the open industry standards as defined in the National Building Information Modeling Standard.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Term not used in the standard	
TG Vote:	Unanimous	

Proposal ID P007	LogID 5122	202 Definitions
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Add new as follows	
Proposed Change:	High priority natural resources - Mature wildlife habitat, trees, shrubs, and water features that could not be quickly reestablished. Other natural features as identified as environmentally important by a licensed professional.	
Reason:	Without a definition, the interpretation of what is a “High priority” resource worthy of 5 points is open to inconsistent interpretation. The proposed definition certainly needs refinement and is offered only as a starting point.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new text as follows:* <u>High priority natural resources - Mature wildlife habitat, trees, shrubs, and water features that could not be quickly reestablished. Other natural features as identified as environmentally important by a qualified professional.</u> <u>New definition of “Qualified Professional” is a person with training and experience and conducts the activity as part of their job.</u>	
TG Reason:	Clarification	
TG Vote:	9-0-0	

Proposal ID P008	LogID 5123	202 Definitions
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**MINOR COMPONENT.** Building materials or systems that do not meet the definition of a major component but exceed at least 0.1% of the building material cost~~. that are not considered a major component. (also see Major Component).~~	
Reason:	The current definition allows any material or component earn points as a minor material regardless of how insignificant the usage is. The committee is encouraged to refine the cost percentage threshold.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **MINORCOMPONENT.** Building materials or systems that do not meet the definition of a major component but exceed at least 1.0% of the building material cost. ~~that are not considered a major component. (also see Major Component).~~	
TG Reason:	The new definition clarifies minor component, is as modified requires it to be a greater percentage than 0.1%.	
TG Vote:	6-3-0	

Proposal ID P009	LogID 5124	202 Definitions
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**MAJOR COMPONENT.** 1. All structural members and structural systems. 2. Building materials or systems that are typically applied as a part of over 50%of the surface area of the foundation, wall, floor, ceiling, or roof assemblies excluding vapor barriers, WRB, architectural coatings.	
Reason:	The current definition allows for claiming of the excluded materials as major elements but the impact on resources efficiency of the excluded materials is not the same magnitude as the other materials.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	8-1-0	

Proposal ID P010	LogID 5125	202 Definitions
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**NEW CONSTRUCTION.** Construction of a new building ~~or construction that completely replaces more than 75 percent of an existing building~~.	
Reason:	The remodeling chapter can adequately address renovations that replace more than 75% of an existing building. If replacing 75% of an existing building must follow the new construction criteria it imposes significant burdens with regard to meeting mandatory new construction requirements in any portion of the building that is not being replaced (e.g. it would require digging up the foundation to install drain tile and removing all the existing cladding to install WRB). It is not clear how the 75% is calculated - square footage or something else. Is a gut rehab down to the studs for 100% of the building equal to 75% replacement?	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P011	LogID 5126	202 Definitions
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Add new as follows	
Proposed Change:	Terrain Adaptive Architecture – Architecture where the design of the building has been specifically adapted to preserve unique features of the terrain.	
Reason:	This term is not typically understood. The definition should be refined by those knowledgeable in lot design. There has also been confusing in distinguishing 503.2(1) from 503.2(4).	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* Terrain Adaptive Architecture – Architecture or landscape architecture where the design of the building or site has been specifically adapted to preserve unique features of the terrain. 503.2(1) The use of terrain adaptive architecture. ~~including terracing, retaining walls, landscaping, or other stabilization techniques.~~	
TG Reason:	Clarification	
TG Vote:	8-0-0	

Proposal ID P012	LogID 5263	202 Definitions
Submitter:	Matt Belcher, Verdatek Solutions	
Requested Action:	Add new as follows	
Proposed Change:	**Section 202 Definitions** **FLOOD HAZARD AREA**. The greater of the following two areas: 1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year. 2. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated. **RESILIENCE.** The ability of buildings to take in the shock of natural disasters and better recover from these events.	
Reason:	With the focus on future enhancement of the model codes to provide for enhanced "Resiliant" construction, It is an opportunity to include reference in this "above code" standard to incentivise innvotaive practices and process that will demonstrate best practices for eventual application into the model codes.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **FLOOD HAZARD AREA**. The greater of the following two areas: 1. The area within a floodplain subject to a 1-percent or greater chance of flooding in any year. 2. The area designated as a flood hazard area on a community's flood hazard map, or otherwise legally designated. **RESILIENCE.** The ability of buildings to prepare for, adapt to, and recover from natural disasters.	
TG Reason:	The TG believes the definition of resilience as modified is more consistent with other definitions of resilience used in policy. The TG only approves the definitions contingent upon approval of Log ID 5266.	
TG Vote:	9-0-0	

Proposal ID P013	LogID 5290	202 Definitions
Submitter:	Thomas Culp, Birch Point Consulting LLC	
Requested Action:	Add new as follows	
Proposed Change:	**DYNAMIC GLAZING.** Any fenestration product that has the fully reversible ability to change its performance properties, including U-factor, SHGC, or VT.	
Reason:	Add definition for dynamic glazing for use in chapter 7. Definition taken from IECC.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P014	LogID TG1-03 202 Definitions
Submitter:	Craig Conner, Building Quality
Requested Action:	Add new text as follows:
Proposed Change:	**2012 NATIONAL GREEN BUILDING STANDARD ICC 700-2012 NGBS** **2015 INTERNATIONAL ENERGY CONSERVATION CODE IECC** **2015 INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO- FAMILY DWELLINGS IRC** **2015 INTERNATIONAL BUILDING CODE IBC** **2012 I INTERNATIONAL GREEN CONSTRUCTION CODE IGCC** **NGBS ADDITION**. ~~An extension or increase in floor area or height of building or structure.~~ **IRC and IECC ADDITION**. An extension or increase in the conditioned space floor area or height of a building or structure. **NGBS BIOBASED PRODUCT**. ~~A commercial or industrial product used in site development or building construction that is composed, in whole or in significant part, of biological products, renewable agricultural materials(including plant, animal, and marine materials), or forestry materials.~~ **IGCC BIO-BASED MATERIAL**. A commercial or industrial material or product, other than food or feed, that is composed of, or derived from, in whole or in significant part, biological products or renewable domestic agricultural materials, including plant, animal, and marine materials, or forestry materials **NGBS BROWNFIELD** (also EPA-Recognized Brownfield). ~~Real property, the expansion, redevelopment, or reuse that may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant, and includes Brownfield Site as defined in Public Law 107-118(H.R.2869) "Small Business Liability Relief and Brownfields Revitalization Act."~~ **IGCC BROWNFIELD**. A site in which the expansion, redevelopment or reuse of would be required to address the presence or potential presence of a hazardous substance, pollutant or contaminant. Brownfield sites include: . EPA-recognized brownfield sites as defined in Public Law 107-118 (H.R. 2869) "Small Business Liability Relief and Brownfields Revitalization Act," 40 CFR, Part 300; and . Sites determined to be contaminated according to local or state regulation. **NGBS CONDITIONED SPACE.** ~~An area or room within a building being heated or cooled, containing un insulated ducts, or with a fixed opening directly into an adjacent conditioned space~~ **IRC [RE] CONDITIONED SPACE.** An area, room or space that is enclosed within the building thermal envelope and that is indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate thru openings with conditioned spaces, where they are separated from conditioned spaces by un insulated walls, floors or ceilings or where they contain un insulated ducts, piping or other sources of heating or cooling. **NGBS COP (COEFFICIENT OF PERFORMANCE).** ~~A measure of the heating efficiency of ground and air-source heat pumps defined as the ratio of the rate of heat provided by the heat pump to the rate of energy input, in consistent units, for a complete heat pump under defined operating conditions.(see EER as a measure of the cooling efficiency of heat pumps.)~~ **IECC COEFFICIENT OF PERFORMANCE (COP). –COOLING**. The ratio of the rate of heat input, in consistent units, for a complete refrigerating system of some specific portion of the system under designated operating conditions. **IECC COEFFICIENT OF PERFORMANCE (COP).-HEATING**. The ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system, including the compressor, and, if applicable, auxiliary heat, under designated operating conditions. **NGBS GRAY WATER.** Waste discharged from lavatories, bathtubs, showers, clothes washers, and laundry trays. **IGCC GRAY WATER**. Untreated waste water that has not come into contact with waste water from water closets, urinals, kitchen sinks, or dishwashers. Gray water includes, but is not limited to, waste water from bathtubs, showers, lavatories, clothes washers, and laundry trays.

	NGBS ~~MERV (Minimum Efficiency Reporting Value).~~ ~~The Minimum Efficiency Reporting Value or filters in accordance with criteria contained in ASHRAE 52.2.~~ **IGCC MINIMUM EFFICICIENCY REPORTING VALUE (MERV**). Minimum efficiency-rated value for the effectiveness of air filters. **NGBS ~~REUSE~~**. ~~To recover a material or product for use again without reprocessing.~~ **IGCC REUSE**. To divert a material, product, component, module, or a building from the waste stream in order to use it again. **~~NGBS R-VALUE~~**. ~~The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area (h x ft2 x F/Btu) [(m2 x K)/W].~~ **IRC [RE] R-VALUE, THERMAL RESISTANCE**. The inverse of the time rate of heat flow through a building thermal envelope element from one of its bounding surfaces to the other for a unit temperature difference between the two surfaces, under steady state conditions, per unit area (hXt2xF/Btu). **~~NGBS STORY ABOVE GRADE~~**. ~~Any story having its finished floor surface entirely above grade, except that a basement shall be considered as a story above grade where the finished surface of the floor above the basement is:~~ ~~. More than 6 feet (1829 mm) above grade plane.~~ ~~. More than 6 feet (1829) above the finished ground level for more than 50 percent of the total building perimeter.~~ ~~. More than 12 feet (3658 mm) above the finished ground level at any point.~~ **IBC STORY ABOVE GRADE**. Any story having its finished floor surface entirely above grade plane, or in which the finished surface of the floor next above is: . More than 6 feet (1829mm) above grade plane; or . More than 12 feet (3658 mm) above the finished ground level at any point. **NGBS ~~WATER FACTOR (WATER CONSUMPTION FACTOR)~~**. ~~The quotient of the total weighted per-cycle water consumption divided by the capacity of the clothes washer.~~ **IGCC WATER FACTOR (WF).**the quantity of water, in gallons per cycle (Q), divided by a clothes washing machine clothes container capacity in cubic feet (C). The equation is: WF=Q/C **NGBS WETLANDS**. ~~Areas that are saturated by the surface or ground water at frequency and the duration sufficient to support, and the under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.~~ ~~Wetlands are further defined by the EPA in the Code of Federal Regulations.~~ **IGCC WETLAND.** Areas that are inundated or saturated by the surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
Reason:	Aligning NGBS definitions with the I-codes.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	Voted on each item individually. Each item passed

Proposal ID P015	LogID TG1-04 202 Definitions
Submitter:	Craig Conner, Building Quality
Requested Action:	Revise as follows:
Proposed Change:	**2012 NATIONAL GREEN BUILDING STANDARD ICC700-2012 NGBS** **2015 INTERNATIONAL ENERGY CONSERVATION CODE IECC** **2015 INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO- FAMILY DWELLINGS IRC** **2015 INTERNATIONAL BUILDING CODE IBC** **2012 I INTERNATIONAL GREEN CONSTRUCTION CODE IGCC** **NGBS CLIMATE ZONE**. Climate zones are determined based on figure 6(1). **IECC CLIMATE ZONE**. A geographical region based on climatic criteria as specified in this code. **IBC [E] CLIMATE ZONE**. A geographical region that has been assigned climatic criteria as specified in Chapter 3CE and 3RE at the International Energy Conservation Code. **NGBS ENGINEERED WOOD PRODUCTS**. Products that are made by combining wood strand, veneers, lumber or other wood fiber with adhesive or connectors to make a larger composite structure. **IBC [BS] ENGINEERED WOOD BOARD.** A full-depth structural composite lumber, wood structural panel, structural glued laminated timber or prefabricated wood I-joist member designed to transfer horizontal (shear) and vertical (compression) loads, provide attachment for diaphragm sheathing, siding and exterior deck ledgers, and provide lateral support at the ends of floor or roof joists or rafters. **IRC [RB] ENGINEERED WOOD RIM BOARD**. A full-depth structural composite lumber, wood structural panel, structural glued laminated timber or prefabricated wood I- Joist member designed to transfer horizontal (shear) and vertical(compression) loads, provide attachment for diaphragm sheathing, siding and exterior deck ledgers and provide lateral support at the ends of floors or roof joists or rafters. **NGBS GRADE PLANE.** A reference plane representing the average of the finished ground level adjoining the building at all exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet (1830 mm)from the building, between the structure and a point 6 feet (1830 mm) from the building. **IRC GRADE PLANE**. A reference plane representing the average of the finished ground level adjoining the building at all exterior walls. Where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet (1829 mm) from the building, between the structure and a point 6 feet(1829 mm) from the building. **NGBS HARDSCAPE**. Asphalt, concrete, masonry, stone, wood, and other non-plant elements external to the building shell or landscape. **IGCC HARDSCAPE**. Areas of a building site covered by man-made materials. **NGBS HIGH EFFICIANCY LAMPS**. Compact fluorescent lamps(CFL); light emitting diode (LED); T-8 or smaller diameter linear fluorescent lamps; or lamps with a minimum efficiency of 1) 60 lumens per watt for lamps over 40 watts, 2) 50 lumens per watt for lamps over 15 watts to 40 watts, or 3) 40 lumens per watt for lamps 15 watt or less. **IRC HIGH EFFICIANCY LAMPS**. Compact fluorescent lamps(CFL); T-8 or smaller diameter linear fluorescent lamps; or lamps with a minimum efficiency of 1) 60 lumens per watt for lamps over 40 watts, 2) 50 lumens per watt for lamps over 15 watts to 40 watts, or 3) 40 lumens per watt for lamps 15 watt or less **NGBS IMPERVIOUS SURFACE**. Hard-covered ground area that prevents/retards the entry of water into the soil at that location, resulting in water flowing to another location. (also see HARDSCAPE) **IGCC IMPERVIOUS SURFACE**. Paved concrete or asphalt and other similar surfaces that readily accommodate the flow of water with relatively little absorption, as typically used at exterior horizontal areas including, but not limited to, parking lots, bikeways, walkways, plazas and fire lanes. **NGBS INFILL**. A location including vacant or underutilized land that may apply to either a site or a lot and is located in an area served by existing infrastructure such as centralized water and sewer connections, roads,

	drainage, etc., and the site boundaries are adjacent to existing development on at least one side. **IGCC INFILL SITE**. Infill sites are one of the following; . A vacant lot, or collection of adjoining lots, located in an established, developed area that is already served by existing infrastructure; . A previously developed lot or collection of previously developed adjoining lots, that is being redeveloped or is designated for redevelopment. **NGBS SITE.** Any area of land that is or will be developed into two or more parcels of land intended for multiple ownership, uses, or structures and designed to be a part of an integrated whole such as a residential subdivision, mixed-use development, or master-planned community. Site, as defined, generally contains multiple lots.(also see LOT) **IBC SITE.** A parcel of land bounded by a lot line or a designated portion of a public right-of-way. **NGBS SHGC (SOLAR HEAT GAIN COEFFICIENT).** The ratio of the solar heat gain entering the space through the fenestration assembly to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is then reradiated, conducted, or convected into the space. **IRC [RE] SOLOR HEAT GAIN COEFFICIENT (SHGC).**The solar heat gain through a fenestration or glazing assembly relative to the incident solar radiation (Btu/h'ft2'F). **NGBS STEEP SLOPES.** Slopes equal to or greater than 25 percent (>25%). **IBC STEEP SLOPE**. A roof slope greater than two units vertical in 12 units horizontal (17-percent slope). **NGBS STORY.** That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above. **IBC STORY**. That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above (see "Basement," "Building height," "Grade plane" and "Mezzanine"). A story is measured as the vertical distance from top to top of two successive tiers of beams or finished floor surfaces and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters. **IGCC STORY**. That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above. It is measured as the vertical distance from top to top of two successive tiers of beams or finished floor surfaces and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters. **NGBS SIP (STRUCTURAL INSULATED PANEL**). A structural sandwich panel that consists of a light-weight foam plastic core securely laminated between two thin, rigid wood structural panel facings; a structural panel that consists of lightweight foam plastic and cold-formed steel sheet or structural cold-formed steel members; or other similar non-interrupted panels. **IRC [RB] STRUCTURAL INSULATED PANEL (SIP)**. A structural sandwich panel that consists of a light-weight foam plastic core securely laminated between two thin, rigid wood structural panel facings. **NGB SU-FACTOR (THERMAL TRANSMITTANCE).** The coefficient of heat transmission (air to air) through a building envelope component or assembly, equal to the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/h'ft2'F)[W/(m2'K]). **IRC [RE] U-FACTOR**, THERMAL TRANSMITTANCE. See section N1101.6 for definition applicable in chapter 1
Reason:	Aligning NGBS definitions with the I-codes
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	**CLIMATE ZONE -** to ensure that how to comply w/ climate zone requirements is clear within NGBS and not have people have to look at another standard. Also more flexible because figure 6.1 becomes dispositive. 6-0-1 **ENGINEERED WOOD PRODUCTS -** TG believes the current NGBS definition is better and adequate. Proposed definitions do not apply to the def. to certain types of wood products. 7-0-0 **GRADE PLANE. -** The NGBS definition is largely the same as the proposed. 7-0-0

	HARDSCAPE - Current definition is better than what is proposed based on our understanding of hardscape. 7-0-0 **HIGH EFFICIANCY LAMPS -** . Current definition is more complete including references to LED lamps. 7-0-0 **INFILL -** Current definition is clearer and more specific. Although the task group recognizes the potential for revision to the definition. 6-0-0 **SITE -** IBC definition of site is really a definition of lot for NGBS purposes. 6-0-0 **SHGC (SOLAR HEAT GAIN COEFFICIENT) -** the existing def. is more specific and more inclusive 7-0-0 **STEEP SLOPES -** these are not the same applications of the definition, the NGBS def. is for a site 8-0-0 **STORY -** the existing definition is consistent with the IRC def. and it is simpler than what was proposed 8-0-0 **SIP (STRUCTURAL INSULATED PANEL**) - the current def. is more inclusive of a broader range of materials than the proposed definition 9-0-0 **U-FACTOR (THERMAL TRANSMITTANCE) -** definition doesn't define the term but refers to another source. Definition as it exists is accurate. 7-0-0
TG Vote:	See TG Reason

Proposal ID P016	LogID TG1-05 202 Definitions
Submitter:	Craig Conner, Building Quality
Requested Action:	Revise as follows:
Proposed Change:	**2012 NATIONAL GREEN BUILDING STANDARD ICC 700-2012 NGBS** **2015 INTERNATIONAL ENERGY CONSERVATION CODE IECC** **2015 INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO- FAMILY DWELLINGS IRC** **2015 INTERNATIONAL BUILDING CODE IBC** **2012 I INTERNATIONAL GREEN CONSTRUCTION CODE IGCC** ~~**NGBS EXISTING BUILDING**. Building completed and occupied prior to any renovation considered under this standard.~~ **IBC EXISTING STRUCTURE**. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued. For application of provisions flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first flood plain management code, ordinance or standard. **IGCC EXISTING BUILDING.** A building erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued. ~~**NGBS GROUND SOURCE HEAT PUMP.** Space conditioning and/or water heating systems that employ a geothermal resource such as the ground, groundwater, or surface water as both a heat source and a heat sink and use a reversible refrigeration cycle to provide both heating and cooling.~~ **IRC GROUND SOURCE HEAT PUMP LOOP SYSTEM**. Piping buried in horizontal or vertical excavations or placed in a body of water for the purpose of transporting heat transfer liquid to and from a heat pump. Included in this definition are closed loop systems in which the liquid is recirculated and open loop systems in which the liquid is drawn from a well or other source. **IGCC GROUND SOURCE OR GEOEXCHANGE**. Where the earth is used as a heat sink in air conditioning or heat pump island systems. This also applies to systems utilizing subsurface water. Ground source heating and cooling uses the relatively constant temperature of the earth below the frost line. This steady temperature profile allows the earth to be used as a heat source in the winter and as a heat sink in the summer. ~~**NGBS LOT.** A single parcel of land generally containing one primary structure or use. Lot development, as defined by this Standard, may include multiple ownership (such as with a condominium building) or multiple uses (such as with a mixed use building). A lot is predominantly represented by a single-family dwelling unit, a multifamily structure, or a mixed-use building also containing offices and shops. Lots may be located in urban, suburban, and rural locations. A lot may be located within a site. (also see SITE)~~ **IRC [RB] LOT**. A portion or parcel of land considered as a unit. **ICC LOT.** A single parcel of land generally containing one primary structure or use. Lot development, as defined by this Standard, may include multiple ownership (such as with a condominium building) or multiple uses (such as with a mixed use building). A lot is predominantly represented by a single-family dwelling unit, a multifamily structure, or a mixed-use building also containing offices and shops. Lots may be located in urban, suburban, and rural locations. A lot may be located within a site. (also see SITE). **IBC [A] LOT**. A portion or parcel of land considered as a unit. **IGCC LOT.** A portion or parcel of land considered as a unit.
Reason:	Aligning NGBS definitions with the I-codes
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **2012 NATIONAL GREEN BUILDING STANDARD ICC700-2012 NGBS** **2015 INTERNATIONAL ENERGY CONSERVATION CODE IECC** **2015 INTERNATIONAL RESIDENTIAL CODE FOR ONE- AND TWO- FAMILY DWELLINGS IRC**

	2015 INTERNATIONAL BUILDING CODE IBC **2012 I INTERNATIONAL GREEN CONSTRUCTION CODE IGCC** ~~**NGBS EXISTING BUILDING**. Building completed and occupied prior to any renovation considered under this standard.~~ ~~**IBC EXISTING STRUCTURE**. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued. For application of provisions flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community's first flood plain management code, ordinance or standard.~~ **IGCC EXISTING BUILDING.** A building erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued. **NGBS GROUND SOURCE HEAT PUMP**. Space conditioning and/or water heating systems that employ a geothermal resource such as the ground, groundwater, or surface water as both a heat source and a heat sink and use a reversible refrigeration cycle to provide both heating and cooling. **IRC GROUND SOURCE HEAT PUMP LOOP SYSTEM**. Piping buried in horizontal or vertical excavations or placed in a body of water for the purpose of transporting heat transfer liquid to and from a heat pump. Included in this definition are closed loop systems in which the liquid is recirculated and open loop systems in which the liquid is drawn from a well or other source. ~~**IGCC GROUND SOURCE OR GEOEXCHANGE**. Where the earth is used as a heat sink in air conditioning or heat pump island systems. This also applies to systems utilizing subsurface water. Ground source heating and cooling uses the relatively constant temperature of the earth below the frost line. This steady temperature profile allows the earth to be used as a heat source in the winter and as a heat sink in the summer.~~ ~~**NGBS LOT**. A single parcel of land generally containing one primary structure or use. Lot development, as defined by this Standard, may include multiple ownership (such as with a condominium building) or multiple uses (such as with a mixed use building). A lot is predominantly represented by a single-family dwelling unit, a multifamily structure, or a mixed-use building also containing offices and shops. Lots maybe located in urban, suburban, and rural locations. A lot may be located within a site. (also see SITE)~~ ~~**IRC [RB]**~~ **LOT**. A portion or parcel of land considered as a unit. ~~**ICC LOT**. A single parcel of land generally containing one primary structure or use. Lot development, as defined by this Standard, may include multiple ownership (such as with a condominium building) or multiple uses (such as with a mixed use building). A lot is predominantly represented by a single-family dwelling unit, a multifamily structure, or a mixed-use building also containing offices and shops. Lots maybe located in urban, suburban, and rural locations. A lot may be located within a site. (also see SITE).~~ ~~**IBC [A] LOT**. A portion or parcel of land considered as a unit.~~ ~~**IGCC LOT**. A portion or parcel of land considered as a unit.~~
TG Reason:	**EXISTING BUILDING -** Approve the IgCC definition submitted and disapprove the IBC definition because it is more appropriate. 7-0-0 **GROUND SOURCE HEAT PUMP-** The IRC is clearer that the NGBS or IGCC. 6-0 **LOT -** The TG thinks the simple definition from the IRC is appropriate. The NGBS definition is verbose.7-0
TG Vote:	See TG Reason

Proposal ID P017	LogID TG1-12 202 Definitions
Submitter:	Susan Gitlin, US EPA
Requested Action:	Add new text as follows:
Proposed Change:	*Add item to section 202 Definitions:* INVASIVE PLANTS: Plants for which the species are not native to the ecosystem under consideration and that cause, or are likely to cause, economic or environmental harm or harm to human, animal or plant health. Consideration for inclusion as invasive plants shall include at a minimum those plants identified on: (1) Lists created or approved by municipalities or counties, or if no such list exists then lists developed in accordance with ASTM WK40773 for the region where the building site is located or, where such a list is not available, the list published by the state or regional exotic pest plant council or invasive plant council, and (2) Lists created at the state and federal level.
Reason:	Responding to comments ID 638 and 628
TG Recommendation:	See below
Modification of Proposed Change:	*TG 1 - Approve as submitted* --- *TG 2 - Approve as modified* *Add new item to section 202 Definitions as follows:* **INVASIVE PLANTS:** Plants for which the species are not native to the ecosystem under consideration and that cause, or are likely to cause, economic or environmental harm or harm to human, animal or plant health. Consideration for inclusion as invasive plants shall include at a minimum those plants identified on lists created or approved by governmental entities as applicable.
TG Reason:	TG 2 The ASTM Standard is not intended to be used to regulate the built environment and that list did not go through due process.
TG Vote:	TG 1 8-0-0 TG 2 Unanimous

Proposal ID P018	LogID TG2-01 202 Definitions
Submitter:	Don Whyte, Elevated Real Estate Solutions LLC
Requested Action:	Revise as follows:
Proposed Change:	**GREYFIELD SITE**. A previously developed site with ~~abandoned or underutilized structures, and~~ little or no contamination or perceived contamination.
Reason:	Greyfields could also include abandoned parking lots or abandoned sites without sites what were partially developed before the recession and then abandoned.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	Unanimous

Chapter 3. Compliance Method

Proposal ID P019	LogID 5313	303.1 Green buildings
Submitter:	Craig Conner, Building Quality	
Requested Action:	Revise as follows	
Proposed Change:	[Adjust the point levels in energy in Table 303 to represent 10%, 20%, 30% and 40% above the IECC.]	
Reason:	This is based on the presumption that the 2015 codes will become the base for the 2015 ICC 700; including the 2015 IECC becoming the base for the energy chapter. Exceeding the 2015 IECC by 50% is a very tall order. At 40% the 2015 NGBS emerald energy level will exceed the 2012 NGBS emerald level by about 5%. It is not clear what the resulting points will become, but they might be 20, 40, 60, and 80.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P020	LogID 5217	303.1 Green buildings
Submitter:	Eric Lacey, RECA	
Requested Action:	Revise as follows	
Proposed Change:	**303.1 Green Buildings.** The threshold points required for the environmental rating levels for a green building shall be in accordance with Table 303. To qualify for one of these rating levels, all of the following shall be satisfied: (1) The threshold number of points, in accordance with Table 303, shall be achieved as prescribed in Categories 1 through ~~6~~ 7. The lowest level achieved in any category shall determine the overall rating level achieved for the building. (2) In addition to the threshold number of points in each category, all mandatory provisions of each category shall be implemented. (3) ~~In addition to the threshold number of points prescribed in Categories 1 through 6, the additional points prescribed in Category 7 shall be achieved from any of the categories.~~ Where deemed appropriate by the Adopting Entity based on regional conditions, additional points from Category 7 may be assigned to another category (or categories) to increase the threshold points required for that category (or categories). Points shall not be reduced by the Adopting Entity in ~~any of the six other~~ category~~ies~~ 7.	
Reason:	The language of current Section 303.1 is confusing, and it could be misinterpreted in a way that permits code users to satisfy some or all of the energy efficiency points with points from any other category. We do not think this was the intent of this section, so we have submitted the above changes to clarify that regardless of the distribution of points among the ICC-700 chapters, the minimum Chapter 7 point requirement must be met by requirements from Chapter 7. Chapter 7 of ICC-700 contains requirements and options that will yield measurable energy and environmental benefits over the home's useful lifetime – potentially 70 or 100 years. A home that consumes unreasonably high amounts of energy will become a problem not only for the owner of the home, who must either perform an energy efficiency retrofit or pay higher energy costs, but will also become a long-term problem for cities and states struggling to curb increasing demand for energy. Energy conservation must be a primary consideration in any green home, and Section 303.1 should be clarified to ensure the proper application of Chapter 7 points.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **303.1 Green Buildings.** The threshold points required for the environmental rating levels for a green building shall be in accordance with Table 303. To qualify for one of these rating levels, all of the following shall be satisfied: (1) The threshold number of points, in accordance with Table 303, shall be achieved as prescribed in Categories 1 through 6. The lowest level achieved in any category shall determine the overall rating level achieved for the building. (2) In addition to the threshold number of points in each category, all mandatory provisions of each category shall be implemented. (3) In addition to the threshold number of points prescribed in Categories 1 through 6 (which correspond to Chapters 5-10), the additional points prescribed in Category 7 shall be achieved from any of the categories. Where deemed appropriate by the Adopting Entity based on regional conditions, additional points from Category 7 may be assigned to another category (or categories) to increase the threshold points required for that category (or categories). Points shall not be reduced by the Adopting Entity in any of the six other categories.	
TG Reason:	Adds clarification to the existing language.	
TG Vote:	9-0-0	

Proposal ID P021	LogID 5082	304.1 Multi-unit buildings
Submitter:	Thomas Culp, Birch Point Consulting LLC	
Requested Action:	Add new as follows	
Proposed Change:	**304.1 Multi-unit buildings.** All residential portions of a building shall meet the requirements of this Standard. Partial compliance shall not be allowed. Unless otherwise noted, all units and residential common areas within a multi-unit building shall: 1) meet all mandatory requirements; and 2) achieve the point threshold required for the chosen environmental rating level in accordance with Table 303; and 3) achieve the same environmental rating level. Points for the green building practices that apply to multiple units shall be credited once for the entire building. Where points are credited, including where a weighted average is used, practices shall be implemented in all units, as applicable. Where application of a prescribed practice allows for a different number of points for different units in a multi-unit building, the fewer number of points shall be awarded, unless noted that a weighted average is used. Alternatively, multi-unit buildings four-stories of more in height above grade plane that comply with the ICC IgCC shall be deemed-to-comply with the Silver rating level of this Standard. *(Note: also add 2012 IgCC International Green Construction Code to Section 1302 Referenced Documents under ICC.)*	
Reason:	Mid and high-rise multi-unit buildings that comply with ICC 700 at the Silver level are deemed to comply with the 2012 IgCC (section 101.3.1). This is simply the reciprocal. Construction and equipment in higher buildings can be very different, so this will encourage those taller buildings to also seek compliance with green standards, whether the NGBS or IgCC.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The NGBS is designed as a comprehensive green building standard for all residential construction. As such, the NGBS provides building owners and jurisdictions with a single set of residential green criteria without the need for reference to additional green building codes or standards. Further, this proposal does not accurately reflect the relationship between the NGBS and IgCC. The IgCC provides an alternative compliance path for high-rise multifamily buildings (5 stories or more) that meet the requirements of the NGBS, with a minimum Silver performance level in the energy efficiency category only. Nor, do we have information about the equivalency of IgCC requirements in addressing residential-specific design and construction issues captured by the NGBS.	
TG Vote:	5-0-0	

Proposal ID P022	LogID 5156	305.3.1 Applicability
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	The Provisions of Section 305.3 shall apply to remodeling of existing buildings. In addition to the foundation, at least one major structural system ~~(such as walls)~~ of the existing building shall remain in place after the remodel for the building to be eligible for compliance under Section 305.3. This one major structural system must be applied as part of over 50% of the surface area of the wall, floor, ceiling, or roof assemblies.	
Reason:	A definition of the term “major structural system” is not provided. Considering that there are various structural systems, the extent of what needs to be preserved for section 305.3 to apply, could vary. For example, structural systems might be roof trusses or shear structures limited to cores of multilevel buildings, and neither of those would be that extensive. Other structural systems, such as complete structural floors, would constitute far greater portions of buildings. Therefore, setting target that the system must be applied as part of over 50% of the surface area of the wall, floor, ceiling or roof assemblies helps clarify what needs to be preserved for section 305.3 to be applicable.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* The Provisions of Section 305.3 shall apply to remodeling of existing buildings. In addition to the foundation, at least 50% of the ~~one major~~ structural systems ~~(such as walls)~~ of the existing building shall remain in place after the remodel for the building to be eligible for compliance under Section 305.3. ~~This one major structural system must be applied aspart of over 50% of the surface area of the wall, floor, ceiling, or roof assemblies.~~ DRAFT Definition for Chapter 2: Structural Systems - Existing buildings (305.3): Load-bearing elements and systems of existing buildings that may be retained to be eligible for compliance in Section 305.3. For the purposes of this standard, structural systems in existing buildings are those that transfer lateral and vertical loads to the foundation and may include, but are not limited to load-bearing walls (interior or exterior), roofs, and other structural elements.	
TG Reason:	Clarify intent and define structural systems	
TG Vote:	Unanimous	

Proposal ID P023	LogID 5149	305.3.5 Energy efficiency
Submitter:	Carl Seville, Seville Consulting	
Requested Action:	Add new as follows	
Proposed Change:	A third alternate compliance path is to achieve a minimum air leakage improvement in lieu of energy consumption reduction.	
Reason:	The requirement for either before or after HERS ratings or full year of before and after utility data is excessive and I believe it will discourage projects from seeking certification under the standard. A suitable alternate would be to require blower door test at completion and a requirement that the house meet a certain ACH50 or ELR, or a minimum % improvement from a before blower door test. Points could be provided for increased air leakage improvements.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Insufficient details.	
TG Vote:	Unanimous	

Proposal ID P024	LogID 5262	305.3.5 Energy efficiency
Submitter:	Neil Leslie, Gas Technology Institute	
Requested Action:	Revise as follows	
Proposed Change:	305.3.5.1 Energy Consumption Reduction. The reduction in energy consumption result in from the remodeling shall be based on the estimated energy cost savings or source energy savings as determined by a third-party energy audit and analysis or utility consumption data. The source energy multiplier for electricity shall be 3.16. The source energy multiplier for fuels other than electricity shall be 1.1. The reduction shall be the percentage difference between the consumption per square foot before and after the remodel calculated as follows:	
Reason:	Aligns provision with IECC Section R405.3.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Consistency across codes.	
TG Vote:	Unanimous	

New Chapter

Proposal ID P025	LogID TG1-01
Submitter:	Tim Pate and John Barrows,
Requested Action:	Add new chapter 4
Proposed Change:	**Chapter 4 Integrated design and management** (project team, mission statement, and goals) **401 Preliminary collaborative meeting.** A preliminary meeting will occur with all stakeholders for the project in order to establish the team and roles, required training, project checklist, and review the overall scope of work in order to facilitate the initial plans to meet the scope of the NGBS and the proposed rating level that is to be achieved. **401.1 Intent.** The project is designed and constructed by a team of qualified professionals trained in green development, construction, and remodeling practices. **402.2 Team**. A knowledgeable team is established and team member roles are identified in respect to all chapters of the NGBS. The team will consist of the owner, design team, and contractor at a minimum. (1 POINT) (1) NGBS approved verifier is part of initial team. (1 POINT) **402.3 Mission Statement**. The project's goals and objectives are written into a Project Mission Statement and distributed to all team members (MANDATORY) **402.3 Training.** Training is provided to on-site supervisors and team members regarding the green development and construction practices to be used on the project. (1 POINT) **403 Project Management Documentation** **403.1 Project checklist.** A checklist of green development and construction practices to be used on the project is created, followed, and completed by the project team regarding the overall scope of the project.(MANDATORY) **403.2 Project Schedule**. A project schedule with all green tasks and inspections is created, updated on a regular basis, and distributed to all team members. (1 POINT) **403.3 Project Meetings.** Project meetings are documented and notes are distributed to all team members. (1 POINT) **404 Project Recognition and Public Education** **406.1 Intent.** Increasing public awareness of the National Green Building Standard and compliant projects can help increase demand for high-performance green homes. **406.2 Signage**. Signs indicating that the project is being designed and built in compliance with the National Green Building Standard are used at all stages of construction. (Mandatory) **406.2.1 Certification Plaques**. NGBS Certification plaques with level attained are placed in a conspicuous place near the utility area of the home or in multifamily applications in a conspicuous location near the main entrance of the building. (X points) **406.3 Education**. Information is available on the National Green Building Standard and the green practices employed in the project. (1) Digital Information (website, videos). Aimed at public. (2) Print Information. Aimed at public. (3). Professional Information. (Digital or printed).Aimed at construction industry professionals. (X Points) **406.4 Marketing**. Comprehensive marketing strategy is developed to promote the NGBS, the green features of the home, and the benefits to both the community and the residents. (X Points)

Reason:	Proposed additional chapter will serve to focus the entire team on the goals and implementation (not just the goals as currently). The added practices will reinforce cost effective planning and communication to better help the team reach the stated objectives.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	7-0-0

Chapter 4. Site Design and Development

Proposal ID P026	LogID 5189	401 Site Selection
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Applicants should only get points for one of the categories and the points should have a greater spread, e.g., Low slope-5 points, Infill-10 points, Greyfield-17points, and Brownfield-27 points.	
Reason:	The wording “one or more of the following” is ambiguous. Are the points additive? For example, the Belmar development in Longwood CO, is an infill site, that was built on an old shopping center site so it is also a greyfield site. The former automotive repair center had some petroleum contaminants in the soils around it so it could also qualify as a brownfield. It also has low slopes. Would it get 27 points? That doesn’t seem right.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This point spread is very high. Submitting proposal to make site selection point values consistent with lot selection point values.	
TG Vote:	Unanimous	

Proposal ID P027	LogID 5230	401.4 Low-slope site
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete without substitution	
Proposed Change:	~~401.4 **Low-slope site.** A site with…selected.~~	
Reason:	: It is not clear why it is desirable to include a section that specifically encourages the use of low-slope sites. There are environmental trade-offs whether one selects a site that is relatively flat or one selects one with steeper slopes. In the former, there is a greater likelihood that the flat land could be high-quality farm land; in the latter, there is the possibility that construction will cause erosion. The problems associated with the former cannot be mitigated, whereas the problems associated with the latter can be prevented or mitigated through a variety of practices, including using pin foundations or terraces that stabilize the slopes – and other practices for which points are available elsewhere in Chapter 4 (see 403.3). Also, if the slope is already heavily eroded, structures built on the slope may accrue a net environmental gain by reducing slope movement. Moreover, the 5 points made available through this credit seem very high. Flat areas are the easiest for a builder to build upon, so a builder may be rewarded simply for doing what comes easiest, not because it was the environmentally sound approach to take (and even when the site is quality farmland, a wetland, a surface water buffer, or other environmentally sensitive area). And, as building on a low-slope area is unlikely to provide anything close to the environmental benefits provided by building on an infill, greyfield, or brownfield site, the number of points attached to it should be much lower (with at delta of at least 10 points), if any points are attached to it at all.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	The task group agreed with the submitter's reasons for the proposed change including the fact that low slope sites could be prime farm land and that development on sites with steep slopes can be done in ways that protect those slopes. Additional points should not be awarded for the selection of low slope sites.	
TG Vote:	Unanimous	

Proposal ID P028	LogID 5208	403.1 Natural resources
Submitter:	Wes Sullens, StopWaste of Alameda County	
Requested Action:	Add new as follows	
Proposed Change:	**New section:** Invasive plants are removed from the site.	
Reason:	Invasive plants do enormous environmental and economic harm, as stated in my other comments for sections 403.6 and 503.5. The development of a site creates an opportunity to remove invasive plants from an area of land, thus removing the threat of their spread to neighboring areas and providing a service to the community and local ecosystem.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new items to Section 403.1 Natural Resources as follows:* (5) Developer has a plan for removal or containment of invasive plants, as identified by a qualified professional, from the disturbed areas of the site. 3 points (6) Developer has a plan for removal or containment of invasive plants, as identified by a qualified professional, on the undisturbed areas of the site. 6points	
TG Reason:	The task group wishes to incentivize removal of invasive plants from both disturbed and undisturbed areas of the site as removal from undisturbed areas goes above and beyond what the developer is required to do. The plan should lay out a systematic approach for removing invasive species as they work through the multiple phases of development.	
TG Vote:	Unanimous	

Proposal ID P029	LogID 5072	403.10 Existing and recycled materials
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**Existing and recycled materials.** Existing pavements, curbs, and aggregates are salvaged or reincorporated into the development or recycled asphalt or concrete materials are used ~~as follows:~~ (Points awarded for every 10 percent of total construction and demolition materials that are reused, ~~deconstructed,~~ and/or salvaged. The percentage is consistently calculated on a weight or volume or cost basis.) ~~(1) Existing pavements, curbs, and aggregates are salvaged or reincorporated into the development.~~ ~~(2) Recycled asphalt or concrete is utilized in the project.~~	
Reason:	It was not clear in the 2012 text if the percentage for recycled asphalt could be combined with the percentage or salvaged/reincorporated materials of if 10% of each type was needed for the points.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise Standard as follows:* **Existing and recycled materials.** Existing pavements, curbs, and aggregates are salvaged and reincorporated into the development or recycled asphalt or concrete materials are used as follows: ~~3 points~~ (1) Existing pavements, curbs, and aggregates are ~~salvaged or~~ reincorporated into the development.3 points (2) Recycled asphalt or concrete with at least 50% recycled content is utilized in the project. 2 points (Points awarded for every 10 percent of total ~~construction and demolition~~ materials ~~that are~~ used for payment, curb, and aggregate that meet the above criteria ~~are reused, deconstructed, and/or salvaged~~. The percentage is consistently calculated on a weight or volume or cost basis.) Aggregate point total not to exceed 15 points.	
TG Reason:	This is a request for clarity and specificity needed to properly administer the program. The submission was modified to account for the mitigation of transportation/carbon impacts.	
TG Vote:	Unanimous	

Proposal ID P030	LogID 5237	403.11 Environmentally sensitive areas
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Move this section to 401 (Site Selection) and then tier the points as follows: (1) Reward the highest level of points for avoiding environmentally sensitive areas. (2) Allow a somewhat lower number of points when a site with environmentally sensitive areas is selected and any sensitive areas damaged by construction are fully restored to their pre-construction ecosystem functions and services. (No site can truly be restored to its pre-construction state, even when there is an attempt to do so; thus the lower number of points.) (3) Allow an even fewer number of points when environmentally sensitive areas on the site that are degraded or disturbed by construction are enhanced or the damage is otherwise mitigated.	
Reason:	These points pertain to an important element in site selection: avoiding environmentally important areas. Its importance should be highlighted earlier in the chapter as part of the site selection section. Moreover, restoration and mitigation achieve different results and should not be rewarded the same level of points.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This was not submitted in the proper format. The task group has submitted a new proposal to address these concerns.	
TG Vote:	Unanimous	

Proposal ID P031	LogID TG2-05	403.11 Environmentally sensitive areas
Submitter:	Robert Goo, US EPA	
Requested Action:	Revise as follows:	
Proposed Change:	**403.11 Environmentally sensitive areas**. Environmentally sensitive areas are protected as follows: (1) The environmentally sensitive areas of sites including steep slopes, prime farmland, critical habitats, stream protection areas, and wetlands are avoided as follows: (a) <25 percent of ~~site~~ environmentally sensitive areas left undeveloped…. 2 points (b) 25 percent-75 percent of ~~site~~ environmentally sensitive areas left undeveloped.4 points (c) >75 percent of ~~site~~ environmentally sensitive areas left undeveloped……..7 points ~~(2) Compromised environmentally sensitive areas are mitigated or restored. 4 points~~ (2) Environmentally sensitive areas are permanently protected a conservation easement or similar mechanism. 10 points (3) At least 50% of environmentally sensitive impacted areas are partially restored or enhanced. 4 points (4) Environmentally sensitive areas are restored to predevelopment (not preproject) ecosystem function… 7points	
Reason:	Language changed to provide additional clarity. Moreover, protection, restoration and mitigation achieve different results and should not be rewarded the same level of points.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P032	LogID TG2-03 403.5 Stormwater Management
Submitter:	Robert Goo, US EPA
Requested Action:	Delete and substitute as follows:
Proposed Change:	~~**403.5 Stormwater management.** Stormwater management design includes one or more of the following low-impact development techniques:~~ ~~(1) Natural water and drainage features are preserved and used. 7 points~~ ~~(2) Vegetative swales, French drains, wetlands, drywells, rain gardens, and similar infiltration features are used. 6 points~~ ~~(3) Permeable materials are selected/specified for common area roads, driveways, parking areas, walkways, and patios.~~ ~~(a) 10 percent to 25 percent. 2 points~~ ~~(b) 25 percent to 75 percent. 5 points~~ ~~(c) greater than 75 percent. 8 points~~ ~~(4) Stormwater management practices are selected/specified that manage rainfall on-site and prevent the off-site discharge from all storms up to and including the volume of the 95th percentile storm event. 7 points~~ ~~(5) A hydrologic analysis is conducted that results in the design of a stormwater management system that maintains the predevelopment(stable, natural) runoff hydrology of the site throughout the development or redevelopment process. Post-construction runoff rate, volume, and duration do not exceed predevelopment rates. 7 points~~ ~~(6) Stormwater management features/structures are designed for the reduction of nitrogen, phosphorus, and sediment. 7 points~~ **403.5 Stormwater Management.** The stormwater management system is designed to use low impact development/green infrastructure practices to preserve, restore or mitigate changes in site hydrology due to land disturbance and the construction of impermeable surfaces through the use of one or more of the following techniques: (1) A site assessment is conducted and a plan prepared and implemented that identifies important existing permeable soils, natural drainage ways and other water features, e.g., depressional storage, onsite to be preserved in order to maintain site hydrology. **7 points** (2) A hydrologic analysis is conducted that results in the design of a stormwater management system that maintains the predevelopment (stable, natural) runoff hydrology of the site through the development or redevelopment process. Ensure that post construction runoff rate, volume and duration do not exceed predevelopment rates, volume and duration. **10 points**. (3) Low Impact Development/Green infrastructure stormwater management practices to promote infiltration and evapotranspiration such as, but not limited to, vegetated swales, bio-retention cells, vegetated tree boxes and planters, green roofs, and permeable pavements are used to manage rainfall on the lot and prevent the off-lot discharge of runoff from all storms up to and including the volume of following storm events: (a) 80th percentile storm event **5 points** (b) 90th percentile storm event **8 points** (c) 95th percentile storm event **10 points** (4) Permeable materials are used for driveways, parking areas, walkways and patios according to the following percentages: (a) less than 25 percent **2 points** (b) 25-50 percent **5 points** (c) greater than 50 percent **10 points**
Reason:	As written 403.5 is a mix of elements that have and do not have objective performance requirements. In addition, the categories overlap and some double counting may occur. The proposed rewrite is an attempt to address these issues and provide a more practical system with which to promote the use of low impact development/green infrastructure practices in the design of the stormwater management systems for the projects.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	Unanimous

Proposal ID P033	LogID 5231	403.5 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete and substitute as follows	
Proposed Change:	~~(2) Vegetative swales…infiltration features are used.~~ (2) One or more of the following features is included on the site or structure to allow for on-site infiltration of water: vegetative swales, bioretention systems, rain gardens, wetlands, french drains, drywells, and vegetative roofs.	
Reason:	This revised language clarifies intent of the credit and includes additional practices for which builders should receive credit.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* ~~(2) Vegetative swales…infiltration features are used.~~ (2) One or more of the following systems is included on the site or structure to allow for on-site infiltration of water: vegetative swales, bioretention systems, rain gardens, wetlands, french drains, drywells, ~~and~~ or vegetative roofs.	
TG Reason:	Change from AND to OR in order to create clarity	
TG Vote:	Unanimous	

Proposal ID P034	LogID 5232	403.5 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	For subpart (3), increase the points associated with items (b) and (c), or at least increase them relative to item (a), e.g., 6 points for (b) and 10 points for (c).	
Reason:	The expense and effort dedicated to the much higher portions of permeable materials, as well as the significantly higher potential for reducing runoff, should be rewarded by a greater step up in the point system.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	These points are being adequately handled because they are awarded in multiple locations.	
TG Vote:	Unanimous	

Proposal ID P035	LogID 5233	403.5 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Subparts (4) and (5) should each offer a number of points significantly higher than that of any other single item under 403.5, e.g., 25 points. These points should also not be additive with each other nor with the other items under 403.5, because (4) and (5) would require an array of approaches that would likely be redundant with most of the other items.	
Reason:	Achievement of (4) or (5) is a commitment to preserving site hydrology and reducing the impact of the development on water quality. Such an investment should be rewarded with higher points as an incentive for reaching for such high levels of environmental performance. Moreover, items (4) and (5) are comprehensive for the site, whereas (3) only addresses hardscape areas and (1), (2), and (6) only address some landscape features or components that could be incorporated into the landscape design. In the current version of NGBS, items (4) and (5) are rewarded with a point less than is (3)(c), which is quite at odds with the potential benefits that could be achieved under the respective items. The environmental benefits of (4) and (5) are likely much higher than those of all the other items in 403.5, and should be rewarded proportionately.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This will be difficult to implement without research and documentation to justify the change. It is also unclear what the submitter is requesting to be changed.	
TG Vote:	Unanimous	

Proposal ID P036	LogID 5235	403.5 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(6) Stormwater management features/structures are designed for the reduction of nitrogen, phosphorus, ~~and~~sediment~~.~~, and pathogens.	
Reason:	Pathogens are of concern in many areas. Low impact development practices that use soil-based infiltration systems can reduce pathogen loadings to receiving waters.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new item to Section 403.5 as follows:* (7) Stormwater management features/structures are designed for the reduction of pathogens. 5 points	
TG Reason:	The task group wants to encourage this practice; however, they believe it should receive points separately as this practice is not yet used widely enough to be combined with practices for the reduction of nitrogen, phosphorus and sediment.	
TG Vote:	Unanimous	

Proposal ID P037	LogID 5236	403.6 Landscape plan
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(4)(a) 0 percent ~~or EPA WaterSense Water Budget Tool is used to determine the maximum percentage of turf areas~~ Create a new credit that rewards points for the use of the WaterSense Budget Tool, e.g.: (#) The landscape is designed to reflect the water use budget determined through the EPA WaterSense Water Budget Tool. Suggested point value: 6	
Reason:	The WaterSense Budget Tool can be used to design a landscape that reflects local climate conditions. The components of the design that are considered need not be limited to turf grass. Thus, it makes sense to move the WaterSense Budget Tool into its own credit, independent of choices made on turf grass.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This section was reworded through a different proposed change and use of the Water Sense tool was addressed there.	
TG Vote:	Unanimous	

Proposal ID P038	LogID 5255	403.6 Landscape plan

Submitter: Greg Johnson, Greg Johnson Consulting

Requested Action: Delete and substitute as follows

Proposed Change:

403.6 Landscape plan. A landscape plan is developed to limit water and energy use in common areas while preserving or enhancing the natural environment utilizing one or more of the following. Examples of techniques may include, but are not limited to, one or more of the following:

(1)	A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	~~5~~ 6
(2)	On-site native or regionally appropriate trees and shrubs are conserved, maintained and reused for landscaping to the greatest extent possible.	~~5~~ 6
(3)	Turf grass species, other vegetation, and trees that are native or regionally appropriate for local growing conditions are selected.	~~4~~ 6
~~(4)~~	~~The percentage of all turf areas are limited as part of the landscaping.~~	-
-	~~(a) 0 percent~~	~~4~~
-	~~(b) greater than 0 percent to less than 20~~	~~3~~
-	~~(c) 20 percent to less than 40 percent~~	~~2~~
-	~~(d) 40 percent to 60 percent~~	~~1~~

Duplicative proposed change to Section 503.5:

503.5 Landscape plan. A landscape plan for the lot is developed to limit water and energy use while preserving or enhancing the natural environment. (Where "front" only or "rear" only plan is implemented, only half of the points (rounding down to a whole number) are awarded for items 1-6)

(1)	~~Where a lot is less than 50% turf, a~~ A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	~~5~~ 6
(2)	Turf grass species, other vegetation, and trees are selected and specified on the lot plan that are native or regionally appropriate for local growing conditions.	~~4~~ 6
~~(3)~~	~~The percentage of turf areas that is designed to be mowed is limited and shown on the lot plan. The percentage is based on the landscaped area of the lot not including the home footprint, hardscape, and any undisturbed natural areas.~~	-
-	~~(a) 0 percent~~	~~4~~
-	~~(b) greater than 0 percent to less than 20~~	~~3~~
-	~~(c) 20 percent to less than 40 percent~~	~~2~~
-	~~(d) 40 percent to 60 percent~~	~~1~~
	Practices 4 through 6 unchanged	-
(6)	Vegetative wind breaks or channels are designed to protect the lot and immediate surrounding lots as appropriate for local conditions.	~~4~~ 5

Reason: The Outdoor Power Equipment Institute recommends striking all of Sections 403.6. (4) and 503.5 (3). We additionally request that the points for turf limitations in Sections 403.6. (4) and 503.5 (3) be reallocated to other more appropriate sustainable practices within their respective sections. The inclusion of disincentives for areas of turfgrass conflict with the intent of the NGBS and aren't consistent with other trends in landscape regulation. The 'less turf-more points' formula suggests a negative environmental value to turfgrass and completely discounts its positive social, safety, and environmental attributes. Limiting turfgrass also limits builder flexibility in installing landscapes for the best site specific environmental performance and inhibits offering a green residential building able to compete on an apples-to-apples basis for curbside appeal with traditional residential buildings. There is extensive scientific documentation of the valuable environmental ecosystem services that can be provided by turfgrass; (stormwater management, biomass accumulation, replacement of hardscapes, bioremediation, carbon sequestration, environmental cooling, nitrogen and phosphorous capture, fire safe site design, atmospheric cleansing, control of water and wind erosion, oxygen production), meaning that an incentive for the limitation of its use is unwarranted. This is particularly true considering the abilities of turfgrass to go dormant in periods of drought while still providing some of its ecosystem services and to be ready to provide the balance when precipitation or wastewater is again available. Consider, for example, the cooling benefits of turfgrass. In some instances, ground level temperatures of grass-covered land areas are 30 to 40 degrees cooler than bare soil. They are also 50 to 70 degrees cooler than hardscape (asphalt or concrete) areas. FN1. Reducing turfgrass increases the 'heat island' effect which in turn increases demand for energy. In addition to its cooling properties, managed

	turfgrass plays a positive role in our efforts to confront climate change. A well maintained, growing lawn that is fed by nutrients from grass clippings sequesters carbon from the atmosphere and helps to minimize the property's carbon footprint. FN2. Reducing turf areas and replacing them with mulch or hardscape makes active carbon 'sinks' inactive, potentially increasing the carbon released back into the atmosphere by exposing soils or using non-growing, decaying materials such as mulch. These alternative methods can be aesthetically appealing and help control water run-off and use, but they do not share the turfgrass benefit of contributing to the reduction of greenhouse gas emissions. It should be noted that a complete absence of scientific foundation was offered when turfgrass disincentives were suggested through public comment to the initial draft of the NGBS when the commenter merely referred to a few local green building programs in arid regions and stated: "Seems reasonable to give credit for both limited grass, as well as almost or no grass." Similarly, in the last cycle of ICC-700, the EPA comment to create stronger disincentives for turfgrass installation was presented as arbitrary targets with no scientific justification. In the EPA comment the statement was made that "EPA supports the inclusion of a practice restricting turf areas in landscaping…" This conflicts with the EPA's August 12, 2011 public comment to GG 243-11 of the IgCC in which the agency asks for turf area restrictions to be eliminated, saying instead that "… a water budget approach would be preferable to guide landscape design, irrespective of the source of irrigation…" It also conflicts with EPA's 2012 removal of the 40% turf limitation from the WaterSense Specification as well as the White House's Council on Environmental Quality's October 31, 2011 Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes which has no prescriptive turf limitation and in fact recommends the use of turf for certain circumstances. This philosophical approach parallels the action of the International Code Council's membership which overwhelmingly rejected all turf limitations at the final action hearings for the 2012 IgCC on November 3, 2011. The best way to facilitate a market approach to green building demand is to offer features that the public wants while providing buildings and sites with superior environmental performance. There was extensive discussion during the development of the first edition of the NGBS about prohibiting fire places and swimming pools from green residential buildings or awarding 'negative points' to buildings that offered those amenities. The committee wisely rejected approaches that created disincentives to demand for green residential buildings. Turfgrass is a similar amenity. For many people the maintenance of a lawn is a hobby of choice and a matter of pride. It's also affordable, for both installation and maintenance, which can help foster more green building demand. Simply, many people like turfgrass and many would want to own or live in a green residential building with the amenity. They should not be penalized for wanting a place for their children and pets to engage in healthy play. Beyond amenities, turfgrass has larger societal benefits as well. It is the superior vegetative surface material for athletic activity, both organized and informal. It is unparalleled as a vegetative surface for viewing performances and other outdoor assembly uses and social gatherings. It is the most accessible traveling surface, other than hardscapes, as it allows for unobstructed, omni-directional movement. Where public safety is a concern, it is an inviting feature because it doesn't permit undesirable lurking making it a key component of crime prevention through environmental design. For fire safety purposes turfgrass serves as defensible space for compliance with the Wildland Urban Interface Code and, when used with Grasscrete or similar materials, is suitable for use as a fire access lane or to replace other hardscapes. Finally, the division of points in our proposed change doesn't reduce the total amount of points available for providing a landscape plan designed to limit water and energy use. Instead those points are allocated to other practices that demonstrably preserve or enhance the natural environment and which can benefit from the inclusion of turfgrass as an environmentally sound landscape strategy. Note that the greatest point increase is given to providing vegetation that is native or regionally appropriate for local growing conditions which is the best option in these sections for fostering water efficiency. FN1. Beard, J.B. and R.L. Green. 1994. The Role of Turfgrasses in Environmental Protection and Their Benefits to Humans. Journal of Environmental Quality. Vol 23:3 Sahu, R. 2008. Technical Assessment of the FN.2 Carbon Sequestration Potential of Managed Turfgrass in the United States. Outdoor Power Equipment Institute (OPE/). Alexandria, VA.
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise standard as follows:* **403.6 Landscape plan.** A landscape plan is developed to limit water and energy use in common areas while preserving or enhancing the natural environment utilizing one or more of the following. Examples of techniques may include, but are not limited to, one or more of the following: (1) A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated. — 6 (2) On-site native or regionally appropriate trees and shrubs are conserved, maintained and reused for landscaping to the greatest extent possible. — 6 (3) Turf grass species, other vegetation, and trees that are native or regionally appropriate for local growing conditions are selected giving consideration to biodiversity and water use. — ~~5~~ 7

~~(4)~~	~~The percentage of all turf areas are limited as part of the landscaping.~~	~~-~~
~~-~~	~~(a) 0 percent~~	~~4~~
~~-~~	~~(b) greater than 0 percent to less than 20~~	~~3~~
~~-~~	~~(c) 20 percent to less than 40 percent~~	~~2~~
~~-~~	~~(d) 40 percent to 60 percent~~	~~1~~
(4)	EPA WaterSense Water Budget Tool is used to determine the maximum percentage of turf areas.	2
(5)	Non-potable irrigation water is available to common areas	2
(6)	Non-potable irrigation water is available to lots.	4

503.5 Landscape plan. A landscape plan for the lot is developed to limit water and energy Use while preserving or enhancing the natural environment.(Where "front" only or "rear" only plan is implemented, only half of the points (rounding down to a whole number) are awarded for items 1-6)

(1)	~~Where a lot is less than 50% turf, a~~ A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	6
(2)	Turf grass species, other vegetation, and trees that are native or regionally appropriate for local growing conditions are selected giving consideration to biodiversity and water use.	~~6~~ 7
~~(3)~~	~~The percentage of turf areas that is designed to be mowed is limited and shown on the lot plan. The percentage is based on the landscaped area of the lot not including the home footprint, hardscape, and any undisturbed natural areas.~~	~~-~~
~~-~~	~~(a) 0 percent~~	~~4~~
~~-~~	~~(b) greater than 0 percent to less than 20~~	~~3~~
~~-~~	~~(c) 20 percent to less than 40 percent~~	~~2~~
~~-~~	~~(d) 40 percent to 60 percent~~	~~1~~
(3)	EPA WaterSense Water Budget Tool is used to determine the maximum percentage of turf areas.	2
	Practices 4 through 6 unchanged	
(6)	Vegetative wind breaks or channels are designed to protect the lot and immediate surrounding lots as appropriate for local conditions.	~~4~~ 5

TG Reason:	The use of turfgrass in landscape design should be appropriate to the site. Turfgrass offers environmental benefits that may be desirable on the site so disincentives for its use are not warranted. Instead, other performance objectives for consideration by the site designer like water efficiency and biodiversity should be identified in the standard.
TG Vote:	7-1-0

Proposal ID P039	LogID 5258	403.6 Landscape plan

Submitter:	Greg Johnson, Greg Johnson Consulting
Requested Action:	Revise as follows
Proposed Change:	**403.6 Landscape** **plan.** A landscape plan is developed to limit water and energy use in common areas while preserving or enhancing the natural environment utilizing one or more of the following. Examples of techniques may include, but are not limited to, one or more of the following:

	Practices 1-3 are unchanged	
(4)	Turfgrass is over-seeded with not less than the equivalent rate of one-half pound per acre (.22 kg/.405 ha) of white clover (trifolium repens) or similar flowering maintenance tolerant herbaceous plants.	5
~~(4)~~	~~The percentage of all turf areas are limited as part of the landscaping.~~	-
-	~~(a) 0 percent~~	~~4~~
-	~~(b) greater than 0 percent to less than 20~~	~~3~~
-	~~(c) 20 percent to less than 40 percent~~	~~2~~
-	~~(d) 40 percent to 60 percent~~	~~1~~

Duplicative proposed change submitted to Sec. 503.5.

Reason:	I propose the elimination of the questionable practice awarding of points for the limitation of areas of turfgrass and to instead award points for the inclusion of white clover to areas of turfgrass. This measure will improve the wildlife habitat value of turfgrass systems installed on ICC-700 compliant sites while maintaining the durability, carbon sequestration, environmental cooling, atmospheric cleansing, control of water and wind erosion, and oxygen production functions of the turfgrass component. The addition of white clover to turfgrass is not a new idea; it was commonly added to lawns in the first half of the 20th century. Returning to this practice is suggested as an important option for sustainable turfgrass systems where the performance of the turfgrass materials and white clover are complimentary. This approach is akin to that taken with structural building materials; we do not limit the use of steel in multi-story buildings because it yields in intense fire conditions – we install it as a component of a system with some sort of fireproofing added; we do not limit the use of concrete because of its permeability – we add water and vapor resistive barriers to create an assembly; we do not limit the use of exterior wood – we treat the wood with some other material to resist rotting. By adding flowering plants to the assembly an insect and bird friendly turfgrass system is provided. The addition of white clover to turfgrass systems is consistent with the “bee lawn” research of the University of Minnesota’s entomology and horticulture departments.1. 2 This research provides the basis for turfgrass systems that support pollinating arthropods and other fauna. Research in Illinois by Dr. John Hilty indicates that 53 pollinating insect species, (33 long tongued bees, 14 short tongued bees, 6 wasps,) and 35 non-pollinating insects (9 flies, 14 butterflies, 10 skippers, 2 moths) suck the nectar of white clover.3 Hilty also reports that many moth caterpillars, 4 species of butterfly caterpillars, and the Flower Thrip all use clover as a food source.4 In other white clover faunal associations Hilty states that “the foliage and seedheads are eaten by the Ruffed Grouse, Greater Prairie Chicken, Wild Turkey, and Ring-Necked Pheasant. Some songbirds occasionally eat the seeds, including the Horned Lark and Smith Longspur (winter only). Various small mammals find the foliage and seedpods very attractive as a source of food, including the Cottontail Rabbit, Groundhog, Thirteen-Lined Ground Squirrel, and Meadow Vole. Large hoofed animals, such as the White-Tailed Deer, cattle, horses, and sheep, also graze on the foliage of clovers.”5 Similarly, the USDA Forest Service identifies white clover as “an excellent forage plant for livestock and wildlife. The leaves and flowers are grazed by grizzly bear, moose, mule, white-tailed deer, and blue grouse. It comprises nearly 6 percent of the annual forage of the white-footed vole. The seeds are eaten by the northern bobwhite, bufflehead, American coot, sage grouse, ruffed grouse, sharp-tailed grouse, horned lark, mallard, gray partridge, greater prairie chicken, willow ptarmigan, American pintail, California quail, and American robin.”5 Given white clover’s global distribution, (widely naturalized in the temperate regions of the world; native of Europe, North Africa, and western and central Asia; 6 present in all 50 states and provinces of Canada7) its habitat value to local wildlife is orders of magnitude beyond that identified by Dr. Hilty in Illinois or to the North American species reported by the USDA Forest Service. Besides wildlife nutrition, white clover is edible by humans with minimal preparation. It is high in protein and used for soup and salads and tea. It also can be made into flour. White clover’s potential contribution to urban agriculture furthers its sustainability quotient.8 White clover is a nitrogen fixing plant, capturing nitrogen from the atmosphere and making it available as fertilizer to other plants when it dies; a sustainability boon in addition to its habitat and urban agriculture values. According to multiple sources it remains green even during drought when turfgrass is dormant; eliminates the need for herbicides because it suppresses weeds; virtually eliminates the need for fertilizer when incorporated with turfgrass because of its nitrogen contribution; requires no pesticides; and smells good. The standard seeding recommendation by the USDA Natural Resources Conservation Service

	is 2 lbs. per acre (43,560 ft2) for pastures for 50% coverage.9 A rate equivalent to 1/2 pound per acre is suggested as appropriate for overseeding lawns. The offered performance alternative to white clover, “similar flowering maintenance tolerant herbaceous plants” helps address sites where white clover is not ideally suited. Adding language to the Commentary to provide guidance for the selection of white clover alternatives is strongly indicated. According to the USDA’s Natural Resources Conservation Service neither the Federal government nor any state government identifies white clover as a noxious weed or invasive plant although, as is for many beneficial plant species, proper management is recommended for control.10 1. http://blog.lib.umn.edu/efans/ygnews/2012/03/a-bee-lawn-how-to-have-an-inse-1.html 2. http://turf.umn.edu/category/bee-lawn/ 3.www.illinoiswildflowers.info/flower_insects/plants/white_clover.htm 4.http://www.illinoiswildflowers.info/weeds/plants/white_clover.htm 5.http://www.fs.fed.us/database/feis/plants/forb/trirep/all.html 6.http://www.efloras.org/florataxon.aspx?flora_id=110&taxon_id=200012344 7.http://plants.usda.gov/core/profile?symbol=TRRE3 8.http://en.wikipedia.org/wiki/Trifolium_repens 9.http://plants.usda.gov/factsheet/pdf/fs_trre3.pdf 10.http://plants.usda.gov/java/noxComposite
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise standard as follows:* Practices 1-3 are unchanged (4) Turfgrass is integrated with maintenance tolerant, non-invasive flowering herbaceous plants in an amount to achieve not less than 10% of the groundcover. Plants should typically flower at less than 6 inches in height. 3 ~~(4) The percentage of all turf areas are limited as part of the landscaping.~~ - ~~- (a) 0 percent 4~~ ~~- (b) greater than 0 percent to less than 20 3~~ ~~- (c) 20 percent to less than 40 percent 2~~ ~~- (d) 40 percent to 60 percent 1~~
TG Reason:	The task group removed the specific mention of clover because clover may not be appropriate but other seed mixes may be appropriate. Should not award points for one specific species as that species maybe invasive in certain locations.
TG Vote:	8-2-0

Proposal ID P040	**LogID 5320**	**403.6 Landscape plan**
Submitter:	Craig Conner, Building Quality	
Requested Action:	Delete without substitution	
Proposed Change:	403.6 ~~(4)~~	
Reason:	Item 3 makes sense, when it says use appropriate vegetation; presumably including low water grass. Item 4, limiting turf areas, does not. We want to limit water use, not limit grass.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The turf grass issue was addressed through previous comments.	
TG Vote:	Unanimous	

Proposal ID P041	LogID 5206	403.6 Landscape plan
Submitter:	Wes Sullens, StopWaste of Alameda County	
Requested Action:	Revise as follows	
Proposed Change:	"~~Turf grass species, other vegetation~~, In areas where turf grass is not used, non-invasive vegetation and trees that are native or regionally appropriate for local conditions are selected."	
Reason:	1) The fourth item under 403.6 rewards points for the use of turf grass in a manner that is consistent with local water availability. Thus, the selection of a turf grass that is "regionally appropriate" in item 3 is redundant with item 4, and could lead to double-rewarding of credit points for the use of turf. Such encouragement of the use of turf grass clearly is inconsistent with the goals of this section. 2) Because turf grasses are regularly mown, they do not provide the height nor flowers that provide food and habitat for pollinators and other wildlife. Therefore, it does not make sense to group them with other types of vegetation. In addition, turf grasses have shallow root depths, and are not as effective at sequestering carbon, retaining water, creating porous soils, or fostering biota, as compared to other plant species with deeper root systems. 3) Turf grass requires a unique maintenance regime that creates a level of pollution risk that is higher than that created by other types of vegetation – yet another reason not to group it with non-turf types of vegetation. 4) The reasons to avoid invasive plants are many: •Invasive plants produce greater amounts of waste. Invasive plants tend to grow faster, spread beyond their original planting areas, and result in greater amounts of green waste than non-invasive species. Additionally, effective eradication of invasive plants often requires the use of herbicides which are classified as hazardous waste and must be disposed of properly at end of life. Avoiding invasive plants is a waste prevention measure for cities and counties who regulate and operate hazardous waste facilities and landfills. •Invasive plants have serious environmental impacts, including increased frequency and intensity of fire regimes in certain climes, altered soil composition, lack of dissolved oxygen in waterways, changes to natural hydrologic cycles, and threaten wildlife. While the effects of invasive plants are most severely felt in the rural areas and wildlands, evidence is that most invasive plants currently causing havoc in the west started as horticultural plantings in urban areas. Therefore, land development in urban and suburban areas have a direct correlation with invasive plant exposure throughout the region. •Management of invasive plants is expensive. In California for example, the cost of control, monitoring, and outreach is conservatively estimated to be $82 million a year (not including indirect costs associated with lost agricultural yields, increased severity of wildfires and floods, loss of productive range and timber lands, reduced land values, damage to infrastructure, and degraded recreational opportunities). •Avoiding invasive plants via building standards is effective and low-cost. Experts agree that prevention is the most effective and resource-efficient way to combat the spread of invasive plants. By requiring construction projects to avoid invasive plant species, demand for invasive plants from nurseries and suppliers will diminish over time. Further, a wide variety of alternatives to invasive plants is easily available with no cost difference, resulting in no cost increase for the design and construction industry.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* Turfgrass species, other vegetation, and trees that are native or regionally appropriate for local growing conditions are selected and specified on the lot plan. Non-invasive vegetation is selected.	
TG Reason:	Edited for consistency with change in Chapter 5.Some regionally appropriate species are in fact invasive.	
TG Vote:	Unanimous	

Proposal ID P042	LogID 5264	405.0 Intent (Innovative Practices)
Submitter:	Matt Belcher, Verdatek Solutions	
Requested Action:	Add new as follows	
Proposed Change:	**405.11 Resilience** Site incorporates one or more of the following resilience options, as applicable. 1. The development of portions of the site(s) located within flood hazard areas is avoided as follows: (a) Portions of sites located within flood hazard areas are avoided. (b) Portions of sites located within areas subject to a 0.2% annual chance of (500-year) flood are avoided.	
Reason:	With the focus on future enhancement of the model codes to provide for enhanced "Resiliant" construction, It is an opportunity to include reference in this "above code" standard to incentivise innvotaive practices and process that will demonstrate best practices for eventual application into the model codes.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Susan Gitlin working on language. Not a persuasive argument as it is currently written but may be a topic worth exploring.	
TG Vote:	Unanimous	

Proposal ID P043	LogID 5261	405.1 Driveways and parking areas
Submitter:	Greg Johnson, Greg Johnson Consulting	
Requested Action:	Revise as follows	
Proposed Change:	**405.1 Driveways and parking areas.** Driveways and parking areas are minimized or mitigated by one or more of the following:	
	Practices 1-3 unchanged	
	(4) Closed cell grass paving systems are utilized to reduce the footprint of surface driveways, fire lanes, streets and parking areas.	-
	(a) 25 % to less than 50%	**4**
	(b) 50% to 75%	**5**
	(c) greater than 75%	**6**
Reason:	Closed cell grass paving systems offer multiple environmental benefits; being completely pervious for stormwater management and offering not just passive heat mitigation, but active cooling through transpiration. Grass paving also sequesters carbon and produces oxygen. These multiple benefits deserve recognition as an innovative practice.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new item to Section 405.1 Driveways and parking areas as follows:* **405.1 Driveways and parking areas.** Driveways and parking areas are minimized or mitigated by one or more of the following:	
	Practices 1-3 unchanged	
	(4) Vegetative paving systems are utilized to reduce the footprint of surface driveways, fire lanes, streets or parking areas.	-
	(a) 10 % to less than 25%	**1**
	(b) 25% to 75%	**2**
	(c) greater than 75%	**3**
TG Reason:	The task group does not want to call out specific types of vegetative paving systems but wants to award points for their use.	
TG Vote:	Unanimous	

Proposal ID P044	LogID 5202	405.1 Driveways and parking areas
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(1) Off-street parking area are shared or driveways are shared; …rear-loaded garages. No more than 20 percent of all single family homes shall have front-loaded garages, unless the topography prohibits rear loading. Front-loaded garages for detached homes should be placed a minimum of 15 feet behind of the front façade of the house.	
Reason:	The high number of curb cuts caused by front loaded garages creates a safety hazard for pedestrians with too many car pedestrian conflicts. This makes the streetscape unwalkable; discouraging active transportation modes. Snout houses with garage doors prominently displayed create an inhospitable environment for walking. People feel safer when the design of the building façade gives the impression of more eyes on the street.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The task group believes that this is an issue that is related to good community design but does not have a green component. Also, it is related to the design of the home, not the site.	
TG Vote:	Unanimous	

Proposal ID P045	LogID 5190	405.2 Street widths
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete and substitute as follows	
Proposed Change:	~~(2) A waiver was secured by the developer from the local jurisdiction to allow for construction of streets below minimum width requirement.~~ (2) The subdivision has a minimum street connectivity standard of 90 intersections per square mile.	
Reason:	Narrow street widths do not work if you use a dendritic street pattern. Without a grid, emergency vehicles can get trapped on streets behind large vehicles. A grid allows multiple pathways to emergency site. A grid also reduces the average walking and biking trip length encouraging active transportation. Your use of the terms collector and local access reinforce the dendritic typology. The Standard of 90 intersections is a prerequisite of LEED-ND version 2009.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	By deleting the previous language and replacing it with the proposed change you lose the points for creating a narrow street. It also makes it difficult to follow the natural contours of the land which an applicant would get points for in subsequent sections. Also, street connectivity does not belong in the street width section.	
TG Vote:	Unanimous	

Proposal ID P046	LogID 5191	405.4 Zoning
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete without substitution	
Proposed Change:	~~(1) Innovative zoning . . . .~~ Move the points to 405.7.	
Reason:	The innovation is zoning is not important for a green community. The design that results from the zoning changes affects how green the community is. Don't focus on process, focus on outcomes.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* 405.4 ~~Zoning~~ Planning. Innovative ~~zoning~~planning techniques are implemented in accordance with the following: (1) Innovative ~~zoning ordinances or local laws~~ planning techniques are used or developed for permissible adjustments to population density, area, height, open space, mixed-use, or other provisions for the specific purpose of open space, natural resource preservation or protection and/or mass transit usage. Other innovative ~~zoning~~planning techniques may be considered on a case-by-case basis. ~~8~~ 10 points ~~(2) An increase tothe permissible density, area, height, use, or other provisions of a local zoning law for a defined green benefit. 7 points~~ Place-based amenities such as plazas, squares, and attached greens located around civic, commercial, and mixed use property are accessible by sidewalks, on-street parking, or provide for bike racks for the purpose of promoting higher density living. ~~7~~ 10 points	
TG Reason:	The task group agrees that applicants should not get points for developing in an area with progressive zoning laws, however, if an applicant takes it upon themselves to use innovative planning practices in the design of the site without being required to do so, that is worthy of receiving points under the standard and achieves the intent of the section.	
TG Vote:	Unanimous	

Proposal ID P047	LogID 5192	405.4 Zoning
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete without substitution	
Proposed Change:	~~(2) An Increase to the permissible . . .~~	
Reason:	An increase in height to promote density is redundant with section 405.7 Density.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	The task group agrees that this is redundant and deleted it in a previous change.	
TG Vote:	Unanimous	

Proposal ID P048	LogID 5193	405.4 Zoning
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete and substitute as follows	
Proposed Change:	~~(3) Place-based amenities such as plazas, squares, and attached greens located around civic, commercial, and mixed-use property are accessible by sidewalks....~~ (3) Provide active open space of a minimum of 1/6 acre within ¼ mile walk of 90 percent of planned and existing units and entrances to no residential buildings. The open space must be accessible to the public and be clearly signed for public access. Squares, Parks, Paseos and Plazas all meet this criterion.	
Reason:	The existing text is too vague. There needs to be quantitative measures on the level of amenities. Most open spaces are underused because of bad design. Preserve the social aspects of publically accessible open space. The open space must be accessible to the public and be clearly signed for public access. Joint open space should not be designed to be viewed as a continuation of existing private backyards.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* ~~(3) Place-based amenities such as plazas, squares, and attached greens located around civic, commercial, and mixed-use property are accessible by sidewalks....~~ (3) Provide common or public spaces of a minimum of 1/6 acre that are within ¼ mile walk to 80 percent of planned and existing units and entrances to non- residential buildings. Squares, parks, paseos, plazas, and similar uses qualify under this criterion.	
TG Reason:	Revised proposal for clarity.	
TG Vote:	Unanimous	

Proposal ID P049	LogID 5194	405.6 Multi-modal transportation
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete without substitution	
Proposed Change:	~~(1) "or within 5 miles of mass transit station with parking".~~	
Reason:	90% of criteria air pollutants are emitted in the first 2 minutes of a cold start of a vehicle. Driving to transit does not greatly improve air quality.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The intent of this section is to encourage development close to transit and densely populated areas. Points in this section are also given to projects within a half mile of transit access to encourage walking.	
TG Vote:	Unanimous	

Proposal ID P050	LogID 5195	405.6 Multi-modal transportation
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete and substitute as follows	
Proposed Change:	~~(3) Walkways, bikeways, street crossings, and entrances designed to promote pedestrian activity are provided. New buildings...~~ (3) Create a grid of sidewalks and paths that provide a minimum level of connectivity of at least 90 intersections per square mile.	
Reason:	Walking as active transportation requires direct pathways and multiple routes. It is necessary to include a minimum sidewalk, path intersection connectivity to ensure multiple pathways, and short and relatively direct routes.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* ~~(3)Walkways, bikeways, street crossings, and entrances designed to promote pedestrian activity are provided. New buildings...~~ (3) A system of walkways, bikeways, street crossings, and ~~entrances~~ pathways designed to promote connectivity to existing and planned community amenities ~~pedestrian activity~~ are provided. (a) Create a grid of sidewalks and paths that provide a minimum level of connectivity of at least 90 bikeway or pathway intersections per square mile. 5points (b) Create a grid of sidewalks and paths that provide a minimum level of connectivity of at least 140 bikeway or pathway intersections per square mile. 10points	
TG Reason:	The task group edited the proposal for additional clarity and specificity. Points are awarded for 3 and then added for A or B.	
TG Vote:	Unanimous	

Proposal ID P051	LogID 5196	405.6 Multi-modal transportation
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(4) Bicycle parking and racks are indicated on the site plan and constructed for mixed-use, multi-family buildings, and/or common areas, with a minimum of 1 bicycle parking space per residential unit and 5,000 square feet of office space.	
Reason:	A minimum number of spaces is essential to ensure that a sufficient number of spaces is provided for occupants and to encourage bicycling. These numbers are taken from LEED 2009.	
TG Recommendation:	See below	
Modification of Proposed Change:	*TG 6 - Approve as Modified* **405.6 Multi-modal transportation.** Dedicated bicycle parking and racks are indicated on the site plan and constructed for mixed-use, multi-family buildings, and/or common areas: (a) With a minimum of 1 bicycle parking space per 3 residential units (b) With a minimum of 1 bicycle parking space per 2 residential units (c) With a minimum of 1 bicycle parking space per 1 residential unit. **501.2 Multi-modal transportation.** (5) Dedicated bicycle parking and racks are indicated on the site plan and constructed for mixed-use, multi-family buildings, and/or common areas: (a) With a minimum of 1 bicycle parking space per 3 residential units (b) With a minimum of 1 bicycle parking space per 2 residential units (c) With a minimum of 1 bicycle parking space per 1 residential unit.	
TG Reason:	TG 2 - Disapprove The task group believes one space per unit is excessive and the mention of office space is irrelevant because NGBS only applies to the residential areas. --- TG 6 - Approve as modified The task group agrees with commenter that this provision would benefit from the inclusion of a compliance metric. However, the group believes that a tiered approach is appropriate to allow for increasingly higher quantities of bicycle parking for multi-family. Each tier would be voluntary and would be assigned an increasing number of points. The reference to office space was removed because it is not applicable here. Note that the TG agrees that this provision should also appear in Chapter 5 Section 501.2.	
TG Vote:	TG 2 Unanimous TG 6 5-1-1	

Proposal ID P052	LogID 5197	405.6 Multi-modal transportation
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Reduce Subparts (5) and (6) to 3 points each and increase subparts (1) as revised and (2) to 6 and 10 points respectively.	
Reason:	Bike and car sharing depend on a network larger than the subdivision scale. It is difficult for the applicant to ensure an adequate size of transportation sharing system to ensure feasibility and use. Research by Ewing and Cervero demonstrate that “access to transit” is second only to “siting in a central location” in its impacts at reducing Household vehicle miles traveled.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The submitter did not make a persuasive case.	
TG Vote:	Unanimous	

Proposal ID P053	LogID TG2-07	405.6 Multi-modal transportation
Submitter:	Don Whyte, US EPA	
Requested Action:	Revise as follows:	
Proposed Change:	(4) Bicycle parking and racks are indicated on the site plan and constructed for ~~mixed-use~~, multi-family buildings and/or each developed common areas. 6 points	
Reason:	This was revised for additional clarity. NGBS only applies to the residential portions of the project and while bike racks should be available at the developed common areas (ex: playgrounds), they do not need to be provided around passive open space.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P054	LogID 5198	405.8 Mixed-use development
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete and substitute as follows	
Proposed Change:	Delete the section in its entirety and replace with the following: (1) If the majority of the project is residential, provide a least 10% square footage on non-residential uses. (2) For single use sites of 20 acres or less, 80% of the units should be within ¼ mile walk of 5 non-residential units with no more than two of the same type of use being counted.	
Reason:	The mix of uses is in need of better quantification.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **405.5 Mixed-use development.** (1) Mixed-use development is incorporated, or (2) For single use sites of 20 acres or less in size, ~~with boundaries adjacent to a site with a minimum of two uses containing retail, services, and employment where a pedestrian network of streets, pathways, or plazas exists that connects the majority of lots within the site with the adjacent non-residential uses.~~80% of the units should be within ½ mile walk of 5 non-residential uses with no more than two of the same type of use being counted and where a system of walkways, bikeways, street crossings and pathways is designed to promote connectivity to those uses.	
TG Reason:	The task group chose to increase the distance to a half mile and add in language about connectivity to make sure the residents could easily access those outside amenities to meet the intent of the section.	
TG Vote:	Unanimous	

Chapter 5. Lot Design, Preparation, and Development

Proposal ID P055	LogID 5199 501.1 Lot
Submitter:	Brett VanAkkeren, USEPA
Requested Action:	Revise as follows
Proposed Change:	Applicants should only get points for one of the categories and the points should have a greater spread, e.g., (1) Certified site 12, (2) Infill-10 points, (3) Greyfield-20points, (4) Brownfield-39 points, and (5) Low slope-5 points.
Reason:	Are the points earned in this section additive? The wording "one or more of the following" is ambiguous. For example, the Belmar development in Longwood CO, is an infill site, that was built on an old shopping center site so it is also a greyfield site. The former automotive repair center of the former shopping center had some petroleum contaminants in the soils around it so it could also qualify as a brownfield. It also has low slopes. Would a lot in that project it get 33 points? That doesn't seem right. They should only get points for one of the categories and the points should have a greater spread as suggested.
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise standard as follows:* **501.1 Lot**. ~~The lot is selected to minimize environmental impact by one or more of the following:~~ A lot is selected within a site certified to this Standard or equivalent, 15 points Or the lot is selected to minimize environmental impact by one or more of the following: ~~(1) A lot is selected within a site certified to this Standard or equivalent.~~ ~~(2)~~ (1) An infill lot is selected ~~8~~10 points ~~(3)~~ (2) An infill lot is selected that is a greyfield ~~7~~10points ~~(4)~~ (3) An EPA-recognized brownfield lot is selected ~~9~~15 points ~~(5) A lot with an average slope calculation of less than15% is selected. 9 points~~
TG Reason:	The task group agreed that the point amounts should be increased but by a lesser degree. Also, the task group thought that lots would be getting double points if they were getting points for being in a certified site that was, for example, a brownfiled and then points again for the lot in the already certified site being a brownfield. This text is clearer.
TG Vote:	Unanimous

Proposal ID P056	LogID 5238	501.1 Lot (Lot selection)
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete without substitution	
Proposed Change:	~~(5) A lot with an average slope calculation of less than 15% is selected.~~	
Reason:	It is not clear why it is desirable to specifically encourage the use of low-slope lots. There are environmental trade-offs whether one selects a lot that is relatively flat or one selects one with steeper slopes. In the former, there is a greater likelihood that the flat land could be high-quality farm land; in the latter, there is the possibility that construction will cause erosion. The problems associated with the former cannot be mitigated, whereas the problems associated with the latter can be prevented or mitigated through a variety of practices, including using pin foundations or terraces that stabilize the slopes – and other practices for which points are available elsewhere in Chapter 5 (see 503.2). Also, if the slope is already heavily eroded, structures built on the slope may accrue a net environmental gain by reducing slope movement. Moreover, the 9 points made available through this credit seem extremely high. Flat areas are the easiest for a builder to build upon, so a builder may be rewarded simply for doing what comes easiest, not because it was the environmentally sound approach to take (and even when the site is quality farmland, a wetland, a surface water buffer, or other environmentally sensitive area). And, as building on a low-slope area is unlikely to provide anything close to the environmental benefits provided by building on an infill, greyfield, or brownfield site, the number of points attached to it should be much lower (with at delta of at least 10 points), if any points are attached to it at all.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	The task group agrees with the change and reasoning.	
TG Vote:	Unanimous	

Proposal ID P057	LogID 5298	501.2 Multi-modal transportation
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	Add additional option under 501.2 for projects that are located near employment opportunities worth 5 points. Use metric Jobs per Square Mile (threshold to be determined). (This metric is easily verified through Walkscore Streetsmart) (5) A lot is selected near employment opportunities...	
Reason:	Rewards walkability and access to community resources. Rewards mixed use development. Aligns with existing options 1 through 4.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new item to Section 501.2 Multi-modal transportation as follows:* (5) Lot is located within ½ mile walk of 100 jobs or more.	
TG Reason:	Walk score may not work is cases where there is a greenfield community.	
TG Vote:	3-1-0	

Proposal ID P058	LogID 5200	501.2 Multi-modal transportation
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Delete without substitution	
Proposed Change:	In subpart (1): ~~or within 5 miles of mass transit station with parking.~~	
Reason:	90% of criteria air pollutants are emitted in the first 2 minutes of a cold start of a vehicle. Driving to transit does not greatly improve air quality.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise section 501.2 Multi-modal transportation as follows:* ~~1) A lot is selected within one-half mile (805 m) of pedestrian access to a mass transit system or within five miles (8,046 m) of a mass transit station with provisions for parking. 4 points~~ 1) A lot is selected within one-half mile (805 m)of pedestrian access to a mass transit system 6 points 2) A lot is selected within five miles (8,046 m) of a mass transit station with provisions for parking. 3 points *Renumber rest of section 501.2 Multi-modal transportation.*	
TG Reason:	The intent of this section is to encourage development close to transit and densely populated areas. In order to award more points for providing pedestrian access to transit, this section was split into 2 parts.	
TG Vote:	Unanimous	

Proposal ID P059	LogID 5201	501.2 Multi-modal transportation
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(3) A lot is selected within one-half mile (805 m) of six or more… No more than two each of the following use category can be counted toward the total: Recreation, Retail, Civic, and Services.	
Reason:	Having only 5 parks nearby will not generate a high Walkscore ™. A diversity of uses is necessary to create a genuine walkable environment.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	The task group agrees with the change and reasoning.	
TG Vote:	Unanimous	

Proposal ID P060	LogID 5066	503.1 Natural resources
Submitter:	Philip LaRocque, LaRocque Business Management Services, LLC	
Requested Action:	Revise as follows	
Proposed Change:	503.1(5) All tree pruning on-site is conducted by Certified Arborist or other qualified professional.	
Reason:	Both the natural resource inventory and landscape plan in the standard allows for "qualified professional" reference and the same should be allowed for tree-pruning. Requiring only a Certified Arborist is simply too proprietary and anti-competitive. I have worked with many builder clients to meet this proprietary practice for 3 points with no success since it seriously limits competition.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* 503.1(5) All tree pruning on-site is conducted by ~~C~~certified ~~A~~arborist or other qualified professional ~~approved by the adopting entity.~~	
TG Reason:	An arborist may not be available and there are other professionals who are qualified to conduct tree pruning.	
TG Vote:	Unanimous	

Proposal ID P061	LogID TG2-02	503.1 Natural resources
Submitter:	Don Whyte, Elevated Real Estate Solutions LLC	
Requested Action:	Revise as follows:	
Proposed Change:	(2) A plan is implemented to conserve the elements identified by the natural resource inventory as high-priority resources. (3) Items listed for protection in the natural resource inventory plan are protected under the direction of a qualified professional.	
Reason:	Language changed for consistency	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P062	LogID 5273	503.3 Soil disturbance and erosion
Submitter:	Shelly Leonard, Green Space Consultants LLC	
Requested Action:	Add new as follows	
Proposed Change:	(1) Construction activities are scheduled to minimize length of time that soils are exposed following the 14 day EPA guideline. Multifamily projects should have a schedule that minimizes time that soil is exposed and subject to erosion and is implemented during the construction process.	
Reason:	Include major factors and provide as much clarity as possible in the practice description.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG 2 - Disapprove Part of this was previously addressed. Regarding the multifamily suggestion, the task group thinks all projects should have the same requirement. --- TG 6 - Disapprove Multifamily projects are currently governed by federal law by the same EPA soil stabilization requirements as single family projects. The current EPA requirements already clearly provide for the flexibility necessary to accommodate the construction activities of a multifamily or single family project. No change is necessary.	
TG Vote:	TG 2 Unanimous TG 6 Unanimous	

Proposal ID P063	LogID 5057	503.3 Soil disturbance and erosion
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	(1) Construction activities are scheduled to ~~minimize length of time that soils are exposed~~ such that disturbed soil that is to be left unworked for more than 21 days is stabilized within in 14 days.	
Reason:	"Minimize" is a very non-specific term that is open to a wide range of interpretation. It does not specific to what extent the minimization is needed in order to qualify for the points. A more definitive practice is needed. The suggested revision is consistent with the practice in 504.3(6).	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* (1) Construction activities are scheduled ~~to~~ ~~minimize length of time that soils are exposed~~ such that disturbed soil that is to be left unworked for more than 21 days is stabilized within ~~in~~14 days.	
TG Reason:	Removed "to" and "in". They were left in mistakenly.	
TG Vote:	Unanimous	

Proposal ID P064	LogID 5130	503.3 Soil disturbance and erosion
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**Soil disturbance and erosion.** Soil disturbance and erosion are minimized by one or more of the following: (also see Section 504.3)(1) Construction activities are scheduled to ~~minimize length of time that soils are exposed~~ such that disturbed soil that is to be left unworked for more than 21 days is stabilized within in 14 days.	
Reason:	"Minimize" is a very non-specific term that is open to a wide range of interpretation. The current practice does not specify to what extent the minimization is needed in order to qualify for the points. A more definitive practice is needed. The suggested revision is consistent with the practice in 504.3(6).	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **503.3 Soil disturbance and erosion.** Soil disturbance and erosion are minimized by one or more of the following: (also see Section 504.3)(1) Construction activities are scheduled ~~to~~ ~~minimize length of time that soils are exposed~~ such that disturbed soil that is to be left unworked for more than 21 days is stabilized within ~~in~~ 14 days.	
TG Reason:	Removed "to" and "in". They were left in mistakenly.	
TG Vote:	Unanimous	

Proposal ID P065	LogID 5127	503.4 Stormwater management
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**Stormwater management.** Stormwater management includes one or more of the following low-impact development techniques: (3) ~~All or a percentage of impervious surfaces are minimized and~~ permeable materials are used for driveways, parking areas, walkways, and patios.	
Reason:	Using permeable materials reduces the impervious surface. It is not clear if the percentage applies to the "minimization" or the "permeable materials" or both and how to calculate the "minimization". How should one determine if a driveway length has been shortened enough to be considered "minimized"?	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **503.4 Stormwatermanagement.** Stormwatermanagement includes one or more of the following low-impact development techniques: (3) All or a percentage of the total ~~impervious surfaces are minimized and Permeable materials are used for~~ of driveways, parking areas, walkways, ~~and~~ patios, or recreational surfaces and the like, use permeable materials.	
TG Reason:	Change necessary for clarity.	
TG Vote:	Unanimous	

Proposal ID P066	LogID 5239	503.4 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	….rain gardens, bioretention systems, vegetative roofs, or similar infiltration systems.	
Reason:	This adds a couple common type of infiltration approaches for which builders should receive credit.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Addressing in new proposal from the task group	
TG Vote:	Unanimous	

Proposal ID P067	LogID 5240	503.4 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	For subpart (3), increase the points associated with items (b) and (c), or at least increase them relative to item (a), e.g., 6 points for (b) and 10 points for (c).	
Reason:	The expense and effort dedicated to the much higher portions of permeable materials, as well as the significantly higher potential for reducing runoff, should be rewarded by a greater step up in the point system.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Addressing in new proposal from the task group	
TG Vote:	Unanimous	

Proposal ID P068	LogID 5241	503.4 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	For subpart (4), greatly increase the point allowance, e.g., to 10 points.	
Reason:	A vegetated roof on a residence is expensive and in some ways more difficult to design and install than that on a commercial building due to the size of roof and because most homes have sloping roofs.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Vegetated roofs receive points in multiple sections	
TG Vote:	Unanimous	

Proposal ID P069	LogID 5242	503.4 Stormwater management
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Subparts (5) and (6) should offer a number of points significantly higher than that of any other single item under 503.4, e.g., 20-25 points. These points should also not be additive with each other nor with the other items under 403.5, because (5) and (6) would require an array of approaches that would likely be redundant with most of the other items.	
Reason:	Achievement of (5) or (6) is a commitment to preserving site hydrology and reducing the impact of the development on water quality. Such an investment should be rewarded with higher points as an incentive for reaching for such high levels of environmental performance. Moreover, items (5) and (6) are comprehensive for the site, whereas (3) and (4) only address hardscape areas and (1) and (2) only address some landscape features or components that could be incorporated into the landscape design. The environmental benefits of (5) and (6) are likely much higher than those of all the other items in 403.5, and should be rewarded proportionately.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Addressing in new proposal from the task group	
TG Vote:	Unanimous	

Proposal ID P070	LogID Tg2-04 503.4 Stormwater management
Submitter:	Robert Goo, US EPA
Requested Action:	Delete and substitute and follows:
Proposed Change:	~~**503.4 Stormwater management.** Stormwater management includes one or more of the following low-impact development techniques:~~ ~~**(For lots in a development, the points for items (1), (2), and (3) may be awarded for the lot when there is a community stormwater management plan implemented and the builder does not violate that plan with respect to water leaving the lot.)**~~ ~~(1) Natural water and drainage features are preserved and used. 6 points~~ ~~(2) Facilities that minimize concentrated flows and simulate flows found in natural hydrology by the use of vegetative swales, french drains, wetlands, drywells, rain gardens,or similar infiltration features. 7 points~~ ~~(3) All or a percentage of impervious surfaces are minimized and permeable materials are used for driveways, parking areas, walkways, and patios.~~ ~~(a) less than 25 percent. 2 points~~ ~~(b) 25 percent to 75 percent 4 points~~ ~~(c) greater than 75 percent 6 points~~ ~~(4) A minimum of 50 percent of the roof is vegetated (green roof) using technology capable of withstanding the climate conditions of the jurisdiction and the microclimate conditions of the building lot. Invasive plant species are not permitted. 5 points~~ ~~(5) Stormwater management practices manage rainfall on the lot and prevent the off-lot discharge from all storms up to and including the volume of the 95th percentile storm event. 6 points~~ ~~(6) A hydrologic analysis is conducted that results in the design of a stormwater management system that maintains the pre-development (i.e., stable, natural) runoff hydrology of the lot throughout the development or redevelopment process. Post-constructionrunoff rate, volume, and duration cannot exceed predevelopment rates. 7 points~~ **503.5 Stormwater Management.** The stormwater management system is designed to use low impact development/green infrastructure practices to preserve, restore or mitigate changes in site hydrology due to land disturbance and the construction of impermeable surfaces through the use of one or more of the following techniques: (1) A site assessment is conducted and a plan prepared and implemented that identifies important existing permeable soils, natural drainage ways and other water features, e.g., depressional storage, onsite to be preserved in order to maintain site hydrology. **7points** (2) A hydrologic analysis is conducted that results in the design of a stormwater management system that maintains the pre-development (stable, natural) runoff hydrology of the site through the development or redevelopment process. Ensure that post construction runoff rate, volume and duration do not exceed predevelopment rates, volume and duration. **10points**. (3) Low Impact Development/Green infrastructure stormwater management practices to promote infiltration and evapotranspiration such as, but not limited to, vegetated swales, bio-retention cells, vegetated tree boxes and planters, green roofs, and permeable pavements are used to manage rainfall on the lot and prevent the off-lot discharge of runoff from all storms up to and including the volume of following storm events: (a) 80th percentile storm event **5 points** (b) 90th percentile storm event **8 points** (c) 95th percentile storm event **10 points** (4) Permeable materials are used for driveways,parking areas, walkways and patios according to the following percentages: (a) less than25 percent **2 points** (b) 25-50 percent **5 points** (c) greaterthan 50 percent **10 points**
Reason:	As written 503.4 is a mix of elements that have and do not have objective performance requirements. In addition, the categories overlap and some double counting may occur. The proposed rewrite is an attempt to address these issues and provide a more practical system with which to promote the use of low impact development/green infrastructure practices in the design of the stormwater management systems for the projects.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	Unanimous

Proposal ID P071	LogID 5321	503.4 Stormwater management
Submitter:	Craig Conner, Building Quality	
Requested Action:	Delete without substitution	
Proposed Change:	503.4 ~~(4)~~	
Reason:	503.4 #4 refers to “using technology capable of withstanding the climate conditions of the jurisdiction” is meaningless. For example rock and concrete are generally capable of with standing any climate conditions on the planet. Exactly what are we supposed to use more of?	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* (4) A minimum of 50 percent of the roof is vegetated(green roof)~~ using technology capable of withstanding the climate conditions of the jurisdiction and the microclimate conditions of the building lot~~.Invasive plant species are not permitted.	
TG Reason:	Points should still be awarded for a green roof. But the task group agrees that the clause regarding climate conditions should be removed.	
TG Vote:	Unanimous	

Proposal ID P072	LogID 5243	503.5 Landscape plan
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(3)(a) 0 percent ~~or EPA WaterSense Water Budget Tool is used to determine the maximum percentage of turf areas~~ Create a new credit independent of (3) that rewards points for the use of the WaterSense Budget Tool, e.g.: <u>(#) The landscape is designed to reflect the water use budget determined through the EPA WaterSense Water Budget Tool.</u> Suggested point value: 5	
Reason:	The WaterSense Budget Tool can be used to design a landscape that reflects local climate conditions. The components of the design that are considered need not be limited to turfgrass. Thus, it makes sense to move the WaterSense Budget Tool into its own credit, independent of choices made on turfgrass.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	WaterSense tool added in under another proposal.	
TG Vote:	Unanimous	

Proposal ID P073	LogID 5259	503.5 Landscape plan

Submitter:	Greg Johnson, Greg Johnson Consulting
Requested Action:	Revise as follows
Proposed Change:	**503.5 Landscape plan.** A landscape plan for the lot is developed to limit water and energy use while preserving or enhancing the natural environment. (Where "front" only or "rear" only plan is implemented, only half of the points (rounding down to a whole number) are awarded for items 1-6)

(1)	~~Where a lot is less than 50% turf, a~~ A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	5
(2)	Turf grass species, other vegetation, and trees are selected and specified on the lot plan that are native or regionally appropriate for local growing conditions.	~~4~~
(3)	Turfgrass is over-seeded with not less than the equivalent rate of one-half pound per acre (.22 kg/.405 ha) of white clover (trifolium repens) or similar flowering maintenance tolerant herbaceous plants.	5
~~(3)~~	~~The percentage of turf areas that is designed to be mowed is limited and shown on the lot plan. The percentage is based on the landscaped area of the lot not including the home footprint, hardscape, and any undisturbed natural areas.~~	-
-	~~(a) 0 percent~~	~~4~~
-	~~(b) greater than 0 percent to less than 20~~	~~3~~
-	~~(c) 20 percent to less than 40 percent~~	~~2~~
-	~~(d) 40 percent to 60 percent~~	~~1~~
	Practices 4 through 6 unchanged	-

Reason:	See reason for Sec. 403.6.
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **503.5 Landscape plan.** A landscape plan for the lot is developed tolimit water and energy Use while preserving or enhancing the natural environment. (Where"front" only or "rear" only plan is implemented, only halfof the points (rounding down to a whole number) are awarded for items 1-6)

(1)	~~Where a lot is less than 50% turf, a~~ A plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	5
(2)	Turf grass species, other vegetation, and trees are selected and specified on the lot plan that are native or regionally appropriate for local growing conditions.	~~4~~
~~(3)~~	~~Turfgrass is over-seeded with not less than the equivalent rate of one-half pound per acre (.22 kg/.405 ha) of white clover (trifolium repens) or similar flowering maintenance tolerant herbaceous plants.~~	~~5~~
~~(3)~~	~~The percentage of turf areas that is designed to be mowed is limited and shown on the lot plan. The percentage is based on the landscaped area of the lot not including the home footprint, hardscape, and any undisturbed natural areas.~~	-
-	~~(a) 0 percent~~	~~4~~
-	~~(b) greater than 0 percent to less than 20~~	~~3~~
-	~~(c) 20 percent to less than 40 percent~~	~~2~~
-	~~(d) 40 percent to 60 percent~~	~~1~~
	Practices 4 through 6 unchanged	-
(3)	Turfgrass is integrated with maintenance tolerant, non-invasive flowering herbaceous plants in an amount to achieve not less than 10% of the groundcover. Plants should typically flower at less than 6 inches in height.	3

4-8 remain unchanged

TG Reason:	The task group removed the specific mention of clover because clover may not be appropriate but other seed mixes may be appropriate. Should not award points for one specific species as that species may be invasive in certain locations.
TG Vote:	Unanimous

Proposal ID P074	LogID 5068	503.5 Landscape plan
Submitter:	Philip LaRocque, LaRocque Business Management Services, LLC	
Requested Action:	Revise as follows	
Proposed Change:	503.5(2) Turf grass species, other vegetation, and trees that are native or regionally appropriate for local growing conditions are selected and specified on the lot plan. Site observation of installation is waived in winter conditions as long as the lot plan documents these species. 503..5(4) Plants with similar watering needs are grouped (hydrozoning) and shown on the lot plan. Site observation of installation is waived in winter conditions as long as the lot plan documents these species.	
Reason:	In cold climates, at least Climate Zones 7,6,5,4,these current practice point verification requirements are very discriminatory in cases where the certification is needed in winter months for buyer contracts or incentives. The current compromise that provides a temporary certification (or equivalent) pending verification of installation is really extra work, costly for all and not necessary if this reasonable amendment is accepted.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Move reason section to commentary document.	
TG Vote:	Unanimous	

Proposal ID P075	LogID 5129	503.5 Landscape plan
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**Landscape plan.** A landscape plan forthe lot is developed to limit water and energy use while preserving orenhancing the natural environment. (1) Where a lot ~~is less~~ contains more than 50 ~~percent turf~~natural vegetation, a plan is formulated to restore or enhance naturalvegetation that is cleared during construction. Landscaping is phased tocoincide with achievement of final grades to ensure denuded areas are quicklyvegetated.	
Reason:	The intent is for this practice to apply to lots that have significant natural vegetation and that effort is made to restore that vegetation. The current text allows lots with minimal turf and minimal natural vegetation to get points for the practice.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **503.5 Landscape plan.** A ~~landscape~~ plan for the lot is developed to limit water andenergy use while preserving or enhancing the natural environment. ~~(1) Where a lot is less than 50 percent turf natural vegetation~~, ~~a~~ A plan is formulated to protect, restore or enhance natural vegetation on the lot.~~that is cleared during construction. Landscaping is phased tocoincide with achievement of final grades to ensure denuded areas are quicklyvegetated.~~ 100 percent of the natural area= 4 points 50 percent of the natural area = 3 points 25 percent of the natural area = 2 points 12 percent of the natural area = 1 point	
TG Reason:	The task group wishes to award points for protecting, restoring, or enhancing natural vegetation while providing flexibility.	
TG Vote:	Unanimous	

Proposal ID P076	LogID 5207	503.5 Landscape plan
Submitter:	Wes Sullens, StopWaste of Alameda County	
Requested Action:	Revise as follows	
Proposed Change:	"~~Turf grass species, other vegetation~~, In areas ofthe lot where turf grass is not used, non-invasive vegetation and treesthat are native or regionally appropriate for local conditions are selected."	
Reason:	1)The fourth item under 403.6 rewards points for the use of turf grass in a manner that is consistent with local water availability. Thus, the selection of a turf grass that is "regionally appropriate" in item 3 is redundant with item 4, and could lead to double-rewarding of credit points for the use of turf. Such encouragement of the use of turf grass clearly is inconsistent with the goals of this section. 2)Because turf grasses are regularly mown, they do not provide the height nor flowers that provide food and habitat for pollinators and other wildlife. Therefore, it does not make sense to group them with other types of vegetation. In addition, turf grasses have shallow root depths, and are not as effective at sequestering carbon, retaining water, creating porous soils, or fostering biota, as compared to other plant species with deeper root systems. 3)Turf grass requires a unique maintenance regime that creates a level of pollution risk that is higher than that created by other types of vegetation – yet another reason not to group it with non-turf types of vegetation. 4) The reasons to avoid invasive plants are many: •Invasive plants produce greater amounts of waste. Invasive plants tend to grow faster, spread beyond their original planting areas, and result in greater amounts of green waste than non-invasive species. Additionally, effective eradication of invasive plants often requires the use of herbicides which are classified as hazardous waste and must be disposed of properly at end of life. Avoiding invasive plants is a waste prevention measure for cities and counties who regulate and operate hazardous waste facilities and landfills. •Invasive plants have serious environmental impacts, including increased frequency and intensity of fire regimes in certain climes, altered soil composition, lack of dissolved oxygen in waterways, changes to natural hydrologic cycles, and threaten wildlife. While the effects of invasive plants are most severely felt in the rural areas and wildlands, evidence is that most invasive plants currently causing havoc in the west started as horticultural plantings in urban areas. Therefore, land development in urban and suburban areas have a direct correlation with invasive plant exposure throughout the region. •Management of invasive plants is expensive. In California for example, the cost of control, monitoring, and outreach is conservatively estimated to be $82 million a year (not including indirect costs associated with lost agricultural yields, increased severity of wildfires and floods, loss of productive range and timber lands, reduced land values, damage to infrastructure, and degraded recreational opportunities). •Avoiding invasive plants via building standards is effective and low-cost. Experts agree that prevention is the most effective and resource-efficient way to combat the spread of invasive plants. By requiring construction projects to avoid invasive plant species, demand for invasive plants from nurseries and suppliers will diminish over time. Further, a wide variety of alternatives to invasive plants is easily available with no cost difference, resulting in no cost increase for the design and construction industry.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* (2) Turfgrass species, other vegetation, and trees that are native or regionally appropriate for local growing conditions are selected and specified on the lot plan. Non-invasive vegetation is selected.	
TG Reason:	Edited for consistency with chapter 4.Some regionally appropriate species are in fact invasive.	
TG Vote:	Unanimous	

Proposal ID P077	LogID 5209	503.5 Landscape plan
Submitter:	Wes Sullens, StopWaste of Alameda County	
Requested Action:	Add new as follows	
Proposed Change:	**New section:** Invasive plants are removed from the lot.	
Reason:	Invasive plants do enormous environmental and economic harm, as stated in my other comments for sections 403.6 and 503.5. The development of a lot creates an opportunity to remove invasive plants from an area of land, thus removing the threat of their spread to neighboring areas and providing a service to the community and local ecosystem.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new items to section 503.5 Landscape plan as follows:* (9) Developer has a plan for removal or containment of invasive plants from the disturbed areas of the site. 3 points (10) Developer has a plan for removal or containment of invasive plants on the undisturbed areas of the site. 6 points	
TG Reason:	This section belongs in 503.5 as it pertains to the landscape plan for the lot. The task group wishes to incentivize removal of invasive plants from both disturbed and undisturbed areas of the lot.	
TG Vote:	Unanimous	

Proposal ID P078	LogID 5069	503.6 Wildlife habitat
Submitter:	Philip LaRocque, LaRocque Business Management Services, LLC	
Requested Action:	Revise as follows	
Proposed Change:	503.6 Wildlife habitat. Measures are planned to support wildlife habitat and include at least ~~two~~ one of the following:	
Reason:	The standard should encourage/reward any wildlife habitat efforts and not arbitrarily set the minimum of two specific practices to achieve any points.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Two is better than one.	
TG Vote:	Unanimous	

Proposal ID P079	LogID 5244	503.7 Environmentally sensitive areas
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Move this section to 501.1 Lot and then tier the points as follows: (1) Reward the highest level of points for avoiding environmentally sensitive areas. (2) Allow a somewhat lower number of points when a lot with environmentally sensitive areas is selected and any sensitive areas damaged by construction are fully restored to their pre-construction ecosystem functions and services. (No site can truly be restored to its pre-construction state, even when there is an attempt to do so; thus the lower number of points.) (3) Allow an even fewer number of points when environmentally sensitive areas on the lot that are degraded or disturbed by construction are enhanced or the damage is otherwise mitigated.	
Reason:	These points pertain to an important element in lot selection: avoiding environmentally important areas. Its importance should be highlighted earlier in the chapter as part of the lot selection section. Moreover, restoration and mitigation achieve different results and should not be rewarded the same level of points.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The task group is submitting a new proposal for this section. TG2-05	
TG Vote:	Unanimous	

Proposal ID P080	LogID TG2-06	503.7 Environmentatlly sensitive areas
Submitter:	Robert Goo, US EPA	
Requested Action:	Revise as follows:	
Proposed Change:	**503.7 Environmentally Sensitive Areas**. The lot is in accordance with one or both of the following: (1) The lot does not contain any environmentally sensitive areas <u>such as steep slopes, prime farmland, critical habitats, stream protection areas or wetlands</u> that are disturbed by construction. … 4 points (2) ~~Compromised environmentally sensitive areas are mitigated or restored.~~ <u>On lots with environmentally sensitive areas, mitigation and/or restoration is conducted to restore ecosystem functions lost through development and construction activities…</u> 4 points	
Reason:	This list was included to provide additional clarity. Moreover, avoidance and mitigation/restoration achieve different results and therefore points should be awarded separately.	
TG Recommendation:	Approved as submitted	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P081	LogID TG6-02	505 Innovative practices
Submitter:	Susie Maglich, AvalonBay Communities, Inc.	
Requested Action:	Add new text as follows:	
Proposed Change:	**505.6 – Multi-Unit Plug-In Electric Vehicle Charging**. Plug-in electric vehicle charging capability is provided for 5% of parking stalls. Electrical capacity in main electric panels supports Level 2 charging (208/240V-40 amp). Each stall is provided with conduit and wiring infrastructure from the electric panel to support Level 2 charging (208/240V-40 amp) service to the designated stalls, and stalls are equipped with either Level 2 charging AC grounded outlets (208/240V-40 amp) or Level 2 charging stations (240V/40A) by a third party charging station.	
Reason:	Electric car charging requirements are emergingin building code requirements affecting multi-unit development. Electric vehicles are becoming more prevalentin today's market and the industry is starting to see demand for chargingcapabilities from multi-unit residents owning electric vehicles. Although several jurisdictions have adoptedcode language to require electric vehicle charging, the proposed language isintended as a non-mandatory provision and instead creates an incentive for multi-unitprojects to invest in this emerging technology. This language is based onCalifornia's CalGreen building code and the City of Los Angeles building coderequirements. The proposal also providesproperty owners and builders with flexibility as to how vehicle charging ismanaged by allowing either hard wired outlets or third party charging stations.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	7-0-0	

Proposal ID P082	LogID 5265	505.0 Intent (Innovative Practices)
Submitter:	Matt Belcher, Verdatek Solutions	
Requested Action:	Add new as follows	
Proposed Change:	**505.6 Resilience** Lot incorporates one or more of the following resilience options, as applicable. 1. The development of portions of the site(s) located within flood hazard areas is avoided as follows: (a) Portions of sites located within flood hazard areas are avoided. (b) Portions of sites located within areas subject to a 0.2% annual chance of (500-year) flood are avoided.	
Reason:	With the focus on future enhancement of the model codes to provide for enhanced "Resiliant" construction, It is an opportunity to include reference in this "above code" standard to incentivise innvotaive practices and process that will demonstrate best practices for eventual application into the model codes.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Group is not convinced of the demonstrable benefits of the proposal.	
TG Vote:	Unanimous	

Proposal ID P083	LogID 5260	505.1 Driveways and parking areas

Submitter:	Greg Johnson, Greg Johnson Consulting
Requested Action:	Revise as follows
Proposed Change:	

505.1 Driveways and parking areas. Driveways and parking areas are minimized or mitigated by one or more of the following:	
Practices 1-3 unchanged	
(4) Closed cell grass paving systems are utilized to reduce the footprint of surface driveways and parking areas.	-
(a) 25 % to less than 50%	**4**
(b) 50% to 75%	**5**
(c) greater than 75%	**6**

Reason:	Closed cell grass paving systems offer multiple environmental benefits; being completely pervious for stormwater management and offering not just passive heat mitigation, but active cooling through transpiration. Grass paving also sequesters carbon and produces oxygen. These multiple benefits deserve recognition as an innovative practice.
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise the standard and add item to Section 505.1 Driveways and parking areas as follows:*

505.1 Driveways and parking areas. Driveways and parking areas are minimized or mitigated by one or more of the following:	
Practices 1-3 unchanged	
(4) Vegetative paving systems are utilized to reduce the footprint of surface driveways, fire lanes, streets or parking areas.	-
(a) 10 % to less than 25%	**1**
(b) 25% to 75%	**2**
(c) greater than 75%	**3**

TG Reason:	The task group does not want to call out specific types of vegetative paving systems but wants to award points for their use.
TG Vote:	Unanimous

Proposal ID P084	LogID 5305	505.2 Heat island mitigation
Submitter:	Lorraine Ross, L Ross Consulting Inc	
Requested Action:	Revise as follows	
Proposed Change:	505.2 Heat island mitigation. Heat island effect is mitigated by ~~one or both of~~ the following: (1) *no change to requirements* ~~(2) Minimum initial SRI of 78 for low-sloped roof (a slope less than or equal to 2:12) and a minimum initial SRI of 29 for a steep-sloped roof (a slope of more than 2:12). The SRI is calculated in accordance with ASTM E1980. Roof products are certified and labeled.~~ 602.2 Roof surfaces. A minimum of 90 percent of roof surfaces, not used for roof penetrations and associated equipment, on-site renewable energy systems such as photovoltaics or solar thermal energy collectors, or rooftop decks, amenities and walkways, are constructed of one or ~~both~~ more of the following: *(1) and (2) remain unchanged* (3) Minimum initial SRI of 78 for low-sloped roof (a slope less than or equal to 2:12) and a minimum initial SRI of 29 for a steep-sloped roof (a slope of more than 2:12). The SRI is calculated in accordance with ASTM E1980. Roof products are certified and labeled.	
Reason:	Reason: Chapter 5 addresses lot design, preparation, and development. Cool roofing does not fit. Cool roofing is more appropriately addressed in Chapter 6. In fact cool roofing requirements can also be found in chapter 6 in the current version (potential double counting). Therefore we have relocated the one compliance option for cool roofing that is found in chapter 5 but not in chapter 6 to section 602.2. The requirement has not been changed only relocated.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **505.2 Heat island mitigation**. Heat island effect is mitigated by ~~one or both of~~ the following: *(1) no change to requirements* (2) Roofs: Not less than 75 percent of the exposed surface of the roof is vegetated. Invasive plant species are not permitted. ~~is in accordance with one or a combination of the following methods:~~ ~~(a) Minimum initial SRI of 78 for low-sloped roof (a slope less than or equal to 2:12) and a minimum initial SRI of 29 for a steep-sloped roof (a slope of more than 2:12). The SRI is calculated in accordance with ASTM E1980. Roof products are certified and labeled.~~ ~~(b) Roof is vegetated using technology capable of withstanding the climate conditions of the jurisdiction and the microclimate conditions of the building lot. Invasive plant species are not permitted~~ **602.2 Roof surfaces**. A minimum of 90 percent of roof surfaces, not used for roof penetrations and associated equipment, on-site renewable energy systems such as photovoltaics or solar thermal energy collectors, or rooftop decks, amenities and walkways, are constructed of one or ~~both~~ more of the following: *(1) and (2) remain unchanged* (3) Minimum initial SRI of 78 for low-sloped roof (a slope less than or equal to 2:12) and a minimum initial SRI of 29 for a steep-sloped roof (a slope of more than 2:12). The SRI is calculated in accordance with ASTM E1980. Roof products are certified and labeled.	
TG Reason:	Part of this belongs in chapter 6. Other sections were edited for clarity.	
TG Vote:	Unanimous	

Proposal ID P085	LogID 5245	505.3 Density
Submitter:	Jeremy Velasquez, US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	Request for addition of a higher density tier(s): (3) 21 ~~or greater~~ to 34 dwelling units per acre - 11 pts (4) 35 or greater dwelling units per acre - 14 pts (5) 70+ dwelling units per Acre - 17 pts	
Reason:	The existing density thresholds seem low for multi-family projects. Higher density projects do have additional environmental benefits. (reduced land usage, etc)	
TG Recommendation:	See below	
Modification of Proposed Change:		
TG Reason:	TG 2 - Disapprove Points spread too great, incentivizing something we may not want to incent. --- TG 6 - Approve	
TG Vote:	TG 2 Unanimous TG 6 5-0-0	

Chapter 6. Resource Efficiency

Proposal ID P086	LogID 755	601.1 Conditioned Floor Area
Submitter:	Derek Huetinck, BeaconCrest Homes	
Requested Action:		
Proposed Change:	[No change from 2008 language.]	
Reason:	There is insufficient scientific data to demonstrate that the building of smaller homes leads to an overall decrease in energy efficiency. Smaller homes may house fewer people than larger homes, which could potentially result in more energy consumption per person than more people living in a larger home. It is inappropriate to penalize the building of larger homes without proper data to support the concept that they will lead to greater energy consumption.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Smaller homes use less materials. This chapter is about resource efficiency, not energy.	
TG Vote:	15-0-1	

Proposal ID P087	LogID 5203	601.1 Conditioned floor area
Submitter:	Wes Sullens, StopWaste of Alameda County	
Requested Action:	Add new as follows	
Proposed Change:	**601.10. Design for Deconstruction**.Include construction techniques that allow for the deconstruction rather thandemolition of building features.	
Reason:	Interior walls, exterior wall systems, framing, fenestration, and mechanical systems can be built such that future renovations or tear-downs can be accomplished with a high degree of materials reuse or recycling. Designing for deconstruction is not common practice, but results in less waste to landfill and a higher and better use of materials sent for recycling from remodeling or demolition projects. They also allow for green jobs by employing trades to disassemble building elements, and can help reduce the cost of future upgrades.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Specificity is not there. Proposed ideas are not possible. Language is not code-ready.	
TG Vote:	9-0-4	

Proposal ID P088	LogID 5131	601.1 Conditioned floor area
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	***Multi-Unit Building Note****: For a multi-unit building, a<u>n</u> ~~weighted~~ average ~~of the individual~~ unit size~~s~~ is used for this practice <u>and calculated by dividing the total conditioned residential square footage (units plus common areas) in the building by the number of units in the building</u>.*	
Reason:	Large common areas of multi-unit buildings take resources to construct, operate, and maintain. Those areas should be included in awarding the floor area points for the building.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG 3 - Disapprove There is need to capture the impact of common areas in MF buildings, but proposed change corresponded more so to calculation method, rather than common space area. Possible confusion for developers when weighted average calculation is used for code compliance, and an alternative method is used in the NGBS. Recommend that MF TG address the issue of material use in the common area. (Table of Points that correspond with square footage?) --- TG 6 - Disapprove The task group believes it is important to retain the original intention of this provision, which is to promote smallerdwelling unit size. Also, in rejecting this proposal, the provision provides equivalent metrics for multi-unit andsingle-family development (i.e. as currently written, the standard calculates the size of living space only, without including amenity spaces that serve that living space). In the single-family environment, examples of amenity spaces could include separate community centers, fitness centers, pool facilities, etc.	
TG Vote:	TG 3 14-0-2 TG 6 5-0-0	

Proposal ID P089	LogID TG6-01	601.1 Conditioned floor area
Submitter:	Miles Haber, Monument Construction Inc	
Requested Action:	Revise as follows:	
Proposed Change:	**601.1- Conditioned floor area**. Finished floor area of a dwelling unit is limited. Finished floor area is calculated in accordance with NAHBRC Z765 <u>for single family and ANSI/BOMA Z65.4 for multi-unit buildings.</u> Only the finished floor area for stories above grade plane is included in the calculation. (1) <u>less than or equal to 700 square feet (65 m2)</u> (2) less than or equal to 1000 square feet (93 m2) (3) less than or equal to 1500 square feet (139 m2) (4) less than or equal to 2000 square feet (186 m2) (5) less than or equal to 2500 square feet (232 m2) (6) greater than 4000 square feet (372 m2)	
Reason:	The proposed change adds the proper standard for measurement of multi-unit buildings. It also recognizes the benefits of additional reductions in dwelling unit size. The inclusion of a lower square footage tier encourages building designs that can maximize resource and materials savings, as well as, energy savings.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	7-0-0	

Proposal ID P090	LogID 5279	601.2 Material usage
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	601.4 Framing and structural plans. *Thisrequirement should be added to section 601.2 or section 601.4 should be deleted. Potential exists for double counting.* 601.6 Stacked stories. *This requirement should be addedto section 601.2 or section 601.6 should be deleted. Potential existsfor double counting.*	
Reason:	Reason: Section 601.2 Material usage, already takes into account optimized material usage of structural systems. Sections 601.4 Framing and structural plans, and 601.6 Stacked stories are already accounted for in the intent of 601.2 and should be deleted to avoid double counting. Alternatively adjustments could be made to section 601.2 to more clearly define the requirements of 601.4 and 601.6 within 601.2 if the committee feels it is needed.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	601.2 is addressing design and engineering of the structure to minimize the material necessary. 601.4 is the handling of materials on-site, based on cut-sheets, etc. The intent of the practices is distinct, and, thus, not double-counting.	
TG Vote:	13-0-2	

Proposal ID P091	LogID 5280	601.4 Framing and structural plans
Submitter:	John Woestman, Kellen Company	
Requested Action:	Delete without substitution	
Proposed Change:	~~601.4 Framing and structural plans.~~	
Reason:	Reason: Section 601.2 Material usage, already takes into account optimized material usage of structural systems. Sections 601.4 Framing and structural plans, and 601.6 Stacked stories are already accounted for in the intent of 601.2 and should be deleted to avoid double counting. Alternatively adjustments could be made to section 601.2 to more clearly define the requirements of 601.4 and 601.6 within 601.2 if the committee feels it is needed.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	601.2 is addressing design and engineering of the structure to minimize the material necessary. 601.4 is the handling of materials on-site, based on cut-sheets, etc. The intent of the practices is distinct, and, thus, not double-counting. Note: consider point allotment later in process.	
TG Vote:	13-0-2	

Proposal ID P092	LogID 5281	601.6 Stacked stories
Submitter:	John Woestman, Kellen Company	
Requested Action:	Delete without substitution	
Proposed Change:	~~601.6 Stacked stories.~~	
Reason:	Section 601.2 Material usage, already takes into account optimized material usage of structural systems. Sections 601.4 Framing and structural plans, and 601.6 Stacked stories are already accounted for in the intent of 601.2 and should be deleted to avoid double counting. Alternatively adjustments could be made to section 601.2 to more clearly define the requirements of 601.4 and 601.6 within 601.2 if the committee feels it is needed.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Lack of clear evidence about benefit of stacked stories in terms of resource use.	
TG Vote:	5-3-8	

Proposal ID P093	LogID 5282	601.7 Site-applied finishing materials
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	601.7 ~~Site-applied finishing~~ Prefinished materials. Prefinished building ~~Building~~materials or assemblies listed below ~~that do not require~~ have noadditional site-applied ~~material for~~ finishing material are installed~~incorporated in the building~~. *Remaining language is unchanged.*	
Reason:	Reason: Changes the title to more appropriately represent this section. Also, changes to the language have been made so that purchased prefinished materials do not get credit if additional finishing material is added to them.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **601.7 ~~Site-applied finishing~~ Prefinished materials**. Prefinished building~~Building~~ materials or assemblies listed below that ~~do not require~~ have no additional site-applied ~~material for~~ finishing material are installed ~~incorporated in the building~~. *Remaining language is unchanged.*	
TG Reason:	Support reasoning submitted. Fixed typographical issues.	
TG Vote:	15-0-1	

Proposal ID P094	LogID 5114	601.7 Site-applied finishing materials
Submitter:	Matthew Dobson, Vinyl Siding Institute	
Requested Action:	Revise as follows	
Proposed Change:	Delete 601.7(a) and (g) and replace with (a) Interior or exterior finish floor systems not7 requiring paint or stain. (g) Interior or exteior finish ceiling systems not requiring paint or stain.	
Reason:	This cleans up this section by making it more performance based and also adds in ceiling systems that could qualify for this credit.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* *Delete items (a) and (g) in section 601.7 Site-applied finishing materials.* *Revise items (e) and (f) in section 601.7 site-applied finishing materials as follows:* (e) Interior wall coverings or systems, floor systems, and/or ceiling systems not requiring paint or stain or other type of finishing application. (f) exterior wall coverings or systems, floor system, and/or ceiling systems not requiring paint or stain or other type of finishing application.	
TG Reason:	Reduce redundancy/ further clean-up section.	
TG Vote:	10-0-2	

Proposal ID P095	LogID 705	601.9 Above Grade Wall Systems
Submitter:	Gladys Quinto Marrone, BIA Hawaii	
Requested Action:		
Proposed Change:	601.9 – Would like an additional 'wall system' for bamboo	
Reason:	Bamboo is starting to take hold and is good for our mild climate.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Bamboo does not share characteristics with other listed products. Bamboo already receives credit under 606.1(c).	
TG Vote:	10-0-2	

Proposal ID P096	LogID 5283	601.9 Above-grade wall systems
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	601.9 ~~Above-grade~~ Mass wall systems. One or more of the following ~~above-grade~~ mass wall systems that ~~provide sufficient~~ meet applicable structural and thermal requirements ~~characteristics~~ are used for a minimum of 75 percent of the gross exterior wall area of the building: *Other text remains unchanged.*	
Reason:	Reason: This section specifically addresses mass wall systems and therefore the title was changed to more accurately reflect the section. Also, "sufficient" is subjective so edits were made to more clearly define the intent of the section.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Removing "above-grade" and "requirements" was problematic, as it was not specific enough. A separate proposal will be submitted related to addition of "mass."	
TG Vote:	12-1-1	

Proposal ID P097	LogID TG3-11	601.9 Above-ground wall systems
Submitter:	David Shepherd, Portland Cement Association	
Requested Action:	Revise as follows:	
Proposed Change:	**601.9 ~~Above Grade Wall Systems~~ Mass Wall Systems**: One or more of the ~~above grade wall systems~~ mass wall systems ~~that provide sufficient structural and thermal characteristics~~ meeting the requirements for mass walls as defined in the NGBS are used for a minimum of 75% of the ~~gross~~ opaque exterior wall area of the ~~building~~ conditioned space: (1) Adobe (2) Concrete and/or masonry (3) Log home (4) Rammed earth (5) Other wall assemblies meeting the heat capacity and R-value requirements noted in the definition of mass walls.	
Reason:	This proposed language: · Revises the incorrect titling of this section · It provides direction to the user on the criteria defining mass walls · Clarifies the applicability of where mass walls are to be used. (no need for mass wall construction in unconditioned spaces · Point 5 Expands the option to applicable technologies that may not be listed The existing NGBS definition of mass walls aligns with the requirements of both the 2012 IRC and the 2015 IECC. The credit addresses the necessary material requirements for supporting passive solar design (Section 703.6)	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	8-0-3	

Proposal ID P098	LogID 5218	602.1.10 Exterior Doors
Submitter:	Eric DeVito, BBRS	
Requested Action:	Revise as follows	
Proposed Change:	**602.1.10 Exterior doors.** Entries at exterior door assemblies, inclusive of side lights (if any), are covered by one of the following methods to protect the building from the effects of precipitation and solar radiation. Either a storm door or a~~A~~ projection factor of 0.375 minimum is provided. Eastern- and western-facing entries in Climate Zones 1, 2, and 3, as determined in accordance with Figure 6(1) or Appendix C, have either a storm door or a projection factor of 1.0 minimum, unless protected from direct solar radiation by other means (e.g., screen wall, vegetation). (a) installing a porch roof or awning (b) extending the roof overhang (c) recessing the exterior door (d) installing a storm door	**2 per Exterior door** **6 Max**
Reason:	This proposal expands the current credit for protecting exterior doors from precipitation and solar radiation to include the installation of storm doors. While recessing a door or installing awnings or overhangs may provide some protection for exterior doors against the elements, storm doors can provide the same or better protection. Moreover, because of design constraints or local conditions, overhangs or awnings may not be realistic options. This proposal would encourage the installation of storm doors to provide an additional protective barrier in projects that might otherwise leave exterior doors completely exposed to the elements. Although this proposal focuses on resource efficiency, and more specifically, moisture control for building penetrations, storm doors also provide a variety of other benefits. Storm doors with screens can be used to save energy or provide spot ventilation to improve indoor air quality if operated correctly. Although we are not proposing credits as part of this proposal for these other qualities, there are many good reasons to provide an incentive to install storm doors over exterior doors.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Support reasoning submitted.	
TG Vote:	12-0-3	

Proposal ID P099	LogID 5135	602.1.12 Roof overhangs
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**602.1.12 Roof overhangs.** Roof overhangs, in accordancewith Table 602.2, are provided over a minimum of 90 percent of exterior wallsto protect the building envelope. **Table 602.2** **Inches of ~~Rainfall~~ Precipitation[(1)]**	
Reason:	This will make the column heading consistent with the footnote and the figure. Unless the intent is to only be concerned with rainfall, then the footnote should be revised as well as the figure.	
TG Recommendation:	Approved as modified.	
Modification of Proposed Change:	*Revise footnote (1) in Table 602.1.12 as follows:* (1) Annual mean total ~~precipitation~~ rainfall ininches is in accordance with Figure 6(2). For SI: 12 inches = 304.8 mm	
TG Reason:	Stand on reasoning statement. Original intent of practice was for rainfall, not precipitation.	
TG Vote:	16-0-0	

Proposal ID P100	LogID 5054	602.1.12 Roof overhangs
Submitter:	Chuck Arnold, Home Innovation	
Requested Action:	Delete and substitute as follows	
Proposed Change:	Table 602.1.2 Inches of ~~Rainfall~~ Precipitation	
Reason:	The foot note (1) states precipitation and Figure 6(2) details annual precipitation which includes snow and hail, not just rainfall.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove due to previous action. See Item 5135.	
TG Vote:	15-0-1	

Proposal ID P101	LogID 5286	602.1.13 Ice barrier
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	602.1.13 Ice barrier. ~~In areas where there has been a history of ice forming along the eaves causing a backup of water, an~~ An ice barrier is installed in accordance with the ICC IRC or IBC ~~at roof eaves of pitched roofs and extends a minimum of 24 inches (610 mm) inside the exterior wall line of the building~~.	
Reason:	Reason: This is section applies to new construction where there is no history. Therefore the first portion of the sentence has been deleted. Also, since there is a reference to the IRC and IBC requirements there is no reason to restate requirements that could change and become out of sync therefore the last portion of the sentence is deleted.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Existing language is already clear. Areas applies to regional geographic regions, not the construction process.	
TG Vote:	13-0-3	

Proposal ID P102	LogID 5284	602.1.4.2 Crawlspace
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	602.1.4.2 Crawlspace that is built as a conditioned area is sealed to prevent outside air infiltration and provided with conditioned air at a rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area and one of the following is implemented: (1) a concrete slab over 6 mil polyethylene ~~or polystyrene~~ sheeting lapped a minimum of 6 inches (152 mm) and taped at the seams or polystyrene insulation board staped or otherwise sealed at the seams. (2) 6 mil polyethylene sheeting lapped a minimum of 6 inches(152 mm) and taped at the seams.	
Reason:	Reason: This language is currently flawed. Polyethylene sheeting and polystyrene insulation boards are different in nature and installation. This revised language corrects the flaws.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **602.1.4.2** Crawlspace that is built as a conditioned area issealed to prevent outside air infiltration and provided with conditioned air ata rate not less than 0.02 cfm (.009 L/s) per square foot of horizontal area andone of the following is implemented: (1) a concrete slab over 6 mil polyethylene ~~orpolystyrene~~ sheeting ~~lapped a minimum of 6 inches (152 mm) and taped atthe seams~~ or other Class I vapor retarder installed in accordance withSection 408.3 or Section 506 of the International Residential Code. (2) 6 mil polyethylene sheeting ~~lapped a minimum of 6inches (152 mm) and taped at the seams~~ or other Class I vapor retarderinstalled in accordance with Section 408.3 or Section 506 of the InternationalResidential Code. **VAPOR RETARDER CLASS.** Ameasure of the ability of a material or assembly to limit the amount ofmoisture that passes through that material or assembly. Vapor retarder classshall be defined using the desiccant method with Procedure A of ASTM E 96 asfollows: Class I: 0.1 perm or less Class II: 0.1 < perm = 1.0 perm ClassIII: 1.0 < perm = 10 perm	
TG Reason:	Existing language was flawed. Not all Class I vapor retarders which may be used are polystyrene sheeting. This revised language resolves the differences, and relies on existing requirements in the IRC.	
TG Vote:	4-0-1	

Proposal ID P103	LogID TG3-02	602.1.5 Termite barrier
Submitter:	Sam Francis, Theresa Weston, Maribeth Rizzuto, American Wood Council, DuPont Building Innovations, American Iron and Steel Institute	
Requested Action:	Revise as follows:	
Proposed Change:	**602.1.5 Termite Barrier**. Continuous physical foundation termite barrier ~~used with low toxicity treatment or with no chemical treatment is installed in geographical areas that have subterranean termite infestation potential determined in accordance with Figure 6(3)~~ provided in accordance as follows: 1. in geographic areas that have slight to moderate infestation potential in accordance with Figure 6(3) a continuous physical barrier is used. 2. in geographic areas that have moderate to heavy or very heavy infestation potential in accordance with figure 6(3), a continuous physical barrier used with no or low toxicity treatment is installed. 3. in geographic areas that have a moderate to heavy or very heavy a low toxicity bait and kill termite treatment plan is selected and implemented.	
Reason:	Integrate concepts of LogID 5309	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	4-0-1	

Proposal ID P104	LogID 5309	602.1.5 Termite barrier
Submitter:	Lorraine Ross, L Ross Consulting Inc	
Requested Action:	Revise as follows	
Proposed Change:	602.1.5 Termite ~~barrier~~ control system. One of the following termite control systems is provided in geographical areas that have subterranean termite infestation potential that is moderate to heavy or very heavy in accordance with Figure 6(3): (1) A continuous physical foundation termite barrier ~~used~~ with no or a low toxicity treatment~~ or with no chemical treatment~~ is installed ~~in geographical areas that have subterranean termite infestation potential determined in accordance with Figure 6(3)~~. (2) A low toxicity bait and kill termite treatment plan is selected and implemented.	
Reason:	Reason: There are innovative and very effective methods of mitigating termite infestation and damage. This proposal recognizes another environmentally friendly method. Bait and kill treatment plans do not inject large quantities of chemicals in the ground rather they use a small quantity of solid bait that either kills the termites that eat it or returns the termites to the colony to kill the entire population. Currently the language is not clear in regard to the level of probability that determines the need for compliance with this section. Additional clarification was added.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG (Maribeth, Sam, & Theresa) will submitalternative proposal.	
TG Vote:	15-0-1	

Proposal ID P105	LogID 5323	602.1.7
Submitter:	Rob Brooks, Rob Brooks & Associates, LLC	
Requested Action:	Add new as follows	
Proposed Change:	602.1.7.3 Moisture control and condensation potential of the building envelope that has been analyzed by hygrothermal study, practice or model representative of the local climatic conditions and building air exchange rate.	
Reason:	This credit is designed to encourage builders to use assemblies that have been evaluated for their local climatic conditions.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* 602.1.7.3 Building envelope assemblies that are designed for moisture control based on documented hygrothermal simulation or field study analysis. Hygrothermal analysis shall incorporate representative climatic conditions, interior conditions and include heating and cooling seasonal variation.	
TG Reason:	Original proposal granted points based on study;modification credits implementation based on study findings. More specifics incorporated: (1) Simulations and field study are both recognized; and (2) Climatic conditions defined more specifically.	
TG Vote:	10-0-4	

Proposal ID P106	LogID TG3-06	602.1.9 Flashing
Submitter:	Steve Easley, Steve Easley & Associates Inc.	
Requested Action:	Revise text as follows:	
Proposed Change:	(5) A rainscreen wall design as follows is used for exterior wall assemblies (a) remains the same (b) A cladding material or water-resistive barrier/ drainable housewrap with enhanced drainage, meeting 75 percent drainage efficiency determined in accordance with ASTM E2273 or a cladding material or water-resistive barrier/ drainable housewrap meeting 75 percent drainage efficiency determined in accordance with ASTM E2273.	
Reason:	IECC 2006 to present I believe this will help the language to be clearer to the industry as many of the “rank and and file” trades and less informed builders are still a bit unclear what a weather resistive barrier really is. Also I think drainable housewrap will help clarify "enhanced drainage” The codes already requires a WRB/housewrap under ALL claddings.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Housewrap is essentially an example of water-resistive barrier. Identification of housewrap can be added in the commentary.	
TG Vote:	12-0-1	

Proposal ID P107	LogID 5285	602.1.9 Flashing
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	602.1.9 Flashing. *Charging section remains unchanged.* *(1) remains unchanged* (2) ~~All window~~ Window and door head and jambflashing is ~~self-adhered flashing complying with AAMA 711-07~~ installedin accordance with fenestration and flashing manufacturer's installationinstructions. *(3) through(7) remainunchanged*	
Reason:	This section currently limits product choice unnecessarily. There are new innovative products in the market that should not be disadvantaged.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Need more specifics if the intent of the practice is to include fluid-applied flashing. Steve and Theresa may submit a new TG proposal.	
TG Vote:	15-0-1	

Proposal ID P108	LogID 5158	602.1.9 Flashing
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Make part (6), "Through-wall flashing is installed at transitions between wall cladding materials or wall construction types," mandatory.	
Reason:	Transitions between materials are typically continuous and present a great opportunity to insert flashing to allow for water to drain out of the walls and prevent water damage. Providing through wall flashing at transitions between wall cladding materials is just good practice and should be mandatory.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Better to incentivize flashing practices that are more innovative in nature and less likely to be implemented in the field.	
TG Vote:	12-0-3	

Proposal ID P109	LogID 5306	602.2 Roof surfaces
Submitter:	Lorraine Ross, L Ross Consulting Inc	
Requested Action:	Revise as follows	
Proposed Change:	602.2 Roof surfaces. A minimum of 90 percent of roof surfaces, not used for roof penetrations and associated equipment, on-site renewable energy systems such as photovoltaics or solar thermal energy collectors, or rooftop decks, amenities and walkways, are constructed of one or ~~both~~ more of the following: *(1) and (2) remain unchanged* (3) Minimum initial SRI of 78 for low-sloped roof (a slope less than or equal to 2:12) and a minimum initial SRI of 29 for a steep-sloped roof (a slope of more than 2:12). The SRI is calculated in accordance with ASTM E1980. Roof products are certified and labeled.	
Reason:	Reason: Chapter 5 addresses lot design, preparation, and development. Cool roofing does not fit. Cool roofing is more appropriately addressed in Chapter 6. In fact cool roofing requirements can also be found in chapter 6 in the current version (potential double counting). Therefore we have relocated the one compliance option for cool roofing that is found in chapter 5 but not in chapter 6 to section 602.2. The requirement has not been changed only relocated.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* (3) Minimum initial SRI of 78 for low-sloped roof (a slope less than ~~or equal to~~ 2:12) and a minimum initial SRI of 29 for a steep-sloped roof (a slope equal to or greater than 2:12). The SRI is calculated in accordance with ASTM E1980. Roof products are certified and labeled.	
TG Reason:	The modifications more appropriately address the concerns of the submitters and the issue brought to light by their comment.	
TG Vote:	10-0-6	

Proposal ID P110	LogID 5246	602.3 Roof water discharge
Submitter:	Jeremy Velasquez, US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	Remove or revise the 5' rule regarding downspout extensions.	
Reason:	This is a liability issue in MF. As they may extend to "right of way" areas. There is also potential for damage to downspouts or extensions that would reduce the designed flow rates for drainage from the downspout system. Just installing a standard G & DS system seems adequate to remove bulk water away from the buildings.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Asked Multi-family TG for a new submission.	
TG Vote:	13-0-3	

Proposal ID P111	LogID 5055	602.4.1 Finished grade slope minimum 6 inches over 10 feet
Submitter:	John Schneider, City of Moundsville	
Requested Action:	Revise as follows	
Proposed Change:	Coordinate 2% slope requirements with the 2012 IRC R401.3. IRC allows a 2% slope only with impervious surfaces. NGBS indicates any surfaces can be a minimum of 2% slope in "tight spaces".	
Reason:	Coordinate with 2012 IRC R401.3	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Intent of the standard is that there will be a 2% slope regardless of surface type. Practice is above-code.	
TG Vote:	13-0-2	

Proposal ID P112	LogID TG3-12 603.2
Submitter:	Frank Stanonik, AHRI
Requested Action:	Add new text as follows:
Proposed Change:	**603.2 Demolition of existing building** A demolition waste management plan is developed, posted at the jobsite and implemented with a goal of recycling or salvaging a minimum of 50 percent of the nonhazardous demolition waste.
Reason:	Responding to comments ID 638 and 628
TG Recommendation:	See below
Modification of Proposed Change:	*TG 2 - Approve as Modified as follows:* 403.x Demolition of existing building A demolition waste management plan is developed, posted at the jobsite, and implemented to recycle or salvage ~~with a goal of recycling or salvaging~~ a minimum of 50 percent of the nonhazardous demolition waste. (One additional point awarded for every 10 percent of demolition waste recycled or salvaged beyond 50 percent). 503.x Demolition of existing building A demolition waste management plan is developed, posted at the jobsite, and implemented to recycle or salvage ~~with a goal of recycling or salvaging~~ a minimum of 50 percent of the nonhazardous demolition waste. (One additional point awarded for every 10 percent of demolition waste recycled or salvaged beyond 50 percent).
TG Reason:	TG 3 - Disapprove Demolition of existing structures does not fit within the Resource Efficiency section. More appropriate for discussion by Lot Design/Construction & Remodeling/Renovation TGs. Recommend edit to indicate “construction & demolition waste” when including under 11.605.2. --- TG 2 - Approve as Modified Task Group 3 indicated that this proposal is moreappropriate for discussion by Task Group 2 and we agree. This section belongsin both chapters 4 and 5 of the standard.
TG Vote:	TG 3 Unanimous TG 2 Unanimous

Proposal ID P113	LogID TG2-08	603.2 Refused or salvaged
Submitter:	Frank Stanonik, AHRI	
Requested Action:	Add new text as follows:	
Proposed Change:	603.2 Demolition of existing building A demolition waste management plan is developed, posted at the jobsite and implemented with a goal of recycling or salvaging a minimum of 50 percent of the nonhazardous demolition waste.	
Reason:	Responding to comments ID 638 and 628	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new sections to standard as follows:* **403.x Demolition of existingbuilding** A demolition waste management planis developed, posted at the jobsite, and implementedto recycle or salvage ~~with a goal of recycling or salvaging~~ a minimum of 50 percent ofthe nonhazardous demolition waste. (One additional point awardedfor every 10 percent of demolition waste recycled or salvaged beyond 50percent). **503.x Demolition of existing building** A demolition waste management plan is developed, posted at the jobsite, and implemented to recycle or salvage ~~with a goal of recycling or salvaging~~ a minimum of 50 percent of the nonhazardous demolition waste. (One additional point awarded for every 10 percent of demolition waste recycled or salvaged beyond 50 percent).	
TG Reason:	Task Group 3 indicated that this proposal is more appropriate for discussion by Task Group 2 and we agree. This section belongs in both chapters 4 and 5 of the standard.	
TG Vote:	Unanimous	

Proposal ID P114	LogID 5159	603.2 Salvaged materials
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Reclaimed and/or salvaged materials and components are used consistent with the requirements of local building codes. The total material value and labor cost of salvaged materials is equal to or exceeds 1 percent of the total construction cost.	
Reason:	Reuse is a high-priority for materials management, but materials have to be reused in a safe and protective manner. One caution is that potentially harmful materials that had historically circulated in the construction and maintenance of buildings could be reintroduced into the building stock. Another concern is that depending on the application, the structural and energy-efficiency performance of certain recovered materials may not meet the requirements of building codes. The standard should reiterate the importance of reusing salvaged materials and components meet local code requirements.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Noting “consistent with the local building code” is unnecessary and implies that some materials utilized may not comply with code.	
TG Vote:	14-0-1	

Proposal ID P115	LogID 5136	604.1 Recycled content
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	revise by adding (Points awarded for only one pair of major components and one pair of minor components.)	
Reason:	It is too often assumed that this practice affords an unlimited number of points based on the number of pairs of products that a home contains.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	**Table 604.1** **Recycled Content**	
	Material Percentage Recycled Content	Points ~~Per~~ For 2 Minor / Points ~~Per~~ For 2 Major
	25% to less than 50%	1 / 2
	50% to less than 75%	2 / 4
	more than 75%	3 / 6
TG Reason:	Intent of proposal was good. Above change accomplishes the same intent with fewer words.	
TG Vote:	14-0-2	

Proposal ID P116	LogID TG3-10	604.1 Recycled content
Submitter:	David Shepherd & Maribeth Rizzuto,	
Requested Action:	Revise as follows:	
Proposed Change:	**604.1 Recycled content.** Building materials with recycled content are used for ~~two~~ eight minor and/or ~~two~~ five major components of the building, with a maximum of 8 points for this credit. **Table 604.1** Recycled Content	

Percentage of Recycled Content	Points Per ~~2~~ 8 Minor Components	Points Per ~~2~~ 5 Major Components
25% to less than 50%	1	2
50% to less than 75%	2	4
More than 75%	3	6

The percentage of recycled content shall be based on mass or cost, and the basis of calculation shall remain consistent for all components considered within the credit.

Reason:	The inclusion of recycled content is becoming a commonplace practice for the manufacturing of construction products, especially those in the major components category. The number of products required for achieving points has been raised to award broader use of products with recycled content. A maximum of 8 points was added into the language, recognizing that recycling is a tertiary strategy, down from reuse and salvaging. This also addresses the confusion noted in LogID 5316 Additional direction for the credit calculation was added to assist the user.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	7-2-2

Proposal ID P117	LogID 5318	604.1 Recycled content
Submitter:	Craig Conner, Building Quality	
Requested Action:	Delete without substitution	
Proposed Change:	~~604~~	
Reason:	This section is hard to fail. It recognizes individual products that are recycled. However, these products are in aggregate so common as to make it difficult to build without getting at least partial points from this section. For example, consider steel. Steel averaged 88% recycled content in 2012 (http://www.recyclesteel.org/Recycling%20Resources/~/media/Files/SRI/Releases/003%20Steel%20Recycling%20Rates%20Graphs.pdf). Common steel products, such as rebar, include more than 95% recycled content. There are products that do deserve encouragement. Cellulose insulation includes a substantial recycled component. High fly ash concrete utilizes a substantial amount of what is otherwise a waste material. High recycled-glass content fiberglass uses waste glass that doesn't otherwise have much of a market. If not deleted this section should be reformatted to focus on products that could greatly increase the use of what is now usually a waste product.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG (Dave & Maribeth) will developalternative proposal.	
TG Vote:	13-0-1	

Proposal ID P118	LogID 5274	604.1 Recycled content
Submitter:	Shelly Leonard, Green Space Consultants LLC	
Requested Action:	Add new as follows	
Proposed Change:	Common minor elements include, but not limited to: • Doors: interior and exterior • Trim: interior and exterior • Railings: interior and exterior • Exterior decking • Exterior siding/materials (e.g. wood siding, masonry, stucco, etc) • Roof/attic insulation • HVAC equipment, ductwork and water heaters • Appliances • Cabinets • Plumbing fixtures and pipe • Electrical fixtures and wiring • Finished flooring (hardwood, tile), carpet and padding covering <50% of floor area. • Driveway and walkway: base and finished surface Common major elements include, but not limited to: • Footings, foundation & crawlspace • Slab and slab base • Floor system structure and/or floor decking • Roof structure and/or decking • Exterior wall system structure and/or exterior sheathing • Exterior wall coverings (siding, masonry, stucco, etc.) • Interior wall system structure • Finished flooring (hardwood, tile), carpet and padding covering >50% of floor area. • All insulation excluding roof/attic insulation	
Reason:	Include major factors and provide as much clarity as possible in the practice description.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Defining via a bulleted list may result in unwieldy, cumbersome content. A list of minor/major components may be better suited for inclusion in commentary.	
TG Vote:	14-0-1	

Proposal ID P119	LogID 708	605.0 Intent (Recycled Construction Waste)
Submitter:	Gladys Quinto Marrone, BIA Hawaii	
Requested Action:		
Proposed Change:	605 – accept builder photo documentation, or other proof, that material has been 'donated' for reuse or recycling rather than require proof from a certified recycler.	
Reason:	Hawaii's recycling management is generally poor. Most builders simply "donate" to the bins at local schools for recycling, but have no receipts for doing so.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This is not code text. This item belongs in the Commentary.	
TG Vote:	12-0-2	

Proposal ID P120	LogID 629	605.0 Intent (Recycled Construction Waste)
Submitter:	Kathleen Petrie, City of Seattle, Department of Planning and Development	
Requested Action:		
Proposed Change:	RECYCLED CONSTRUCTION and DEMOLITION WASTE	
Reason:	The section 605 heading should be revised to include demolition.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Demolition management plan is out-of-scope for Practice 605.1. TG will develop and add concept to Practice 603.	
TG Vote:	10-0-5	

Proposal ID P121	LogID 631	605.0 Intent (Recycled Construction Waste)
Submitter:	Kathleen Petrie, City of Seattle, Department of Planning and Development	
Requested Action:		
Proposed Change:	**605.0 Intent.** Nonhazardous waste generated during construction and demolition is recycled or reused. All waste classified as hazardous shall be properly handled and disposed. (Points not awarded for hazardous waste removal.)	
Reason:	All nonhazardous waste should be recycled or reused, regardless of whether it is the result of construction or demolition activity. Should the term "hazardous" be defined?	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Committee opted to steer away from defining and regulating controversial verbage, such as nonhazardous and reuse.	
TG Vote:	9-0-5	

Proposal ID P122	LogID 638	605.0 Intent (Recycled Construction Waste)
Submitter:	Kathleen Petrie, City of Seattle, Department of Planning and Development	
Requested Action:		
Proposed Change:	None	
Reason:	General Comment: It would be good to see the waste diversion section further developed to include demolition and land-clearing diversion, higher percentages of diversion, the disallowance of alternative daily cover as diversion, and restrictions on percentage of diversion that can be used as fuel end markets.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Frank and Maribeth will incorporate these concepts in their revision of Section 603 in TG3-12.	
TG Vote:	Staff note: add vote at November meeting.	

Proposal ID P123	LogID 628	605.1 Construction Waste Management Plan
Submitter:	Kathleen Petrie, City of Seattle, Department of Planning and Development	
Requested Action:		
Proposed Change:	**605.1 Construction and demolition waste management plan.** A construction and demolition waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of nonhazardous construction and demolition waste.	
Reason:	There should be an attempt to recycle or reuse all nonhazardous waste, whether it be construction or demolition. There should be an attempt to recycle or reuse all nonhazardous waste, whether it be construction or demolition. The State of California, draft IgCC, Portland, OR, Chicago, IL and Boulder, CO all have a diversion rates of 50%, or greater	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Demolition management plan is out-of-scope for Practice 605.1. TG will develop and add concept to Practice 603.	
TG Vote:	11-1-3	

Proposal ID P124	LogID TG3-09	605.1 Construction waste management plan
Submitter:	David Shepherd, Portland Cement Association	
Requested Action:	Revise as follows:	
Proposed Change:	**605.1 Construction waste management plan.** A construction waste management plan is developed, posted at the jobsite and implemented ~~with a goal of recycling or salvaging~~ diverting, through reuse, salvage or recycling, a minimum of 50 percent (by weight) of nonhazardous construction and demolition waste from disposal. The waste management plan shall include the recycling of 95% of electronic waste components (such as printed circuit boards from computers, building automation systems, HVAC, fire and security control boards) for remodeling projects or demolition of an existing facility by a EPA certified E-Waste recycling facility. Exceptions: 1. Waste materials generated from land clearing, soil and sub-grade excavation and all manner of vegetative debris shall not be in the calculations. A recycling facility (traditional or E-Waste) offering material receipt documentation is not available within 50 miles of the jobsite.	
Reason:	The phrase "with a goal of recycling or salvaging" was deleted as this is not a new, innovative or onerous practice, thus points should only be awarded for achieving the requirement. The intent of this credit is not to attempt to achieve but actually accomplish the waste diversion rates specified in the requirement. Requirements with identical intent are already included in the: ✍ IgCC 2012 (section 503.1) ✍ CalGreen (Section 4.408 - MANDATORY for all new residential construction) ✍ ASHRAE 189.1 (Section 9.3.1.1 – MANDATORY to receive a certificate of occupancy) ✍ LEED v4, MR Credit – Construction and Demolition Waste Management ✍ LEED Homes v4 MR Credit – Construction Waste Management None of the above offer points for intent of waste diversion without actually achieving the requirement. Electronic components (circuit boards, HVAC and security control panels, etc) contain precious metals as well as contaminants such as lead, cadmium, beryllium and brominated flame retardants. According to the EPA, 25 states have passed legislation controlling the disposal of e-waste. E-waste should only be recycled through an EPA certified e-waste recycler. An exception has been provided to accommodate project locations where recycling facilities unable to provide documentation are not available. Waste generated from demolition is included in this credit to support the Site Redevelopment credit in Section 401.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-0-1	

Proposal ID P125	LogID 5287	605.1 Construction waste management plan
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	605.1 Construction waste management plan. A construction waste management plan isdeveloped, posted at the jobsite, and implemented ~~with a goal of~~ to recycle or salvage ~~recycling orsalvaging~~ a minimum of 50 percent (by weight) of construction waste.	
Reason:	Reason: Having a “goal” is not appropriate for point attainment. This section was edited to clarify the requirement.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Proposal as written would require a measurement action and would add undue stringency.	
TG Vote:	12-3-1	

Proposal ID P126	LogID 5160	605.1 Construction waste management plan
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	A construction waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of construction waste, excluding land-clearing waste.	
Reason:	Land-clearing waste should be excluded from the 50 percent calculation. Soil, vegetation, and rocks are heavy, bulky materials. When included in the total weight used to calculate the recycling rate, it can reduce the amount of higher-value materials, such as wood, concrete, and drywall, that is ultimately recycled.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapproved in lieu of proposal 5204.	
TG Vote:	10-0-2	

Proposal ID P127	LogID 5204	605.1 Construction waste management plan
Submitter:	Wes Sullens, StopWaste of Alameda County	
Requested Action:	Revise as follows	
Proposed Change:	**605.1 Construction waste management plan.** A construction waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of construction waste. Land clearing debris and materials that are processed for recycling but are used as alternative daily cover at landfills shall be excluded from the 50 percent requirement.	
Reason:	Materials that result from land clearing activity are often heavy and can skew results for other types of higher-value recycling and salvaging. Additionally, these materials are typically not landfilled in practice because they are expensive to tip, and robust markets are available to accept and recycle those land clearing materials at a lower cost than landfilling. "Alternative Daily Cover" (ADC) is cover material other than earthen material placed on the surface of the active face of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. The ADC materials that result from building are byproducts of construction and demolition waste processing facilities, yet they are not actually recycled (they do not re-enter the materials cycle) and are essentially deposited in landfills and stay there forever. Therefore, ADC should not be considered recycling in green building standards. ASHRAE 189.1, GreenPoint Rated, and LEEDv4 have all disallowed ADC to count as recycling, and so should this standard. Achieving 50% recycling by not including ADC and land clearing debris is widely available with jobsite best practices (source separation of materials on-site and sending those materials to specific recycling facilities), and by sending the remaining mixed-waste loads to facilities that sort offsite.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **605.1 Construction waste management plan.** A construction waste management plan is developed, posted at the jobsite,and implemented with a goal of recycling or salvaging a minimum of 50 percent(by weight) of construction waste. Land clearing debris is not considered construction waste in this requirement. Materials used as alternative daily cover are considered construction waste and do not count toward recycling or salvaging.	
TG Reason:	Clarified original text related to land-clearing and daily cover. Deemed to comply pathway to minimize waste was discussed on the call. Hope this item will be addressed in later comment period.	
TG Vote:	11-0-1	

Proposal ID P128	LogID 5161	605.3 Recycled construction materials
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Construction materials (e.g., wood, cardboard, metals, drywall, plastic, asphalt roofing shingles, or concrete) that cannot be salvaged and reused onsite are recycled offsite.	
Reason:	Onsite salvage and reuse is preferred to offsite recycling because of reduced hauling and transportation impacts; it should be emphasized that reuse is a higher priority.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Additional text is redundant. Reuse/salvage practices already receive greater point values than recycling practices.	
TG Vote:	14-0-2	

Proposal ID P129	LogID 5056	606.1 Biobased products
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**606.1 Biobased products.** The following biobased products are used: **(a)** certified solid wood in accordance with Section 606.2 **(b)** engineered wood **(c)** bamboo **(d)** cotton **(e)** cork **(f)** straw **(g)** natural fiber products made from crops (soy-based, corn-based) **(h)** ~~products with the minimum biobased contents of the USDA~~ 7 ~~CFR Part 2902~~ **(i)** other biobased materials with a minimum of 50 percent biobased content (by weight or volume) **(1)** Two types of biobased materials are used, each for more than 0.5 percent of the project's projected building material cost. **(2)** Two types of biobased materials are used, each for more than 1 percent of the project's projected building material cost. **(3)** For each additional biobased material used for more than 0.5 percent of the project's projected building material cost.	
Reason:	USDA biobased criteria is based only on the organic part of the material. Materials that are largely inorganic can qualify under the USDA as biobased when only a small fraction of the material is biobased. Items (a)-(g) are essentially 100% biobased and item (i) requires at least 50%. While it may be worth recognizing USDA biobased products they should not get the same number of points as something that is over 50% biobased.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-2-5	

Proposal ID P130	LogID 5083	606.2 Wood-based products
Submitter:	Michael Martin, National Wood Flooring Association	
Requested Action:	Add new as follows	
Proposed Change:	606.2 Wood-based products. Wood or wood-based products arecertified to the requirements of one of the following recognized programs: (a)American Forest Foundation's American Tree Farm System (ATFS) (b)Canadian Standards Association's *SustainableForest Management System Standards* (CSA Z809) (c)*Forest Stewardship Council* (FSC) (d)*Program for Endorsement of ForestCertification Systems* (PEFC) (e)*Sustainable Forestry Initiative Program*(SFI) (f)National Wood Flooring Association's *ResponsibleProcurement Program* (RPP) (g)other product programs mutually recognized by PEFC	
Reason:	Products certified to the requirements of the NWFA's RPP program are domestic hardwood flooring products that are independently verified as originating from "U.S. Renewing Forests": U.S. states whose hardwood forests are in surplus, i.e. they are producing more timber than is being removed or lost through harvest and mortality. As wood flooring is a product used on home building, the RPP is designed such that all products that are verified as being from "U.S. Renewing Forests" must gradually transition to FSC certification over time. FSC is a forest certification program already recognized under the National Green Building Standard. For all of these reasons, we believe it makes sense to recognize the NWFA RPP as a program in section 606.2 of the standard.	
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	10-0-3	

Proposal ID P131	LogID 5221	606.2 Wood-based products

Submitter:	Eric DeVito, BBRS
Requested Action:	Revise as follows
Proposed Change:	**606.2 Wood-based products.** Wood or wood-based products are certified to the requirements of one of the following recognized product programs: (a) American Forest Foundation's *American Tree Farm System*® (ATFS) (b) Canadian Standards Association's *Sustainable Forest management System Standards* (CSA Z809) (c) *Forest Stewardship Council* (FSC) (d) *Program for Endorsement of Forest Certification Systems* (PEFC) (e) *Sustainable Forestry Initiative® Program* (SFI) (f) Other product programs mutually recognized by PEFC (1) A minimum of two certified wood-based products are used for minor elements of the building (e.g. all trim, cabinetry, windows, doors, or millwork). **3** (2) A minimum of two certified wood-based products are used in major elements of the building (e.g., walls, floors, roof). **4**
Reason:	This proposal clarifies that wood-framed windows and wood doors may also receive credit for the use of certified wood. We believe that wood-framed windows and doors already qualify for credit under this section, but code officials may not be awarding credits, because windows and doors are not listed as examples under either minor or major elements. For now, we have proposed including them in the category of "minor elements" of the building, although a home with a high glazing area percentage could arguably fit into the "major elements" definition. At a minimum, the addition of these two examples will provide some direction for the code official.
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise standard as follows:* **606.2 Wood-based products.** Wood or wood-based products are certified to the requirements of one of the following recognized product programs: (a) American Forest Foundation's *American Tree Farm System*® (ATFS) (b) Canadian Standards Association's *Sustainable Forest management System Standards* (CSA Z809) (c) *Forest Stewardship Council* (FSC) (d) *Program for Endorsement of Forest Certification Systems* (PEFC) (e) *Sustainable Forestry Initiative® Program* (SFI) (f) Other product programs mutually recognized by PEFC (1) A minimum of two certified wood-based products are used for minor ~~elements~~ components of the building ~~(e.g.all trim, cabinetry, or millwork).~~ **3** (2) A minimum of two certified wood-based products are used in major ~~elements~~ components of the building ~~(e.g.,walls, floors, roof)~~. **4**
TG Reason:	Eliminate "elements" to increase consistency within the document. Parenthetical information is redundant with information within the Definitions section.
TG Vote:	13-0-3

Proposal ID P132	LogID 5162	607.1 Recycling
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	607.1 Recycling and Composting. Recycling and composting ~~is~~ are facilitated by one or more of the following methods:	
Reason:	Composting is not considered the same thing as recycling. Since the intent of the section is to facilitate composting as well as recycling, composting should be referenced by name in Section 607.1.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Composting is already noted within the section.This change will add consistency.	
TG Vote:	14-0-2	

Proposal ID P133	LogID 5288	607.1 Recycling
Submitter:	John Woestman, Kellen Company	
Requested Action:	Revise as follows	
Proposed Change:	607.1 Recycling. Recycling ~~by the occupant~~ is facilitated by one or more of thefollowing methods: *Remaining text isunchanged.*	
Reason:	Reason: deleting the undefined term “occupant” as the use of the term does not help to clarify who the recycling requirement is intended to apply to.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This section is already about recycling and composting for the occupant. This change is overly redundant.	
TG Vote:	14-0-2	

Proposal ID P134	LogID 5275	609.1 Regional materials
Submitter:	Shelly Leonard, Green Space Consultants LLC	
Requested Action:	Revise as follows	
Proposed Change:	609.1 Regional Materials. Regional materials are used for major elements ~~or~~ ~~components~~ of the building and include materials and components that originate within 500 miles of the construction site if transported by truck, or within 1,500 miles if transported by rail.	
Reason:	Include major factors and provide as much clarity as possible in a succinct practice description.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This section was eliminated by previous action. Modification already exists in Definitions.	
TG Vote:	11-0-3	

Proposal ID P135	LogID TG3-08	609.1 Regional materials
Submitter:	David Shepherd, Portland Cement Association	
Requested Action:	Revise as follows:	
Proposed Change:	609.1 Regional Materials – Regional materials are used for major and/or minor ~~elements or~~ components of the building. 1 credit per minor component For a component to comply with this credit, a minimum of 75% of all products in that component category must be sourced regionally (Example – Stone Veneer, 75%or more of the stone veneer on a project must be sources regionally to comply with the credit intent.)	
Reason:	The proposed change broadens the options to include minor components as well as major components. The use of regional materials offers multiple green benefits: · Increases the likelihood that the product will be produced under U.S. Clean Air and Water Act, with stricter regulatory controls than foreign environments · Minimizes transportation impacts (traffic congestion, cost and environmental impacts) · Stimulates the local, regional and national economic base This credit retains a maximum of ten points. This credit is found in other national green codes and rating systems. · IgCC (Section 505.2.5) · ASHRAE SP189.1 -2011 (Section 9.4.1.2) · LEED Homes V4 (MR Credit – Environmentally Preferred Products)	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	7-0-1	

Proposal ID P136	LogID 5319	609.1 Regional materials
Submitter:	Craig Conner, Building Quality	
Requested Action:	Delete without substitution	
Proposed Change:	~~609~~	
Reason:	This is not well thought out. Consider a few cases. Concrete is typically 60% to 75% aggregate. (http://www.cement.org/cement-concrete-basics/how-concrete-is-made) The concrete aggregate, stone and sand, will always be local, certainly well within the 500 mile radius allowed for “regional” materials. Easy points. How about wood. I live a fairly treeless semi desert on the eastern and brown side of Washington state. Local trees occur in parks and landscape. However the 500 mile radius around me includes all the trees in Washington and Oregon, and most in Idaho. Most wood I would likely buy is regional? Better yet, I like the sand on the beaches of Northern California and southern British Columbia. Since those are within 1500 miles of me by boat, both are regional and I should get credit for importing them for use in local homes?? This does not make sense. In general the market will charge me for transportation and lead me to better decisions than this part of the NGBS.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Current section is too complicated to implement efficiently. David S. will submit alternative proposal.	
TG Vote:	11-0-3	

Proposal ID P137	LogID 5137	609.1 Regional materials
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**Regional materials.** Regional materials are used for major ~~elements or~~ components of the building.	
Reason:	There is no definition of a major element. It is not clear how an element differs from a component.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	12-1-3	

Proposal ID P138	LogID TG3-16	610 Life cycle analysis
Submitter:	Jerry Phelan, Bayer Material Science	
Requested Action:	Revise as follows:	
Proposed Change:	**610 LIFE CYCLE ~~ANALYSIS~~ ASSESSMENT** **610.1 Life cycle ~~analysis~~ assessment**. A life cycle ~~analysis~~ assessment(LCA) tool… **610.1.1 Whole-building life cycle ~~analysis~~ assessment.** **610.1.2 Life cycle ~~analysis~~ assessment for a product or assembly.**	
Reason:	This is a presumed editorial change proposed to be consistent with convention for LCA – The terms "analysis" and "assessment"have different meaning with "assessment" more clearly describing the LCA technique/science. Assessment is consistently used in universal standards establishing framework, guidelines and requirements for conducting LCA studies and employing LCA results as well as used in IgCC and ASHRAE 189.1.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Request similar change in the Definitions section.	
TG Vote:	4-0-1	

Proposal ID P139	LogID 5051	610.1 Life cycle analysis
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	A life cycle analysis (LCA) tool is used to select environmentallypreferable products, ~~or~~ assemblies, or ~~an LCA is conducted on the~~ entirebuilding designs. Points are awarded in accordance with Section 610.1.1 or 610.1.2. Onlyone method of analysis or tool may be utilized. The reference service life forthe building is 60 years for any life cycle analysis tool.Results of the LCAare reported in the manual required in Section 1001.1 or 1003.1(1)of this Standard in terms of the environmental impacts listed in this practiceand it is stated if operating energy was included in the LCA.	
Reason:	It does not seem reasonable to award 15 point for doing an LCA for an entire building when the LCA shows that that building is environmentally terrible. It seems like a comparison should be made to appropriate alternative designs as is required for products. 1003.1 is not applicable to single family homes. Adding the reference to 1001.1 allows SF homes to comply with this practice. A similar change should be made to the chapter 11 practice.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-1	

Proposal ID P140	LogID TG3-01	610.1.1 Whole-building life cycle analysis

Submitter:	Jerry Phelan, Bayer Material Science
Requested Action:	Revise as follows:
Proposed Change:	**610.1.1 Whole-building life cycle ~~analysis~~ assessment.** A whole-building LCA ~~is~~ shall be performed in conformance with ASTM E-2921 using ~~a~~ ISO 14044 compliant life cycle assessments ~~and data compliant with ISO 14044 or other recognized standards~~. Points: 15 Max (1) Execute LCA at the whole building level through a comparative analysis between the final and reference building designs as set forth under Standard Practice, ASTM E-2921. The assessment criteria shall include the following environmental impact categories: (a) Primary energy use (b) Global warming potential (c) Acidification potential (d) Eutrophication potential (e) Ozone depletion potential (f) Smog potential Points: 8 (2) Execute LCA on regulated loads throughout the building operations life cycle stage. Conduct simulated energy performance analyses in accordance with Section 702.2.1 ICC IECC analysis (IECC Section 405) in establishing the comparative performance of final versus reference building designs. Primary energy use savings and global warming potential avoidance from simulation analyses results shall be determined using EPA eGRID 2012 electricity generation and other fuels energy conversion factors and electricity generation and other fuels emission rates for the Sub-Region in which the building is located. Points: 5 (3) Complete full LCA, including use-phase, through calculation of operating energy impacts (c) – (f) using EPA eGRID 2012 regional emissions factors [provide full reference to eGRID 2012 document or provide factor tables]. Points: 2
Reason:	Need for more robust LCA/EPD proposal identified in discussion of LogID 5115.Created to replace LogID 5115
TG Recommendation:	Approved as Modified
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **610.1.1 Whole-building life cycle ~~analysis~~ assessment.** A whole-building LCA ~~is~~ shall be performed in conformance with ASTM E-2921 using ~~a~~ ISO14044 compliant life cycle assessments ~~and data compliant with ISO 14044 or other recognized standards~~. Points: 15 Max (1) Execute LCA at the whole building level through a comparative analysis between the final and reference building designs as set forth under Standard Practice, ASTM E-2921. The assessment criteria shall include the following environmental impact categories: (a) Primary energy use (b) Global warming potential (c) Acidification potential (d) Eutrophication potential (e) Ozone depletion potential (f) Smog potential Points: 8 (2) Execute LCA on regulated loads throughout the building operations life cycle stage. Conduct simulated energy performance analyses in accordance with Section 702.2.1 ICC IECC analysis (IECC Section 405) in establishing the comparative performance of final versus reference building designs. Primary energy use savings and global warming potential avoidance from simulation analyses results shall be determined using EPA ~~eGRID 2012~~ NERC electricity generation and other fuels energy

	conversion factors and electricity generation and other fuels emission rates for the Sub-Region in which the building is located. Points: 5 (3) ~~Complete~~ Execute full LCA, including use-phase, through calculation of operating energy impacts (c) – (f) using EPA ~~eGRID 2012~~ NERC regional emissions factors [provide full reference to ~~eGRID 2012~~ NERC document or provide factor tables]. Points: 2
TG Reason:	More action-oriented language.
TG Vote:	4-0-1

Proposal ID P141	**LogID 5317**	**610.1.2 Life cycle analysis for a product or assembly**
Submitter:	Craig Conner, Building Quality	
Requested Action:	Delete and substitute as follows	
Proposed Change:	~~610.1.2~~ 610.1.2 A minimum of 10 different permanently installed materials or products shall include an environmental product declaration. The environmental product declaration shall be based on externally verified data. The environmental product declaration shall be certified by an approved agency or third party in accordance with CAN/CSA-ISO 14025 and ISO 21930. Add new definition as follows: ENVIRONMENTAL PRODUCT DECLARATION. A report for a product or material based on a product's life cycle and other relevant information relevant to its environmental impact. Add new standard(s) as follows: CSA CAN/CSA-ISO 14025-07(R2012) Environmental labels and declarations – Type III environmental declarations – Principles and procedures (Adopted ISO 14025:2006, first edition, 2006-07-01) ISO 21930-2007 Sustainability in building construction – Environmental declaration of building products	
Reason:	This change substitutes Environmental Product Declarations (EPDs) for LCAs. The concept is similar, but EPDs are better defined. EPDs are emerging as one way to compare the environmental performance of competing products, including impacts from manufacturing and ultimately disposal. EPDs would include all the product attributes in the existing section. The use of common metrics for a specific product type encourages manufacturers to reduce their environmental impacts by making it more likely that product buyers will compare competing products based on a well defined set of environmental attributes. Complying with the new section is simple. No new building level calculations are required. If there are10 EPDs for products in the building, the criteria would be met. ANSI has begun an accreditation program for organizations that certify EPDs. As written, this is not doable or at least will yield a questionable verdict. It says to compare products. Do I get to pick the worst product I can find in a particular category and compare mine to that? That is not useful. There is no obvious base case as it is written.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	610.1.2 should remain as-is. Josh Jacobs' EPD proposal is favored by TG.	
TG Vote:	6-0-5	

Proposal ID P142	LogID TG3-15	610.1.2.1 Product LCA
Submitter:	Jerry Phelan, Bayer Material Science	
Requested Action:	Revise as follows:	
Proposed Change:	**610.1.2.1** … following: (a) ~~Fossil fuel consumption~~ Primary energy use (b) – (e) no change (f) Smog potential **610.1.2.2** … following: (a) ~~Fossil fuel consumption~~ Primary energy use (b) – (e) no change (f) Smog potential	
Reason:	The widely recognized impact indicator of Primary energy use better serves the intent of Section 610 than Fossil fuel consumption – Fossil fuel consumption is a reflection of the utility supplier energy mix (i.e. coal, natural gas, etc.versus hydropower, solar, etc.) and its marginal demand supply decisions than it is of the building product manufacturer or the life cycle operating efficiency and design characteristics of the building. In particular, Fossil fuel consumption does not accurately provide a holistic view of the building's energy efficiency by limiting the operating energy considered in the WBLCA – Please note that this is consistent with TG3 approved Section 610.1.1 Whole-building life cycle analysis proposed change (LogID 5051). IgCC utilizes Primary energy use as an impact measure. Submitter's review of many building product(predominately insulation) EPDs indicates that Primary energy is normally reported. In addition, Smog Potential is a highly recognized and frequently reported impact category for building products. Data are readily available for emission of NOx and VOCs associated with energy generation and supply. Please note that this is also consistent with TG3 approved Section 610.1.1 Whole-building life cycle analysis proposed change(LogID 5051). IgCC also utilizes Smog potential as an impact measure. Submitter's review of many building product (predominately insulation) EPDs indicates that Smog potential is normally reported. Low-level ozone/smog is a highly public concern in most communities and urban areas.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	4-0-1	

Proposal ID P143	LogID 5115	610.1.2.1 Product LCA
Submitter:	Matthew Dobson, Vinyl Siding Institute	
Requested Action:	Revise as follows	
Proposed Change:	Section should be reviewed and updated according to latest LCA accepted practices and possibly include the use of Environmental Product Declarations and Product Category Rules.	
Reason:	Since this was placed in the NGBS there has been substantial steps with this science. The standard should be cutting edge on this issue.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapproval in lieu of more specific LCA/EPD proposals.	
TG Vote:	10-0-2	

Proposal ID P144	LogID 5163	610.1.2.1 Product LCA
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Add two new impact categories: (e) Material Use and (f) Waste	
Reason:	Industry-wide efforts to promote the management of materials and products on a life-cycle basis are current. These life-cycle efforts ensure that materials are used more efficiently and effectively. To that end, the analyses need to provide us with adequate measures that capture material use and recovery. Using less material and recovering more is crucial to our economic and environmental future. Material use and waste are two additional impact categories that should be included.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Not well-defined impact categories; items not typically utilized in practice. Material use should be addressed as “resources consumption.” Waste needs better definition. Resource consumption is already covered in sq. footage practices.	
TG Vote:	11-0-1	

Proposal ID P145	LogID 5316	610.1.2.2 Building assembly LCA
Submitter:	Craig Conner, Building Quality	
Requested Action:	Delete without substitution	
Proposed Change:	~~610.1.2.2~~	
Reason:	This section is vaguely defined, and lacks a minimum or a base case to compare the report to. The requirements or consequences do not go beyond preparing a complex report that has nothing to compare to. A assembly life cycle assessment is impractical. How is the end user going to demonstrate that the assembly improved without a clear base casel? The standard that has been referenced, ISO 14044 states in its Section 1 (Scope) “This International Standard is not intended for contractual or regulatory purposes or registration and certification." A building code is a regulation.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Tools are available that are able to do the assembly comparison.	
TG Vote:	9-0-3	

Proposal ID P146	LogID 5266	611.1 Manufacturer's environmental practices (Innovative Practices)
Submitter:	Matt Belcher, Verdatek Solutions	
Requested Action:	Add new as follows	
Proposed Change:	**611.4 Resilience** Dwelling incorporates one or more of the following resilience options, as applicable. Points for items 1 through 4 shall be granted only where such products are not required per the applicable building code. 1. High-wind resistant or impact resistant entry doors or garage doors are installed. 2. Impact resistant glazing is installed. 3. High-wind resistant or impact resistant wall claddings are installed. 4. High-wind resistant or impact resistant roof coverings are installed. 5. The building is constructed in accordance with an approved above-code mitigation program (e.g. IBHS Fortified, Resilience Star or My Safe Florida Home). Lot incorporates one or more of the following resilience options, as applicable. 6. The entire building is constructed using flood resistant materials. 7. The building is constructed with its lowest floor at least one foot above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. 8. The building is constructed with its lowest floor at least two feet above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. 9. The building is constructed with its lowest floor at least three feet above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. 10. The building is located in Zone A and constructed on an open foundation system (pile foundations or isolated piers). 11. The building is constructed in accordance with an approved above-code flood mitigation program (e.g. IBHSFortified, etc.).	
Reason:	With the focus on future enhancement of the model codes to provide for enhanced "Resilient" construction, It is an opportunity to include reference in this "above code" standard to incentivise innovative practices and process that will demonstrate best practices for eventual application into the model codes.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **611.4 Resilience** Dwelling incorporates one or more of the following resilience options, as applicable. Points for items 1 through 4 shall be granted only where such products are not required per the applicable building code. 1. High-wind resistant or impact resistant entry doors or garage doors are installed. 2. Impact resistant glazing is installed. 3. High-wind resistant or impact resistant wall claddings are installed. 4. High-wind resistant or impact resistant roof coverings are installed. 5. The building is constructed in accordance with an approved above-code mitigation program ~~(e.g. IBHS Fortified, Resilience Star or My Safe Florida Home).~~ Lot incorporates one or more of the following resilience options, as applicable. ~~6. The entire building is constructed using flood resistant materials.~~ ~~7.~~ 6. The building is constructed with its lowest floor at least one foot above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. ~~8.~~7. The building is constructed with its lowest floor at least two feet above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. ~~9.~~ 8. The building is constructed with its lowest floor at least three feet above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. ~~10.~~9. The building is located in Zone A and constructed on an open foundation system (pile foundations or isolated piers). ~~11.~~10. The building is constructed in accordance with an approved above-code flood mitigation program ~~(e.g. IBHSFortified, etc.).~~	
TG Reason:	Propriety labeling resources can be noted in the Commentary; no need to include here.Item 5 is overly challenging; not all product lines will have widely available flood resistant items.	
TG Vote:	5-4-5	

Proposal ID P147	LogID 5073	611.2 Sustainable products
Submitter:	Josh Jacobs, UL	
Requested Action:	Revise as follows	
Proposed Change:	(5) 50% or more of the gypsum board installed (by square feet) is certified to UL 100 ~~ULE ISR 100~~. (6) 50% or more of the door leafs installed (by number of door leafs) is certified to UL 102 ~~ULE ISR 102~~.	
Reason:	This is an update to existing references. UL 100 and 102 were finalized and published shortly after final voting for the NAHB National Green Building Standard was completed.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	8-0-1	

Proposal ID P148	LogID 5077	611.2 Sustainable products
Submitter:	Josh Jacobs, UL	
Requested Action:	Add new as follows	
Proposed Change:	(8) All clothes washers installed prior to occupancy are certified to AHAM 7003-2013/CSA SPE 7003-13/UL 7003. Points 1 (9) All refrigeration appliances installed prior to occupancy are certified to AHAM 7001-2012/CSA SPE-7001-12/UL 7001. Points 1	
Reason:	This is an addition of two more types of multi-attribute product standards which can help to bring in more sustainable products to the home.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	7-1-4	

Proposal ID P149	LogID TG3-13	611.3 Universal design elements
Submitter:	Ramesh Gulatee, Ryan Taylor,	
Requested Action:	Modify as follows:	
Proposed Change:	Add the following points to section 611.3 on page 42: (5) All interior and exterior door handles are levers rather than knobs. (6) All sink faucet controls are single-handle controls of both volume and temperature. [Faucet controls might also appear in section 11.903.1 Plumbing on page 121 though it makes more sense to group these requirements because they share the same purpose.] (7) Power receptacles, communication connections (for cable, phone, Ethernet, etc.) and switches required by the local building codes are placed between 15” and 48” above the finished floor. Additional switches to control devices and systems(such as alarms, home theaters and other equipment) not required by the local building code may be installed as desired. (8) All light switches are rocker-type switches or other similar switches that can be operated by pressing them (with assistive devices) – no toggle-type switches may be used. (9) Anyone of the following can be controlled with a (wireless) mobile device such as a smartphone, tablet or laptop computer: HVAC, lighting, alarm system or door locks	
Reason:	These items complement the existing basic accessibility items already included in the standard. They’re common in building because they’re convenient to occupants regardless of their level of mobility. They’re also easy and inexpensive to change if a future owner objects to the switches and faucets. Please consider adding these items because they’ll serve as a guide for the true nature of basic accessibility. It’s not just about getting around in a wheel chair. It’s about living comfortably in a home. These items help remove barriers that highlight disabilities. They help create enabling spaces.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Recommendation that points be realigned.	
TG Vote:	5-4-2	

Proposal ID P150	LogID 5310	Other for Chapter 6 (include section number and title below)
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	605.4 Recycled Demolition Materials Demolition Materials (excluding Site clearing) are recycled off-site.	
Reason:	For projects (new construction or remodel) that are being built on Sites with existing structures substantial amounts of waste can be generated during the demolition phase of construction. Projects should be rewarded for dealing with this waste appropriately in the same way Construction Waste Diversion is rewarded.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	David Shepherd proposed alternative language.	
TG Vote:	Unanimous	

Proposal ID P151	LogID 5308	Other for Chapter 6 (include section number and title below)
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	611.4 E-waste Diversion during demolishing	
Reason:	Electronic components (computers, circuit boards, HVAC controls, etc.) contain valuable precious metals as well contaminants such as lead, cadmium, beryllium, or brominated flame retardants. Such e-waste is not easily included as part of the traditional waste streams (trash or recycle) and projects should be rewarded for dealing with these products appropriately when they are encountered during demolition of existing structures (for new construction or remodel).	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Does not warrant stand-alone practice. Incorporate e-waste items into waste management plan requirements that David will propose.	
TG Vote:	5-1-4	

Proposal ID P152	LogID 5157	Other for Chapter 6 (include section number and title below)
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Add new as follows	
Proposed Change:	**601.10**. **Design for Disassembly**. Incorporate in the design interior elements, such as non-load-bearing walls, partitions, lighting and electric systems, suspended ceilings, raised floors and interior air distribution systems that can be disassembled, re-configured, and reused. Utilize connections that allow disassembly, such as reversible connections (e.g. screws, bolts, nails, clips).	
Reason:	Reason Statement: The intent of 601 is to utilize design and construction practices that minimize the environmental impact of the building materials and to incorporate environmentally efficient building systems and materials. Employing design elements that can be disassembled, re-configured and reused, and utilizing connections that are reversible are important green building practices to ensuring buildings systems are environmentally efficient.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Specificity is not there. Proposed ideas are not possible. Language is not code-ready.	
TG Vote:	11-0-2	

Proposal ID P153	LogID 5151	Other for Chapter 6 (include section number and title below)
Submitter:	Stephen J Holzer, eM8s, LLC	
Requested Action:	Add new as follows	
Proposed Change:	**611.4 Building Information Modeling(BIM)** ProjectTeam uses BIM as primary means to coordinate planning, design, construction andoperations for residential buildings in order reduce material waste and errors.	
Reason:	Building Information Modeling (BIM) is a computer generated model based process that simulates planning, design, construction and operations for buildings. It is a single repository for both three-dimensional, two-dimensional, and material properties information that allows data interoperability of all stakeholders to better inform design and construction decisions with the goal of producing the best product possible. This information technology will increase design and construction efficiencies and decrease costs for builders and end users. BIM may also facilitate better communication, collaboration and coordination among building industry professionals and trades working on the same project. Credit should be given to Builders utilizing the open industry standards as defined in the National Building Information Modeling Standard.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG 1 will submit alternative proposal that addresses concept.	
TG Vote:	9-0-1	

Proposal ID P154	LogID 5078	Other for Chapter 6 (include section number and title below)
Submitter:	Josh Jacobs, UL	
Requested Action:	Add new as follows	
Proposed Change:	**611.4 Product Declaration**. A minimum of 10 different products installed in the building project, at the time of certificate of occupancy, shall comply with one of the following sub-sections.~~:~~ Declarations, reports, and assessments shall be submitted to the AHJ and shall contain documentation of the critical peer review by an independent third party, results from the review, the reviewer's name, company name, contact information, and date of the review. Points 5 **611.4.1 Industry-wide Declaration.** A Type III industry-wide environmental product declaration (EPD) shall be submitted for each product. Where the program operator explicitly recognizes the EPD as representative of the product group on a National level, it is considered industry-wide. In the case where an industry-wide EPD represents only a subset of an industry group, as opposed to being industry-wide, the manufacturer shall be explicitly recognized as a participant by the EPD program operator. All EPDs shall be consistent with ISO Standards 14025~~,~~ and 21930 with at least a cradle-to-gate scope. Each product complying with this section shall be counted as one product for compliance with Section 611.4 **6.11.4.2 Product Specific Declaration.** A product specific Type III EPD shall be submitted for each product. The product specific declaration shall be manufacturer specific for an individual product or product family. All Type III EPDs shall be certified as complying, at a minimum, with the goal and scope for the cradle-to-gate requirements in accordance with ISO Standards 14025 and 21930. Each product complying with this section shall be counted as two products for compliance with Section 611.4.	
Reason:	The proposal allows for rewarding the builder when they use products that have been transparent about their environmental impact. Environmental product declarations (EPD) are a tool that is gaining acceptance in green design standards as an accepted way for a manufacturer to communicate the impacts that their products and their manufacturing have on the environment. The goal of EPDs is to provide designers, purchasers, and builders with data that will inform their purchasing decisions – much the way nutritional labels on food packaging does today.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **611.4 Product Declaration**s. A minimum of 10 different products installed in the building project, at the time of certificate of occupancy, shall comply with one of the following sub-sections.~~:~~ Declarations, reports, and assessments shall be submitted to the AHJ and shall contain documentation of the critical peer review by an independent third party, results from the review, the reviewer's name, company name, contact information, and date of the review. Points 5 **611.4.1 Industry-wide Declaration.** A Type III industry-wide environmental product declaration (EPD) shall be submitted for each product. Where the program operator explicitly recognizes the EPD as representative of the product group on a National level, it is considered industry-wide. In the case where an industry-wide EPD represents only a subset of an industry group, as opposed to being industry-wide, the manufacturer shall be explicitly recognized as a participant by the EPD program operator. All EPDs shall be consistent with ISO Standards 14025~~,~~ and 21930 with at least a cradle-to-gate scope. Each product complying with this section shall be counted as one product for compliance with Section 611.4 **6.11.4.2 Product Specific Declaration.** A product specific Type III EPD shall be submitted for each product. The product specific declaration shall be manufacturer specific for an individual product or product family. All Type III EPDs shall be certified as complying, at a minimum, with the goal and scope for the cradle-to-gate requirements in accordance with ISO Standards 14025 and 21930. Each product complying with this section shall be counted as two products for compliance with Section 611.4.	
TG Reason:	Minor change: 611.4 "Product Declarations" Consider this practice during point allocation.	
TG Vote:	10-0-2	

Chapter 7. Energy Efficiency

Proposal ID P155	LogID TG5-04	701 Minimum Energy Efficiency Requirements
Submitter:	Randall Melvin, Winchester Homes, Inc.	
Requested Action:	Add new text as follows:	
Proposed Change:	701.1.5 Alternate Compliance Path 3 Any building built and verified to meet or exceed the equivalent energy efficiency requirements of the 2006 IECC by 30% shall be deemed to comply with the requirements of this chapter. Where whole house energy efficiency isused to demonstrate equivalence, rather than heating, cooling and water heating alone, the baseline reference design for lighting, appliances and miscellaneous energy loads shall correspond with those contained with ANSI/RESNET 301-2014. Two points shall be awarded for each percent increase in energy efficiency above the equivalent efficiency of the 2006 IECC with a required minimum of 60 points.	
Reason:	The proposed change leverages existing credible energy efficient baselines, computational methodologies and software modeling programs that have widespread recognition, acceptance and use by home builders, energy raters, code officials and consumers. For those entities already using one of these established methodologies it will eliminate the need for a largely redundant, but equivalent, energy NGBS energy efficiency specific analysis, thus allowing a streamlined compliance with the National Green Building Standards Energy Chapter. Incorporating this streamlined alternative will increase the acceptance and use of the NGBS. Thirty percent equivalent energy efficiency increase over the 2006 IECC has been chosen as the baseline metric for the following reasons: First, a 30% efficiency increase over the 2006 IECC is effectively equivalent to the energy efficiency of 2015 IECC which has been proposed as the new baseline for the National Green Building Standard. Second the 2006 IECC is a more flexible code than subsequent additions with provides more choices and credit for critical items such as air tightness and equipment trade offs. The 2006 IECC aligns with the baseline 100 Index of the ANSI National HERS Index Standard and finally it is supported by many popular energy modeling software programs such as REM Design, REM Rate and Energy Gauge. This proposal is non-exclusionary in that it transparent and it allows for alternative competitive means and methodologies for calculating-demonstrating compliance from a common baseline.	
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Based on the action on LogID 5324	
TG Vote:	11-1-1	

Proposal ID P156	LogID 5213	701.1 Mandatory requirements (Energy Efficiency)
Submitter:	Eric Lacey, RECA	
Requested Action:	Revise as follows	
Proposed Change:	**701.1 Mandatory requirements.** The building shall comply with the IECC and with either Section 702 (Performance Path) or Section 703 (Prescriptive Path). Items listed as "mandatory" in Section 701.4 apply to both the Performance and Prescriptive Paths.	
Reason:	This proposal helps ensure that buildings certified as "green" meet, at a minimum, the national model energy code for residential construction, the IECC. It is likely that many homes built to ICC-700 will exceed the requirements of the ICC, and for these homes, this requirement will not require any additional effort. However, this proposal would help prevent a scenario in which a home is certified as "green," yet fails a reasonable minimum energy code. States are required, under federal law, to review the provisions of each new edition of the IECC found by DOE to be more efficient than the previous edition. As a result, the vast majority of states, counties, and cities, have adopted the IECC as the residential energy code. ICC-700 should be positioned as a natural outgrowth of the existing residential energy code, not a stand-alone standard with potentially conflicting requirements. This proposal will also make ICC-700 more adoptable and will enhance the Standard's credibility at the state and local level. We believe that including an IECC backstop in all compliance paths will make it much easier for jurisdictions to allow ICC-700 certification as an acceptable compliance option to the IECC by removing some of the guesswork and subjectivity involved with IECC Section R102.1.1 Above Code Programs. If the home has already been certified as IECC-compliant as part of the ICC-700 certification process, this will significantly reduce the burden on the local code official to evaluate the energy efficiency qualities of the home.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Limits flexibility and options under the performance path. No evidence presented to support the need for hard backstops.There is evidence of unintended consequences.	
TG Vote:	9-1-1	

Proposal ID P157	LogID 5219	701.1 Mandatory requirements (Energy Efficiency)

Submitter:	Eric Lacey, RECA
Requested Action:	Add new as follows
Proposed Change:	**701.4.3.5 Fenestration** NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights and tubular daylighting devices (TDDs) on an area-weighted average basis do not exceed the values in Table 701.4.3.5. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m^2) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice. **Mandatory**

Table 701.4.3.5

Fenestration Specifications

Climate Zone	Window/Ext. Door U-Factor	Window/Ext. Door SHGC	Skylight and TDD U-Factor	Skylight and TDD SHGC
1	0.50	0.25	0.75	0.30
2	0.40	0.25	0.65	0.30
3	0.35	0.25	0.55	0.30
4	0.35	0.40	0.55	0.40
5-8	0.32	Any	0.55	Any

Reason:	This proposal improves ICC-700 in two important ways: First, it updates the fenestration requirements of the 2015 ICC-700 to match those of the 2015 IECC. Because prescriptive residential fenestration requirements in the 2012 and 2015 IECC are identical, the table will mesh well with jurisdictions that adopt either version of the IECC. Second, it applies the baseline not only to the prescriptive compliance path, but also to the performance path. The 2008 NGBS applied a mandatory set of baseline fenestration requirements to both the performance path and the prescriptive path. As the baseline was improved in the 2012 version of the NGBS, the mandatory baseline was moved to Section 703.1.6, which applies only to the prescriptive compliance option. Code-compliant fenestration is crucial to energy efficiency, regardless of the other measures implemented in Chapter 7. The NGBS currently permits considerable flexibility in the use of fenestration, allowing design professionals to use fenestration to reduce lighting loads, improve the indoor environment, and to provide a better connection between occupants and the outdoors. Regardless of the amount of glazing, however, there must be some minimal requirements for efficiency. Even the most efficient windows currently available do not achieve the same thermal resistance as a wall with very minimal insulation. Without restricting design freedom, this proposal restores the fenestration requirements to Section 701 to ensure that the requirements specified in the base code (in this case, the 2015 IECC) will apply to both the prescriptive and performance alternatives, maintaining at least a minimum level of fenestration efficiency.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Limits flexibility for overall most cost effective solutions.
TG Vote:	

Proposal ID P158	LogID 5215	701.1.1 Minimum Performance Path requirements

Submitter:	Eric Lacey, RECA
Requested Action:	Revise as follows
Proposed Change:	**701.1.1 Minimum Performance Path requirements.** A building complying with Section 702 shall exceed the baseline minimum performance required by the ~~ICC~~ 2015 IECC by ~~15~~ 10 percent and shall include a minimum of two practices from Section 704.

702.2.2 Energy cost performance analysis. Energy cost savings levels above the ~~ICC~~ 2015 IECC are determined through an analysis consistent with Section R405 of the IECC~~that includes improvements in building envelope, air infiltration, heating system efficiencies, cooling system efficiencies, duct sealing, water heating system efficiencies, lighting, and appliances~~.	POINTS
(1) ~~15~~ 10 percent	30
(2) ~~30~~ 20 percent	60
(3) ~~40~~ 30 percent	80
(4) ~~50~~ 40 percent	100

Reason:	This proposal updates the reference to the IECC in the performance path with the latest edition of the IECC and revises the percentage improvement required for various point levels. It also standardizes the method used for modeling energy cost by referencing the IECC performance path methodology (Section R405). This will simplify compliance verification by only requiring a single calculation for energy cost savings for the IECC and the NGBS. It will also apply a consistent baseline to both codes to ensure that the NGBS maintains pace with the IECC. The NGBS should not lag behind the national model energy code in its energy conservation requirements. While it is important to allow considerable flexibility in a voluntary, "above-code" program, great care must be taken to ensure that it remains above-code. This proposal does that by making the 2015 IECC performance path the new baseline. By updating the current reference to the 2009 IECC to the 2015 IECC, the NGBS will capture the second half of a roughly 30% improvement in the IECC since 2006, and will make the 2015 NGBS consistent by referencing the 2015 edition of the IECC. Although we would not oppose leaving the percentage improvements beyond code as they are in Section 702.2.2, we are proposing that the first level be reduced to a 10% improvement over the base code. This is generally consistent with the approach used in Section 605.1.1 of the 2012 IGCC, which requires the building thermal envelope to exceed the requirements of the IECC by 10%.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Based on action on TG5-02 to replace the levels with a formula.
TG Vote:	13-0-0

Proposal ID P159	LogID 5116	701.1.1 Minimum Performance Path requirements

Submitter:	Jawanda Jackson, Michigan State University
Requested Action:	Add new as follows
Proposed Change:	There are very few green building rating systems that require a monitoring process before certification is awarded. Monitoring tools are often expensive and require specific skill sets to analyze. I think that a credit that awarded a additional points and more importantly, a special seal of recognition in addition to certification could address the need for monitoring and reporting actual performance for energy and water usage. This option could be especially attractive to local governments as a condition for incentives or the maximum amount where varied levels are awarded. This would allow owners to monitor their energy and water usages as well.
Reason:	There is a need to ensure that green buildings are performing at the energy and water reduction levels that they have been designed or model.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Reporting of the monitoring results after the construction and compliance verification is outside of the scope of the Standard. Additionally, Section 705 already provides points for installation of monitoring equipment.
TG Vote:	11-0-2

Proposal ID P160	LogID 5299	701.1.1 Minimum Performance Path requirements
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	...exceed baseline performance of ICC 2012 IECC by 5%... Note: Prescriptive Path would need to be updated to align with 2012 IECC + 5% accordingly so that both paths have equal balance.	
Reason:	As 2012 IECC adoption continues across the country updating to 2012 IECC becomes important so NGBS 2015 remains an "above code" program. 2012 IECC does present challenges though for many constituents. The incremental cost of improvement above each successive code (2006 to 2009 to 2012) increase substantially also because of the diminishing return of upgrades as the baseline increases. Moving to 5% in lieu of 15% responds to this reality such that 2015 NGBS remains a viable option.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Intend to use different incremental levels and need specific values for the incremental increases and the preliminary determination has been made to set the Bronze at 2015 IECC.	
TG Vote:	11-0-2	

Proposal ID P161	LogID TG5-01	701.1.1 Minimum Performance Path requirements
Submitter:	Aaron Gary, US-EcoLogic	
Requested Action:	Revise as follows:	
Proposed Change:	**701.1.1 Minimum Performance Path requirements.** A building complying with Section 702 shall exceed the baseline minimum performance required by the ICC IECC 2015 ~~by 15 percent~~ and shall include a minimum of two practices from Section 704.	
Reason:	A green building is not defined only by energy efficiency but by many other metrics as well as demonstrated by Chapters 5,6,8,9 and 10 of the National Green Building Standard. Also, the 2015 IECC is an above the baseline energy code for most municipalities. Asking green buildings to exceed the 2015 IECC by an arbitrary percentage seems unnecessary and has the potential to be prohibitively expensive given the limited areas where the improvement can be captured with the heightened baseline. Complying with the 2015 IECC should qualify a project for Bronze certification. Additional points should be awarded for exceeding the 2015 IECC.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **701.1.1 Minimum Performance Path requirements.** A building complying with Section 702 shall meet or exceed the baseline minimum performance required by the ICC IECC 2015 ~~by 15 percent~~ and shall include a minimum of two practices from Section 704.	
TG Reason:		
TG Vote:	12-1-0	

Proposal ID P162	LogID 754	701.1.2 Minimum Prescriptive Path Requirements
Submitter:	Matthew Dobson, Vinyl Siding Institute	
Requested Action:		
Proposed Change:	703.1.2.2 (3) Exterior rigid insulati~~on~~ed sheathing or siding ...	
Reason:	Change for further clarity.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The change as worded may not meet coderequirements for some applications (ie drainage plane behind the insulatedsiding). Also the change is substantive, not just a clarification.	
TG Vote:	11-0-2	

Proposal ID P163	LogID 5216	701.1.3 Alternative bronze level compliance
Submitter:	Eric Lacey, RECA	
Requested Action:	Revise as follows	
Proposed Change:	**701.1.3 Alternative bronze level compliance.** As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Qualified Home or that meets all mandatory practices of Chapter 7 and demonstrates a 10% improvement over either ~~compliance with~~ the 2015 ~~2012~~ IECC or Chapter 11 of the ~~2012~~ 2015 IRC ~~is deemed to meet all mandatory practices of Chapter 7 and~~ achieves the bronze level for Chapter 7. The buildings achieving compliance under Section 701.1.3 are not eligible for achieving a rating level above bronze.	
Reason:	This proposal acknowledges that if the new baseline for ICC-700 is the 2015 IECC or IRC Chapter 11, the Alternative Bronze Level Compliance option must be updated to reflect a meaningful improvement over the base code. Because the 2012 and 2015 IECC are already more energy efficient than the 2009 IECC, we believe that a 10% improvement over the code would put ICC-700 on the “leading edge” of energy conservation, while still allowing considerable flexibility to code users. The proposal also applies the mandatory requirements of Chapter 7 to the alternative bronze compliance option to ensure that key requirements of ICC-700 still apply. The mandatory requirements were selected because they are fundamental measures and practices for all modern, efficient homes. Every home certified to ICC-700 should meet these basic requirements.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Based on action taken on TG5-02	
TG Vote:	14-0-0	

Proposal ID P164	LogID TG5-03	701.1.3 Alternative bronze level compliance
Submitter:	Aaron Gary, US-EcoLogic	
Requested Action:	Delete and substitute as follows:	
Proposed Change:	As an alternative, any building that ~~qualifies~~ demonstrates compliance with the provisions of ~~as an~~ ENERGY STAR Version 3.1 or ENEGY STAR Multifamily Highrise ~~3.0 Qualified Homes or demonstrates compliance with the 2012 IECC or Chapter 11 of the 2012 IRC~~ is deemed to meet all the mandatory practices of Chapter 7 and achieves the bronze level for Chapter 7. The buildings achieving compliance under Section 701.1.3 are not eligible for achieving a rating level above bronze.	
Reason:		
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **701.1.3 Alternative bronze and silver level compliance.**As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily Highrise building v1.0 Rev. 02 ~~demonstrates compliance~~ ~~with the 2012 IECC or Chapter 11 ofthe 2012 IRC~~ 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 Highrise building v1.0 Rev. 02 (with the baseline at ASHRAE 90.1-2010) ~~demonstrates compliance~~ achieves the silver level for Chapter 7. The buildings achieving compliance under Section 701.1.3 are not eligible for achieving a rating above ~~bronze~~ silver.	
TG Reason:	Update reference to most recent revision of ENERGY Star version 3.0. Add reference to most recent revision of ENERGY STAR version 3.1 and ENERGY STAR Multifamily Highrise program requirements.	
TG Vote:	12-0-0	

Proposal ID P165	LogID TG5-05	701.4 Mandatory practices
Submitter:	Craig Conner, Gary Klein,	
Requested Action:	Add new text as follows:	
Proposed Change:	Revise as follows: Update mandatory section for what is now required in 2015 IECC, including at least: air tightness testing, duct testing (when required), sealed air handler, lighting, and service hot water pipe insulation. Where levels were increased or new requirements were added, change points to reflect the new levels.	
Reason:	Several items that were optional or non-existent in 2009 IECC are required or sometimes required in 2015 IECC. Base levels for some requirements were changed, for example fraction of lighting that must be efficient and pipe insulation requirements	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This is addressed by other proposals.	
TG Vote:	11-0-0	

Proposal ID P166	LogID 5118	701.4 Mandatory practices
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	701.4.1.3 **HVAC System set up.** Performance ofthe heating and/or cooling system is verified by the HVAC contractor in accordancewith manufacturer's instructions including all of the following: (1) Start up procedure is performed in accordance withthe manufacturer's instructions (2) Refrigerant charge is verified by the super heatand/or sub cooling method (3) Burner is set to fire at input level listed onnameplate (4) Air handler setting/fan speed is set in accordancewith manufacturer's instructions	
Reason:	Recommend moving the following from 704.4.2 to mandatory practice	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Some items don't apply to all systems and there are other approved methods for system set-up, e.g. systems that come pre-charged and refrigerant charge can be weighed-in.	
TG Vote:	11-0-0	

Proposal ID P167	LogID 5119	701.4 Mandatory practices
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	701.4.1.4 **HVAC Controls.** Use controls that can start and stop the system under at least two different time schedules per week.	
Reason:	A programmable thermostat promotes more efficient use of heating and cooling equipment. It is a mandatory requirement in ASHRAE 90.1 and 2012 Residential Energy code for forced air systems	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Optimizing energy efficiency by the use of programmable thermostats varies from project to project and in some cases yields little to no benefit and in some cases could result in increased energy use and therefore should not be a mandatory requirement.	
TG Vote:	11-0-0	

Proposal ID P168	LogID 5084	701.4 Mandatory practices
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	701.4.1.X **HVAC systems installation, and documentation.** Space heating and cooling systems are to be installed documented in accordance with ACCA QI 5-2010	
Reason:	Other places in the document the same requirements are either awarded points or are mandatory.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The proposal does not provide sufficient specificity to indicate which parts of QI 5 apply to the NGBS.	
TG Vote:	10-2-2	

Proposal ID P169	LogID 5300	701.4 Mandatory practices
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	Add 701.4.2.4. Duct Leakage Entire HVAC duct system...is tested by a third party...and maximum leakage is equal to or less than 6% of design flow.	
Reason:	Many multifamily projects that follow NGBS certification are not currently required to do duct testing, if the are 4 stories or taller. Duct testing is not required by Commercial IECC (which these projects will follow) nor is it an input for ASHRAE 90.1 modeling (which is how Commercial projects should be modeled per the IECC). By having duct testing called out only in the Prescriptive Path only and not as a mandatory for all projects divergent certification requirements now become the rule within the protocol.	
TG Recommendation:	See below	
Modification of Proposed Change:	TG 5 - Approve as Modified *Revise standard as follows:* *Add new section* <u>704.5.2.x HVAC</u> <u>For projects where duct testing is not required under the 2015 IECC, one of the following is implemented:</u> (1) <u>A total leakage is in accordance with 2015 IECC R403.3.3 and R403.3.4. X points</u> (2) <u>A total leakage is in accordance with 2015 IECC R403.3.3 and R403.3.4, and testing is conducted by an independent third-party. X Points</u>	
TG Reason:	TG 5 - Approve as Modified Duct testing even where not required by code may save energy. Many multifamily projects that follow NGBS certification are not required to do duct testing by Code. Duct testing is not required by Commercial IECC (if they are 4 stories or taller). These projects should be rewarded for implementing above-code energy-efficient practices. This version applies to all projects where Duct Leakage testing is not Mandatory under the 2015 IECC for Commercial (Multifamily 3+ stories) or Residential (when they follow the Performance or ERI paths Notes: Aaron to come back with revised proposal moving this provision to voluntary additional points and applicable only to projects where not otherwise required by the 2015 IECC. --- TG 6 - Disapprove This proposal would interfere with the baseline energy provisions established by the IECC. The task group believes the NGBS should maintain the distinctions established by the IECC in the commercial and residential chapters.	
TG Vote:	TG 5 11-0-0 TG 6 6-1-1	

Proposal ID P170	LogID 5085	701.4.1.2 Radiant and hydronic space heating
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Add wording: 701.4.1.2 **Radiant and hydronic space heating.** Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed, installed, and documented, using industry-approved guidelines and standards (e.g.., ACCA Manual j, AHRI I=B=R, ACCA 5 QI-2010, or an accredited design professional's and manufacturer's recommendation.	
Reason:	Other places in the document the same requirements are either awarded points or are mandatory. Recommend awarding points based on verification since the QI 5 represents the HVAC industry's recognized minimum requirements.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	13-0-0	

Proposal ID P171	LogID 5086	701.4.2.2 Supply ducts
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	701.4.2.2 **Supply*and Return*** **Ducts.**Building cavities are not to be used as supply *and Return* Ducts.	
Reason:	This change is the only way that the return air path can be designed properly and the only way to meet duct insulation requirements for points in the duct insulation sections (it appears to be required in table 703.3.3 on page 58). Using pan joists and building cavities for return ducting is not a recommended practice where airflow control is desired for balancing an HVAC system. Additionally, Duct leakage can be measured and repaired but cavity space leakage has no remedy.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* 701.4.2.2~~**Supply** **Ducts.** Building cavities are not to be used as supply ducts.~~ **Ducts and Plenums.** Building framing cavities shall not be used as ducts or plenums.	
TG Reason:	To be consistent with requirements in 2015 IRC.	
TG Vote:	12-0-0	

Proposal ID P172	LogID TG5-06	701.4.3 Insulation and air sealing

Submitter:	R. Christopher Mathis, Mathis Consulting Company
Requested Action:	Revise as follows:

Proposed Change:

701.4.3 ~~Insulation and air sealing.~~Building Thermal Envelope

701.4.3.1 Building Thermal Envelope Air Sealing. 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:	**Mandatory**
(a) All joints, seams and penetrations.	
(b) Site-built windows, doors, and skylights.	
(c) Openings between window and door assemblies and their respective jambs and framing.	
(d) Utility penetrations.	
(e) Dropped ceilings or chases adjacent to the thermal envelope.	
(f) Knee walls.	
(g) Walls and ceilings separating a garage from conditioned spaces.	
(h) Behind tubs and showers on exterior walls.	
(i) Common walls between dwelling units.	
(j) Attic access openings.	
(k) Rim joist junction.	
(l) Other sources of infiltration.	

701.4.3.2 Air sealing verification~~and insulation.~~ ~~Grade 3 insulation installation is not permitted. The compliance of the b~~Building envelope air tightness ~~and insulation installationis~~ shall be verified ~~demonstrated~~ in accordance with Section 701.4.3.2(1) ~~or 701.4.3.2(2).~~	**Mandatory**
(1) Testing ~~option.~~ Building envelope tightness shall be tested and demonstrated to be less than 3 ~~and insulation installation is considered acceptable when air leakage is less than seven~~ air changes per hour (ACH) in climates zones 3 through 8 and less than 5 ACH in climate zones 1 and 2. Testing shall be conducted in accordance with ASTM E-779 using ~~when tested with~~ a blower door at a test pressure of 33.5 psf (50 Pa). Testing~~is~~ shall be conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing shall be ~~is~~ conducted under the following conditions:	
(a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;	
(b) Dampers are closed, but not sealed, including exhaust, intake, makeup air, backdraft and flue dampers;	
(c) Interior doors are open;	
(d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;	
(e) Heating and cooling systems are turned off;	
(f) HVAC duct terminations are not sealed; and	
(g) Supply and return registers are not sealed.	

(2) Visual inspection ~~option~~. ~~Building envelope tightness is~~ and insulation installation ~~are considered acceptable when the items listed in Table 701.4.3.2(2) applicable to the method of construction are~~ The following items shall be field verified via visual inspection.

Table 701.4.3.2(2)
Air Barrier ~~and Insulation~~ Inspection Component Criteria

COMPONENT	CRITERIA
Air barrier ~~and thermal barrier~~	~~· Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier.~~ · Breaks or joints in the air barrier are filled or repaired. · Air-permeable insulation is not used as a sealing material. · Air-permeable insulation is installed with an air barrier.
Ceiling/attic	· Air barrier in dropped ceiling/soffit is ~~substantially aligned with insulation~~ continuous and any gaps are sealed. · Attic access (except unvented attic), knee wall door, or drop-down stair is sealed.
Exterior walls	~~· Corners and headers are insulated.~~ · Junction of foundation and sill plate is air sealed.
Windows and doors	· Space between window/door jambs and framing is air sealed.
Rim joists	· Rim joists ~~are insulated and~~ include an air barrier.
Floors (including above-garage and cantilevered floors)	~~· Insulation is installed to maintain permanent contact with underside of subfloor decking.~~ · Air barrier is installed at any exposed edge of insulation.
Crawlspace walls	~~· Where installed, insulation is permanently attached to walls.~~ · Exposed earth in unvented crawlspaces is covered with Class I vapor retarder with overlapping joints taped.
Shafts, penetrations	· Duct shafts, flue shafts, and utility penetrations opening to the exterior or an unconditioned space are air sealed.
Narrow cavities	· ~~Batts in narrow cavities are cut to fit, or n~~Narrow cavities are air sealed or filled by spray foam ~~/blown~~ insulation.
Garage separation	· Air sealing is provided between the garage and conditioned spaces.
Recessed lighting	· Recessed light fixtures not installed in the conditioned space are air tight, IC rated, and sealed to drywall.
Plumbing and wiring penetrations	· Plumbing and wiring penetrations between conditioned and unconditioned space are air sealed. · Plumbing and wiring penetrations between conditioned space and the outside are air sealed.~~Insulation is placed between the outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.~~
Shower/tub adjacent to exterior wall	· Showers and tubs adjacent to exterior walls ~~have insulation and an air barrier separation~~ are air sealed from the exterior.
Electrical/phone box in exterior walls	· Air barrier extends behind boxes or air sealed-type boxes are installed.
Common wall	· Air barrier is installed in common walls between dwelling units.
HVAC register boots	· HVAC register boots that penetrate building envelope are airsealed to subfloor or drywall.
Fireplace	· Fireplace walls include an air barrier.

701.4.3.3 Insulation Installation. Grade 3 insulation installation is not permitted. The compliance of the building envelope insulation installation is demonstrated in accordance with Section 701.4.3.3(1). | **Mandatory**

(1) Insulation installation verification. Building envelope insulation installation is considered acceptable when the items listed in Table 701.4.3.3(1) applicable to the method of construction are field verified.

Table 701.4.3.2(2)
Insulation Inspection Verification Criteria

COMPONENT	CRITERIA
Exterior thermal envelope insulation	· Installed in substantial contact and continuous alignment with building envelope air barrier.
Ceiling/attic insulation	· Installed in accordance with manufacturers' recommendations to achieve the thickness, density, bag count and other metrics to assure U-factor/R-value compliance
Exterior walls	· Corners and headers are insulated.
Rim joists	· Rim joists are insulated.
Floors (including above-garage and cantilevered floors)	· Insulation is installed to maintain permanent contact with underside of subfloor decking. · Air barrier is installed at any exposed edge of insulation.
Crawlspace walls	· Where installed, insulation is permanently attached to walls.
Narrow cavities	· Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.
Garage separation	· Insulation is installed on/in all elements separating garages from conditioned space.
Plumbing and wiring	· Insulation is placed between the outside and pipes. · Batt insulation is cut to fit around wiring and plumbing · Sprayed/blown insulation extends behind piping and wiring.
Shower/tub adjacent to exterior wall	· Showers and tubs adjacent to exterior walls are fully insulated and air sealed from the exterior.

Renumber existing sections as applicable.

Reason: Enter reason (required)

- This proposal separates the requirements for air sealing from the requirements for insulation.
- This restructuring is consistent with a similar restructuring embraced in the 2015 IECC.
- This restructuring uses the same language already in ICC 700, but more clearly identifies those aspects associated with air sealing verification versus those associated with insulation installation requirements.
- This proposal embodies air leakage verification requirements included in the 2015 IECC.
- This proposal will make it easier for builders seeking to comply with ICC 700 by providing easy-to-use checklists for each of these separate building thermal envelope elements.

This proposal will make field verification easier (whether by HERS providers, code officials and other third-party verifiers).

TG Recommendation: Approved as Modified

Modification of Proposed Change:

Revise Standard as follows:

(Mandatory) 701.4.3.1 Building Thermal Envelope Air Sealing. 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:

No changes to items in list.

	(Mandatory) 701.4.3.2Air sealing and insulation. Grade 2 and 3 insulation installation is notpermitted. ~~The compliance of the b~~ Building envelope air tightness and insulationinstallation is verified to be ~~demonstrated~~ in accordance withSection 701.4.3.2(1) ~~or~~ and 701.4.3.2(2). **(1)Testing ~~option~~.** Building envelope tightness shall be tested. ~~and insulation installation is considered acceptable when air leakage is less than seven air changes per hour (ACH)~~. Testing shall be conducted in accordance with ASTM E-779 using ~~when tested with~~ a blower door at a test pressure of 33.5 psf (50 Pa). Testing ~~is~~ shall be conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical,ventilation, and combustion appliances. Testing shall be ~~is~~ conducted under the following conditions: No changes to items in list. **(2) Visual inspection ~~option~~.** ~~Building envelope tightness is and insulation installation are considered acceptable when the items listed in Table 701.4.3.2(2) applicable to the method of construction are~~ The following air barrier and insulation items shall be field verified by visual inspection. *Insert copy of 2015 IECC Table R402.4.1.1 Air Barrier and Insulation Installation and delete the current Table 701.4.3.2(2).* **701.4.3.3 Multiunit air leakage alternative.** Multiunit buildings in compliance with IECC section C402.5 (Air leakage-thermal envelope) shall be deemed to comply with Sections 701.4.3.1 and 701.4.3.2. **701.4.3.4 Multiunit air leakage testing.** Where air tightness testing is required for multiunit buildings, testing by dwelling units, groups of dwelling units, or the building as a whole shall be acceptable. Renumber remaining sections.
TG Reason:	Incorporated IECC Table R402.4.1.1 directly for consistency with the provisions of 2015 IECC. Added specific provisions for multiunit buildings. Allowed for added flexibility to trade air tightness and compliance for multiunit buildings.
TG Vote:	12-0-0

Proposal ID P173	**LogID 5302**	**701.4.3.2 Air sealing and insulation**
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Delete and substitute as follows	
Proposed Change:	Revise (1) Testing Option to align with IECC 2012 requirements with different targets for Residential (ACH)and Commercial, i.e. 4+ story multifamily, (CFM per square foot on enclosure). Delete (2) Visual Inspection Option.	
Reason:	(2) Visual Inspection is not allowed under IECC 2012 for Residential buildings but is allowed for Commercial. Requiring testing for both levels the playing field. IECC does have different targets for Residential and Commercial spaces however. Reflecting this makes sense.	
TG Recommendation:	See below	
Modification of Proposed Change:	TG 5 - Approve as Modified *Revise standard as follows:* **701.4.3.2 Air Sealing and Insulation.** Grade 2 and 3 insulation installation is not permitted. The compliance of the building envelope air tightness ~~and insulation installation~~ is demonstrated in accordance with the 2015 IECC Section R402.4.1, Section C402.5 or 2013 ASHRAE 90.1 Section 5.4.3 as applicable ~~Section 701.4.3.2(1) or 701.4.3.2(2)~~. Delete 701.4.3.2 items (1) and (2) in entirety.	
TG Reason:	TG 5 - Approve as Modified To make provisions of ICC 700 consistent with the 2015 IECC. --- TG 6 - Disapprove This proposal would interfere with the baseline energy provisions established by the IECC. The task group believes the NGBS should maintain the distinctions established by the IECC in the commercial and residential chapters.	
TG Vote:	TG 5 10-0-0 TG 6 5-0-0	

Proposal ID P174	LogID 5312	701.4.3.2 Air sealing and insulation
Submitter:	Craig Conner, Building Quality	
Requested Action:	Revise as follows	
Proposed Change:	701.4.3.2 Air sealing and insulation. Grade <u>2 and</u> 3 insulation is not permitted. 703.1.2.1 Grade 1 ~~and Grade 2~~ insulation installation~~s~~ is required in accordance with the following: ...[no changes to items 1 to 4] ~~703.1.2.2 Grade 1 installation is in accordance with the following:~~...[no changes to items 1 to 6 except renumbering] (7) Where properly installed ICFs, SIPs<u>, spray foam</u> and other wall systems that provide integral integral insulation are deemed in compliance with Grade 1 installation installation requirements. ~~(8)Grade 1 insulation meets or exceeds all requirements for Grade 2 insulation.~~ Delete without substation: ~~703.1.2.3~~	
Reason:	As a basic requirement, the NGBS should require insulation to be installed correctly. To my knowledge there are no insulation manufacturers that direct their insulation to be install as poorly as Grade 2 insulation. Therefore the NGBS should not allow it. As homes get progressively more energy efficient, the major flaws allowed by Grade 2 insulation significantly undercut the energy savings.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-3-3	

Proposal ID P175	LogID TG-07	701.4.3.2 Air sealing and insulation
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	(Mandatory) 701.4.3.2 Air sealing and insulation:Insulation Installation. Grade 3 insulation installation is not permitted. (Mandatory) 701.4.3.3 Air sealing and insulation:Verification. The compliance of the building envelope air tightness and insulation installation is demonstrated in accordance with Section 701.4.3.~~2~~3(1)or 701.4.3.~~2~~3(2). (1) Testing option. Building envelope tightness and insulation installation is considered acceptable when air leakage is ~~less~~ not more than ~~seven~~ five air changes per hour (ACH) in climate zones 1 and 2, and three air changes per hour (ACH) in climate zones 3 through 8,when tested with a blower door at a pressure of 33.5 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope,including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions: (a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed; (b) Dampers are closed, but not sealed,including exhaust, intake, makeup air, backdraft and flue dampers; (c) Interior doors are open; (d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed; (e) Heating and cooling systems are turned off; (f) HVAC duct terminations are not sealed;and (g) Supply and return registers are not sealed. (2) Visual inspection option. Building envelope tightness and insulation installation are considered acceptable when the items listed in Table 701.4.3.2(2) applicable to the method of construction are field verified.	
Reason:	Separate out the mandatory requirement to exclude Grade 3 installation from the testing/verification requirement to minimize confusion. Modify maximums to maintain consistency with the 2015 IECC	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	In favor of and consistent with TG actions on TG5-06, TG5-25, and TG5-55	
TG Vote:	12-0-0	

Proposal ID P176	LogID 5325	701.4.3.2 Air sealing and insulation.
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	(1) Testing option. Building envelope tightness and insulation installation is considered acceptable when air leakage is less than seven air changes per hour (ACH) when tested with a blower door at a pressure of ~~33.5~~ 1.04 psf (50 Pa). Testing is conducted after rough-in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation, and combustion appliances. Testing is conducted under the following conditions:	
Reason:	The value of 33.5 psf does not equate to 50 PA. If psf is to be used the value should be 1.04 psf for equivalence to 50 PA.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-2	

Proposal ID P177	LogID 5120	701.4.4 High-efficacy lighting
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	701.4.4 **High-efficacy lighting.** Achieve minimum lighting efficiencies through one of the following: (1) A minimum of 50 percent of the total hard-wired lighting fixtures or the bulbs in those fixtures qualify as high efficacy or equivalent (2) In-unit lighting power density, measured inwatts/square foot, is 1.1 or less	
Reason:	Provide a lighting power density alternative for mid-rise, multifamily construction	
TG Recommendation:	See below	
Modification of Proposed Change:	TG 5 - Approve as Modified *Revise standard as follows:* ~~**701.4.4 High-efficacy lighting**. A minimum of 50 percent of the total hard-wired lighting fixtures. or bulbs in those fixtures, qualify as high efficacy or equivalent.~~ 701.4.4 **High-efficacy lighting.** Achieve lighting efficacy through one of the following: (1) A minimum of 75 percent of the total hard-wired lighting fixtures or the bulbs in those fixtures qualify as high efficacy or equivalent (2) Lighting power density, measured in watts/square foot, is 1.1 or less.	
TG Reason:	TG 5 - Approve as Modified The TG agrees with the intent of the proposal in terms of providing a lighting density alternative and has modified the original proposal so that it is applicable to all construction types covered by the NGBS. Item (1) was also modified to be consistent with the 2015 IECC. Craig and Randy to follow-up on 1.1 value - to ensure the number is reasonable. --- TG 6 - Disapprove Reject in favor of task group-generated lighting proposal.	
TG Vote:	TG 5 10-0-1 TG 6 6-0-0	

Proposal ID P178	LogID TG5-08	701.4.4 High-efficacy lighting
Submitter:	Wayne Stoppelmoor, Schneider Electric	
Requested Action:	Revise as follows:	
Proposed Change:	701.4.4 High-efficacy lighting. ~~A minimum of 50 percent of the total~~ For interior lighting, all hard-wired lighting fixtures or the bulbs in those fixtures shall qualify as high efficacy or equivalent. **Exceptions:** 1. Low voltage: High efficacy lighting shall not be required when all of the following apply: a. The lamps operate at less than 25 volts. b. Low voltage fixtures are controlled separately from high efficacy lighting. c. The low voltage fixtures are controlled by a dimmer or *automatic* control device. 2. Line voltage: Up to 25 percent of the total number of line voltage fixtures shall be allowed to be exempted where all of the following apply: a. The non-*high efficacy lighting* is controlled separately from *high-efficacy lighting.* b. The non-*high efficacy lighting is* controlled bya dimmer or automatic control device.	
Reason:	1. Increases the overall requirement for high-efficiency luminaires from 50% to 100% with certain exceptions designed to save energy and provide maximum flexibility to designers, owners and code officials. 2. Changing the definitions from *high efficacy lamps* to *high efficiency fixtures* as determined by lamp efficacy. This means owners, designers, and building code officials would count luminaires (light fixtures) vs. counting light bulbs to determine the amount of high or low efficient lighting on a project. Fixtures often have multiple lamps, making counting more cumbersome for both the owner/designer as well as the code official. By counting fixtures, the code official simply has to identify lamp type, but doesn't have to count individual lamps within each fixtures. 3. Allows for an optional and more flexible energy savings approach for owners and designers by allowing up to 25%low efficiency fixtures as long as lighting controls are used to reduce or turnoff the low efficiency fixtures. 4. Clarifies the low voltage lighting exception currently in the code and adds stringency by requiring lighting controls as an energy savings approach for these light fixture types. The current code allows for the use of low voltage with no limits. They are lower in VOLTAGE not WATTAGE. Adding controls will increase the overall energy efficiency of these products.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Would be redundant of some provisions already included in sections 702 & 703	
TG Vote:	14-0-0	

Proposal ID P179	LogID TG5-09	701.4.4 High-efficacy lighting
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	701.4.4 High-efficacy lighting. A minimum of ~~50~~75% of the total interior and exterior hard-wired lighting fixtures, or the ~~bulb~~ lamps in those fixtures, qualify as high efficacy or equivalent. 701.4.4.1 Multifamily High-Efficacy lighting. For common spaces and outdoor lighting……..	
Reason:	Consistency with the 2015 IECC. Allowance made for special lighting requirements in MF buildings.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	14-0-0	

Proposal ID P180	LogID TG5-55	701.4.4 High-efficacy lighting
Submitter:	Craig Conner, Building Quality	
Requested Action:	Add new text as follows:	
Proposed Change:	*DELETE* ~~**701.4.4 High-efficacy lighting**~~*…in its entirety* *ADD New Section* **703.1 Mandatory practices.** **703.1.1 UA Compliance.** The building shall comply with one of the following. **703.1.1.1 Maximum UA**. For IECC residential, the total building UA shall be less than or equal to the total maximum UA as computed by 2015 IECC Section R402.1.5. For IECC commercial the total UA shall be less than or equal to the sum of the UA for tables C402.1.4 and C402.4, including the U-factor times the area and C-factor or F-factor times the perimeter. The total UA proposed and baseline calculations shall be documented. REScheck or COMcheck shall be deemed to provide UA calculation documentation. The SHGC shall be in accordance with the 2015 IECC requirements. **703.1.1.2Prescriptive R-values and Window U-values**. The building shall comply with the insulation and fenestration requirements of 2015 IECC Tables R402.1.1 or Tables C402.1.3 and C402.4. **Exception**: Section 703.1.1 shall not be required for the Tropical Zone. **703.1.2 Building Envelope Leakage.** The building thermal envelope shall comply with 2015 IECC R402.4.1.2 or C402.5 as applicable. **Exception**: Section 703.1.2 shall not be required for the Tropical Zone. **703.1.3 Duct Testing.** The duct system, shall comply with 2015 IECC R403.3.2 through R403.3.5 as applicable. **703.1.4 High-efficacy lighting. L**ighting is in accordance with one of the following: (1) A minimum of 75 percent of the total hard-wired lighting fixtures or the bulbs inthose fixtures qualify as high efficacy or equivalent (2) Lighting power density, measured in watts/square foot, is 1.1 or less.	
Reason:	This proposed change establishes the minimum mandatory items for the Prescriptive Path compliance. These requirements don't apply to Section 702 Performance Path and the newly proposed HERS index Path that address whole house performance.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-1	

Proposal ID P181	LogID TG5-18	702 Performance Path

Submitter:	Neil Leslie, Gas Technology Institute
Requested Action:	Amend LogID 5272 by substituting the proposed chan
Proposed Change:	**702.3 Annual direct and indirect CO2e emissions.** CO2e emissions calculations shall be performed in accordance with Sections 702.3.1 and 702.3.2. The CO2e emissions associated with the proposed design shall be less than or equal to the CO2e emissions associated with the standard reference design. **702.3.1 Electricity.** Emissions associated with use of electricity shall be calculated byconverting the electricity used by the building at the electric utility meteror measured point of delivery to MWHs and multiplying by the CO2*e* conversionfactor in Table 702.3.1. **702.3.2Other Fuels.** Emissions associated with the use of fuelsother than electricity shall be calculated by the converting the fuel energyused by the building and its site at the utility meter or point of delivery tothe site to MWh and multiplying by the emission factors in Table 702.3.1. **TABLE 702.3.1 CO_2eEMISSION FACTORS**

***Building Project* Energy Source**	**CO2e lb/kWh (kg/kWh)**
Grid delivered electricity and other fuels not specified in this table	1.387 (0.630)
LPG or propane	0.600 (0.272)
Fuel Oil (residual)	0.751 (0.341)
Fuel Oil (distillate)	0.706 (0.320)
Coal	0.836 (0.379)
Gasoline	0.689 (0.313)
Natural Gas	0.483 (0.219)
District Chilled Water	0.332 (0.151)
District Steam	0.812 (0.368)
District Hot Water	0.767 (0.348)

Reason:	To provide Task Group 5 the opportunity to consider the single national values in the 2014 version of ASHRAE Standard 189.1, a compliance option for the IgCC.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Consistent IECC and previous versions of NGBS. (Same as actions on TG-09 &14)
TG Vote:	8-1-2

Proposal ID P182	LogID TG5-19	702 Performance Path

Submitter: Neil Leslie, Gas Technology Institute

Requested Action: Amend LogID 5272 by substituting the proposed chan

Proposed Change:

TABLE702.3.1 ELECTRICITY EMISSION RATE BY EPA eGRID SUB-REGION

eGRID Sub-region Acronym	eGRID Sub-region Name	CO_2e Rate (kg/kWh)
AKGD	ASCC Alaska Grid	0.685
AKMS	ASCC Miscellaneous	0.265
ERCT	ERCOT All	0.698
FRCC	FRCC All	0.617
HIMS	HICC Miscellaneous	0.722
HIOA	HICC Oahu	0.825
MROE	MRO East	0.909
MROW	MRO West	0.964
NYLI	NPCC Long Island	0.698
NEWE	NPCC New England	0.428
NYCW	NPCC NYC/Westchester	0.391
NYUP	NPCC Upstate NY	0.369
RFCE	RFC East	0.543
RFCM	RFC Michigan	0.874
RFCW	RFC West	0.820
SRMW	SERC Midwest	0.960
SRMV	SERC Mississippi Valley	0.572
SRSO	SERC South	0.780
SRTV	SERC Tennessee Valley	0.818
SRVC	SERC Virginia/Carolina	0.581
SPNO	SPP North	0.972
SPSO	SPP South	0.873
CAMX	WECC California	0.370
NWPP	WECC Northwest	0.453
RMPA	WECC Rockies	1.149
AZNM	WECC Southwest	0.671

Reason: Based on Task Group 5 feedback in May 2014,these tables contain the values approved by the IgCC hearing committee for inclusion in the 2015 version of the code. TG 5 members preferred factors that are consistent with the IgCC.

TG Recommendation: Disapprove

Modification of Proposed Change:

TG Reason: In addition, addition of CO2 requirements adds a new metric that may produce different results

TG Vote: 9-1-1

Proposal ID P183	LogID TG5-12	702 Performance Path

Submitter: R. Christopher Mathis, Mathis Consulting Company

Requested Action: Add new text as follows:

Proposed Change:

702.2 Minimum Assembly Performance. Fenestration and opaque building thermal envelope assembly U-factors shall be less than or equal to the U-factors provided in Table 702.2(a)	**Mandatory**

Table ~~703.1.1(a)~~ 702.2(a)
~~Equivalent U-Factors~~Minimum U-Factor Equivalents for Performance Compliance[a]

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor[b]	Floor U-Factor	Basement Wall U-Factor	Crawlspace Wall U-Factor[c]
1	1.20	0.75	0.035	0.082	0.197	0.064	0.360	0.477
2	0.65	0.75	0.035	0.082	0.165	0.064	0.360	0.477
3	0.50	0.65	0.035	0.082	0.141	0.047	0.091[c]	0.136
4 except Marine	0.35	0.60	0.030	0.082	0.141	0.047	0.059	0.065
5 and Marine 4	0.35	0.60	0.030	0.057	0.082	0.033	0.059	0.065
6	0.35	0.60	0.026	0.057	0.060	0.033	0.050	0.065
7 and 8	0.35	0.60	0.026	0.057	0.057	0.028	0.050	0.065

a. Non-fenestrationU-factors shall be obtained from measurement, calculation, or an approvedsource.

b. Wheremore than half the insulation is on the interior, the mass wall U-factors is amaximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4except in Marine, and the same as the frame wall U-factor in Marine Zone 4 andZone 5 through 8.

c. Basementwall U-factor of 0.360 in warm-humid locations.

Renumber existing sections as applicable.

Reason:

- The National Green Building Standard is an above code program that is intended to encourage innovation and provide flexibility in meeting performance objectives.
- Consistent with a similar approach in the 2015 IECC, the prescriptive values from the 2009 IECC are provided as a protective backstop against gaming any performance-based compliance mechanisms.
- In keeping with the industry's emphasis on durable, cost-effective efficiency, this standard needs to ensure that short-term compliance solutions are not at the expenses of durable, long-term energy performance.
- The 2009 IECC prescriptive values are already included in the 2012 version of ICC 700 prescriptive compliance path. This proposal moves those 2009 values into section 702 to serves as protection against unintended consequences when utilizing the performance path.

This proposal is consistent with the performance compliance approach employed in the 2015 IECC.

TG Recommendation: Disapprove

Modification of Proposed Change:

TG Reason: Limits flexibility and options under the performance path.

TG Vote: 11-0-0

Proposal ID P184	LogID 5272	702.1 Point allocation (Performance Path)

Submitter: Neil Leslie, Gas Technology Institute

Requested Action: Add new as follows

Proposed Change:

702.3 Annual direct and indirect CO_2e emissions. CO_2e emissions calculations shall be performed in accordance with Sections 702.3.1 and 702.3.2. The CO_2e emissions associated with the proposed design shall be less than or equal to the CO_2e emissions associated with the standard reference design.

702.3.1 Electricity. Emissions associated with use of electricity shall be calculated by converting the electricity used by the building at the electric utility meter or measured point of delivery to MWHs and multiplying by the CO_2e conversion factor in Table 702.3.1 based on the EPA eGRID Sub-region in which the building is located.

702.3.2 Other Fuels. Emissions associated with the use of fuels other than electricity shall be calculated by the converting the fuel energy used by the building and its site at the utility meter or point of delivery to the site to MWh and multiplying by the emission factors in Table 702.3.2.

TABLE 702.3.1 ELECTRICITY EMISSION RATE BY EPA eGRID SUB-REGION

eGRID 2012 SUB-REGION ACRONYM	eGRID 2012 SUB-REGION NAME	NON-BASELOAD CO_2e RATE (lbs/MWh)
AKGD	ASCC Alaska Grid	1647
AKMS	ASCC Miscellaneous	1826
ERCT	ERCOT All	1449
FRCC	FRCC All	1579
HIMS	HICC Miscellaneous	2046
HIOA	HICC Oahu	2046
MORE	MRO East	2135
MROW	MRO West	2432
NYLI	NPCC Long Island	1678
NEWE	NPCC New England	1402
NYCW	NPCC NYC/Westchester	1408
NYUP	NPCC Upstate NY	1584
RFCE	RFC East	1874
RFCM	RFC Michigan	2084
RFCW	RFC West	2243
SRMW	SERC Midwest	2463
SRMV	SERC Mississippi Valley	1504
SRSO	SERC South	1864
SRTV	SERC Tennessee Valley	2160
SRVC	SERC Virginia/Carolina	1923
SPNO	SPP North	2451
SPSO	SPP South	1818
CAMX	WECC California	1294
NWPP	WECC Northwest	1698
RMPA	WECC Rockies	2088
AZNM	WECC Southwest	1473
None	Not Included	1826

TABLE 702.3.2 OTHER FUELS EMISSION RATE

Fuel	CO2e lb/MWh
Propane	600
Fuel Oil (residual)	751

	<table><tr><td>Fuel Oil (distillate)</td><td>706</td></tr><tr><td>Coal</td><td>836</td></tr><tr><td>Gasoline</td><td>689</td></tr><tr><td>Natural Gas</td><td>483</td></tr><tr><td>Wood and Wood Waste</td><td>64</td></tr><tr><td>Agricultural Biomass</td><td>64</td></tr><tr><td>District Chilled Water</td><td>332</td></tr><tr><td>District Steam</td><td>812</td></tr><tr><td>District Hot Water</td><td>767</td></tr><tr><td>Other fuels not specified in this table</td><td>1826</td></tr></table>
Reason:	This proposal aligns with the IgCC CO2e compliance requirement. In the 2012 edition of the IgCC primary energy and CO2 equivalents were the metrics chosen to measure building compliance in the performance pathway to ensure that design choices do not inadvertently increase the building's impact on greenhouse gas emissions. CO2e emissions can be based on regional values (here EPA's eGrid for electricity) or national averages for the conversion of all fuel types to a common measurement unit. While there are advantages and disadvantages to each method, the regional method for electricity is more appropriate for this code because it better represents the actual CO2e emissions associated with electricity consumption of the building being constructed in the place where it is constructed. CO2e emissions can be represented based on the average regional generation profile or a non-baseload profile. The non-baseload conversion factors used here better reflect the actual generation impacts avoided by site energy savings proposed in the performance compliance option. ASHRAE Standard 105-2014 uses the regional non-baseload model for electricity because the non-baseload factors reflect the actual displaced generation fuel mix and associated emissions. The baseload and peak (non-baseload) generation fuel profiles will be different for most regions – more natural gas during peak, for example – and the impacts of a reduction in the building energy use will affect that non-baseload generation. For other fuels, Standard 105-2014 uses a national average value that fairly represents the emissions associated with consumption of those fuels in the building. Values for proposed Table 703.1 are from the following peer-reviewed ASHRAE paper published in January 2014: Leslie, N. and Marek Czachorski. 2014. Options for Determining Marginal Primary Energy and Greenhouse Gas Emission Factors (NY-14-C057). ASHRAE Transactions, Vol. 120, pt. 1. Atlanta: American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc. Values for Table 7.3.2 are derived from ASHRAE Standard 189.1-2011 addendum an, with wood and biomass values from the wood industry assuming wood and biomass are considered renewable energy forms. The value for other fuels is the same as the "not included in eGRID" electricity factor in Table 702.3.1 to align with this proposal non-baseload methodology as well as the Standard 189.1 methodology.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	For the same reason as TG5-18.
TG Vote:	9-1-1

Proposal ID P185	LogID TG5-11	702.2 Energy cost performance analysis
Submitter:	Craig Conner, Building Quality	
Requested Action:	Add new text as follows:	
Proposed Change:	Modify as follows: **702.2 Energy cost performance ~~levels~~ analysis.** *A building with a projected energy cost savings based on a performance analysis shall receive 1 point per each 0.5% energy cost savings.* The performance calculation shall include the impact of HVAC equipment efficiency, air sealing, duct sealing, water heating, appliances, and lighting. **~~702.2.1 ICC IECC analysis.~~** ~~Energy efficiency features are implemented to achieve energy cost performance that meets the ICC IECC.~~ A documented analysis using software or procedures in accordance with the ICC IECC Section 405, or ICC IECC Section 506.2 through 506.5 applied as defined in the IECC is required. **~~702.2.2 Energy Cost performance analysis~~** (Delete Section) Either in this section or in the commentary put: The savings shall be defined as IECC energy = IECC (heating + cooling + service water heating) Base other energy = Base (lighting and appliances) Proposed energy (heating + cooling + service water heating + lighting + appliances) Savings = ((IECC energy + Base other energy)-Proposed energy) / IECC energy	
Reason:	This is intended to allow multiple programs and different calculations of energy performance based on energy cost as specified by the NGBS and the IECC. It would not allow a HERS score (specifically prohibited in the NGBS commentary), but would allow easy use of say a REMrate output . For example see the page titled "2006 Annual Energy Cost Compliance" IECC energy = Heating + Cooling + Water Heating + Lights and Appliances As Designed energy = Heating + Cooling + Water Heating +Lights and Appliances – PV It is very important not to restrict the NGBS to one proprietary source (RESNET) but allow any organization or program which does the energy cost calculation to use this section, provided they do the energy cost calculation specified by the IECC and the NGBS.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **702.2 Energy cost performance ~~levels~~ analysis.** *A building with a projected energy cost savings basedon a performance analysis shall receive 1 point per each 0.5% energy costsavings.* The performance calculation shall include the impactof HVAC equipment efficiency, air sealing, duct sealing, water heating,appliances, ~~and~~ lighting and miscellaneous. Points are assigned using the following formula: Points = 30 + (percent improvement ICC IECC 2015) * 2. **~~702.2.1 ICC IECC analysis.~~** ~~Energy efficiency features are implemented to achieve energycost performance that meets the ICC IECC.~~ A documented analysis using software or procedures in accordance with the ICC IECC Section 405, or ICC IECC Section 506.2 through 506.5 applied as defined in the IECC is required. **~~702.2.2 Energy Cost performance analysis~~** (Delete Section) ~~Either in this section or in the commentary put:~~ The savings shall be ~~defined~~ computed as IECC energy = IECC (heating + cooling + service water heating) Base other energy = Base (lighting ~~and~~ + appliances + miscellaneous) Proposed energy (heating + cooling + service water heating +lighting + appliances + miscellaneous) Savings = ((IECCenergy + Base other energy) - Proposed energy) / IECC energy	
TG Reason:	Staff Note: Add a reason at the November meeting.	
TG Vote:	11-0-0	

Proposal ID P186	LogID TG5-13	702.2 Energy cost performance levels
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	**702.2 Energy cost performance levels**. **702.2.1 ICC IECC analysis.** Energy efficiency features are implemented to achieve energy cost performance that meets the IECC. A documented analysis using software in accordance with IECC, Section R401 or R407-405, or IECC Section 506.2 through 506. applied as defined in the IECC, is required. **702.2.2 Energy cost performance analysis**. 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. modeling is completed building-wide through either whole building energy modeling or a building average of a unit-by-unit approach. For each percentage of energy savings over 15%, 2 points are awarded. The thresholds for each certification level are as follows. (1) Bronze: 15 5 percent (2) Silver: 30 10 percent (3) Gold: 40 15 percent (4) Emerald: 50 20 percent	
Reason:	Clarification on energy modeling from the TG conference call w/ MF group. Add allowance for continuous points (allow extra points in the energy section). Update the percentages considering more stringent baseline of the 2015 IECC. .	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **702.2 Energy cost performance levels.** **702.2.1 ICC IECC analysis**. Energy efficiency features are implemented to achieve energy cost performance that meets the IECC. A documented analysis using software in accordance with IECC, Section ~~R401 or R407~~ ~~405, or IECC Section 506.2 through 506.~~ 405, or IECC Section 506.2 through 506.5, applied as defined in the IECC, is required. **702.2.2 Energy cost performance analysis**. 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. For multi-unit buildings, modeling is completed building-wide through either whole building energy modeling, a unit-by-unit approach, or a building average of a unit-by-unit approach. ~~For each percentage of energy savings over 15%, 2 points are awarded. The thresholds for each certification level are as follows.~~ ~~(1) Bronze: 15 5 percent~~ ~~(2) Silver: 30 10 percent~~ ~~(3) Gold: 40 15 percent~~ ~~(4) Emerald: 50 20 percent~~	
TG Reason:	The intent of the proposal is to provide for multi-family. The other proposed revisions are not necessary based on action on other TG proposals.	
TG Vote:	13-0-0	

Proposal ID P187	LogID TG5-10	702.2 Energy cost performance levels

Submitter: Neil Leslie, Gas Technology Institute

Requested Action: Ammend LogID 5271 by substituting the proposed cha

Proposed Change:

702.2 Energy cost performance levels

702.2.1 ICC IECC analysis. Energy efficiency features are implemented to achieve energy cost or source energy performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC, Section R405~~, or ICC IECC Section 506.2 through 506.5,~~ applied as defined in the ICC IECC, is required. Source energy conversion factors for electricity shall be in accordance with Table 7.2.1. Source energy conversion factors for other fuels shall be in accordance with Table 7.2.2.

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

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

eGRID Sub-region Acronym	eGRID Sub-region Name	Energy Conversion Factor
AKGD	ASCC Alaska Grid	3.15
AKMS	ASCC Miscellaneous	1.90
ERCT	ERCOT All	3.08
FRCC	FRCC All	3.26
HIMS	HICC Miscellaneous	3.67
HIOA	HICC Oahu	3.14
MROE	MRO East	3.50
MROW	MRO West	3.64
NYLI	NPCC Long Island	3.47
NEWE	NPCC New England	3.03
NYCW	NPCC NYC/Westchester	3.21
NYUP	NPCC Upstate NY	2.66
RFCE	RFC East	3.28
RFCM	RFC Michigan	3.35
RFCW	RFC West	3.29
SRMW	SERC Midwest	3.40
SRMV	SERC Mississippi Valley	3.20
SRSO	SERC South	3.20
SRTV	SERC Tennessee Valley	3.30
SRVC	SERC Virginia/Carolina	3.24
SPNO	SPP North	3.57
SPSO	SPP South	3.26
CAMX	WECC California	2.89
NWPP	WECC Northwest	2.32
RMPA	WECC Rockies	3.82
AZNM	WECC Southwest	3.10

TABLE 7.2.2 OTHER FUEL ENERGY CONVERSION FACTORS

Fuel Type	Energy Conversion Factor
Natural Gas	1.09
Fuel Oil	1.19
LPG	1.15
Purchased Hot Water	1.35
Purchased Steam	1.45
Other	1.1

Reason: Based on Task Group 5 feedback in May 2014,these tables contain the values approved by the IgCC hearing committee for inclusion in the 2015 version of the code. TG 5 members preferred factors that are consistent with the IgCC.

TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Important to stay consistent with the specific provisions of the IECC and with previous editions of the NGBS
TG Vote:	6-4-2

Proposal ID P188	**LogID TG5-17**	**702.2 Performance Path**
Submitter:	Howard Wiig, Craig Conner,	
Requested Action:	Add new text as follows:	
Proposed Change:	702.2.3 Tropical standard reference design: For the Tropical Climate Zone the standard reference design shall use the specifications in IECC Section R401.2.1 (Tropical Zone).	
Reason:	For the tropical zone the Standard Reference Designis modified to be consistent with IECC R401.2.1 (traditional tropical home withmodern equipment). The IECCperformance calculation is not appropriate for Hawaii or tropical climates ingeneral. Mainland homes usually want toset up a thermal barrier between the inside and outside. Tropical homes, often want to invite theoutside in, to eliminate the need for conditioned rather than condition, beintentially leaky. and can define part of their home such that it is moreoutside than inside. Think small home witha big covered porch. This tropical base-case home (standard reference design) includes many elements of traditional design. It focuses on the efficiency items that work in the tropics. Solar water heating is very effective. It uses outdoor living space as a part of the home, either as an enclosed but not conditioned space. Or a “lanai” essentially a furnished porch which probably covered but probably does not have walls. Lacking walls, the lanaiis not cooled except by shading and the like. Living partly outside is not a burden, rather it is a preference for many. The tropical base case eliminates efficiency items that are not particularly valuable where the indoor and outdoor temperatures can be very close, for example it eliminates most of the insulation. The tropical design is not concerned about air tightness, but rather about the ability of the home to invite the tropical air and prevailing winds indoors. One can still build a mainland style home. It will probably cost more. A number of efficiency features will need to be added to reduce its energy consumption to the level of the tropical base case home. Of course the NGBS will require further energy reductions beyond this tropical case home to get to a bronze, silver, gold or emerald level. Analysis(to be forwarded) shows the simple traditional tropical design home with modernequipment saves more energy than the more expensive IECC standard referencedesign home.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	10-0-0	

Proposal ID P189	LogID TG5-14	702.2.1 ICC IECC analysis
Submitter:	Neil Leslie, Gas Technology Institute	
Requested Action:	Amend LogID 5271 by extracting from it the propos	
Proposed Change:	702.2.1 ICC IECC analysis. Energy efficiency features are implemented to achieve energy cost performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC, Section R405~~, or ICC IECC Section 506.2 through 506.5,~~ applied as defined in the ICC IECC, is required. For heating systems, the standard reference design shall be an air source heat pump. For service water heating, the standard reference design shall be an electric resistance storage water heater.For cooling systems, the standard reference design shall be an air cooled split system air conditioner.	
Reason:	This proposed change splits the single baseline methodology provisions in 5271 from the conversion factor tables to permit separate consideration of each proposed change. Based on concerns expressed during the May meeting that an all-electric baseline is more equitable, this proposal provides a reasonable level of minimum performance for a green residential building based on a single energy cost budget, while retaining a consistent methodology with IgCC and ASHRAE Standard 189.1 based on ASHRAE Standard 90.1-2013 Appendix G.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Consistent with actions on TG5-010 and 5271	
TG Vote:	10-0-0	

Proposal ID P190	LogID TG5-15	702.2.1 ICC IECC analysis
Submitter:	Neil Leslie, Gas Technology Institute	
Requested Action:	Amend LogID 5271 by extracting from it the propose	
Proposed Change:	**702.2.1 ICC IECC analysis.** Energy efficiency features are implemented to achieve energy cost performance that meets the ICCIECC. A documented analysis using software in accordance with ICC IECC, Section R405~~, or ICC IECC Section 506.2 through 506.5,~~ applied as defined in the ICC IECC, is required. For heating systems, the standard reference design shall be a gas furnace. For service water heating, the standard reference design shall be a gas storage water heater. For cooling systems, the standard reference design shall be an air cooled split system air conditioner.	
Reason:	This proposed change splits the single baseline methodology provisions in 5271 from the conversion factor tables to permit separate consideration of each proposed change. Based on concerns expressed during the May meeting that an all-electric baseline is not stringent enough compared to the single baselines in the IgCC and ASHRAE Standard 189.1, this proposal provides an efficient level of minimum performance for a green residential building based on a single energy cost budget, and is completely consistent with the stringency and methodology in IgCC and ASHRAE Standard 189.1 based on ASHRAE Standard 90.1-2013 Appendix G.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	For the same reasons as disapproval of TG5-09	
TG Vote:	7-3-1	

Proposal ID P191	LogID TG5-16	702.2.1 ICC IECC analysis
Submitter:	Aaron Gary, US-EcoLogic	
Requested Action:	Add new text as follows:	
Proposed Change:	For MULTIFAMILY PROJECTS, the standard reference design shall for heating systems will be Electric Resistance. The standard reference design for cooling systems shall be a packaged terminal air conditioner.	
Reason:	Includes fuel-agnostic single source mechanical baselines for maximum consumer choice and equitable comparison across all climate zones. There is no available actual energy use data for multifamily projects that supports the use of heat pumps for interior units (1 to 3 unconditioned boundary conditions compared to a single family house which has 6+ unconditioned boundary conditions). The higher up-front cost associated with heat pumps (versus electric resistance heat) cannot be translated to a discernible ROI that makes business sense given the decreased heating load required by multifamily units. Similarly the energy modeling software available on the market does not adequately address this issue in relation to multifamilyunits.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Significant degradation in what the IECC provides for now. Applying an electric criteria to a gas device may. Would create a baseline different than theIECC	
TG Vote:	11-2-1	

Proposal ID P192	LogID 5271	702.2.1 ICC IECC analysis
Submitter:	Neil Leslie, Gas Technology Institute	
Requested Action:	Revise as follows	
Proposed Change:	702.2 Energy ~~cost~~ performance levels 702.2.1 ICC IECC analysis. Energy efficiency features are implemented to achieve energy cost or source energy performance that meets the ICC IECC. A documented analysis using software in accordance with ICC IECC~~,~~ Section R405, ~~or ICC IECC Section 506.2 through 506.5,~~ applied as defined in the ICC IECC, is required. For heating systems, the standard reference design shall be an air source heat pump. For service water heating, the standard reference design shall be and electric resistance storage water heater. For cooling systems, the standard reference design shall be an air cooled split system air conditioner. Source energy conversion factors for electricity shall be in accordance with Table 7.2.1. Source energy conversion factors for other fuels shall be in accordance with Table 7.2.2. 702.2.2 Energy ~~cost~~ performance analysis. Energy ~~cost~~ savings levels above the ICC IECC are determined through an analysis that includes improvements in building envelope, air infiltration, heating system ~~efficiencies~~, cooling system ~~efficiencies~~, duct sealing, water heating system ~~efficiencies~~, lighting, and appliances. **7.2.1 ELECTRICITY GENERATION ENERGY CONVERSION FACTORS BY EPA eGRID SUB-REGION**	

eGRID 2012 SUB-REGION ACRONYM	eGRID 2012 SUB-REGION NAME	NON-BASELOAD ENERGY CONVERSION FACTOR
AKGD	ASCC Alaska Grid	3.41
AKMS	ASCC Miscellaneous	3.27
ERCT	ERCOT All	2.89
FRCC	FRCC All	2.99
HIMS	HICC Miscellaneous	3.61
HIOA	HICC Oahu	3.53
MORE	MRO East	3.21

MROW	MRO West	3.63
NYLI	NPCC Long Island	3.57
NEWE	NPCC New England	2.80
NYCW	NPCC NYC/Westchester	3.10
NYUP	NPCC Upstate NY	2.82
RFCE	RFC East	3.11
RFCM	RFC Michigan	3.18
RFCW	RFC West	3.26
SRMW	SERC Midwest	3.46
SRMV	SERC Mississippi Valley	3.15
SRSO	SERC South	3.05
SRTV	SERC Tennessee Valley	3.23
SRVC	SERC Virginia/Carolina	3.14
SPNO	SPP North	3.69
SPSO	SPP South	3.31
CAMX	WECC California	2.99
NWPP	WECC Northwest	3.05
RMPA	WECC Rockies	3.41
AZNM	WECC Southwest	2.89
None	Not Included	3.15

TABLE 7.2.2 OTHER FUEL ENERGY CONVERSION FACTORS

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

Reason:	Aligns with performance path provisions of IgCC and IECC. Includes fuel-agnostic single mechanical system baselines for maximum consumer choice and equitable societal benefits. Source energy can be based on regional values (here EPA's eGrid) or national averages for the conversion of all fuel types to a common measurement unit. While there are advantages and disadvantages to each method as noted in ASHRAE Standard 105-2014 "Standard Methods of Determining, Expressing and Comparing Building Energy Performance and Greenhouse Gas Emissions", the regional method is more appropriate for this code because it better represents the actual primary energy use of the building being constructed in the place where it is constructed. Similarly, primary energy savings can be represented based on the average regional generation profile or a non-baseload profile. The non-baseload conversion factors used here better reflect the actual generation impacts avoided by site energy savings in the performance compliance option. ASHRAE Standard 105-2014 is using the regional non-baseload model because the non-baseload factors reflect the actual displaced generation fuel mix. The baseload and peak generation fuel profiles will be different for most regions –more natural gas during peak, for example – and the impacts of a reduction in the building energy use will affect that non-baseload generation. Values for Table 7.2.1 are from the following peer-reviewed ASHRAE paper published in January 2014. Leslie, N. and Marek Czachorski. 2014. Options for Determining Marginal Primary Energy and Greenhouse Gas Emission Factors (NY-14-C057). ASHRAE Transactions, Vol. 120, pt. 1. Atlanta: American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Consistent with actions on TG5-09 & TG5-14
TG Vote:	9-1-1

Proposal ID P193	LogID 5247	702.2.1 ICC IECC analysis
Submitter:	Jeremy Velasquez, US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	Provide explicit clarification for approved modeling softwares and methods for energy modeling (to address different building types and scenarios) 1. 3 stories and below is REM RATE. 2. 4 Story+ is ASHRAE 90.1 - 2007 (CARRIER HAP) Are there situations other than alternative bronze that we can use REM RATE for 4 or 5 story buildings?	
Reason:	Right now the protocol references code for modeling, but this leads to confusion and may not lead to correct and appropriate energy modeling. 1. For example - We understand that REM RATE models are appropriate for LOW-RISE, but sometimes we have 4-5 story projects that would typically require an ASHRAE 90.1-2007 model - based on our interpretation of commercial code, but RESNET, ENERGYSTAR and other entities allow REM RATE modeling for up to 5 stories.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The Standard should not require specific software packages. A list of software packages that meet the intent of the Standard can be provided in the commentary.	
TG Vote:	11-0-2	

Proposal ID P194	LogID 5301	702.2.2 Energy cost performance analysis
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	Add clarification through protocol or VRG that reflects modeling requirements of Commercial IECC.	
Reason:	Though modeling per IECC 506 is mentioned all Comments and Notes currently are written to reflect 405 modeling requirements. 4+ stories multifamily projects should be modeled using ASHRAE 90.1 per IECC 506 and include all building spaces, not residential space only. NGBS 2015 protocol should reflect this such that multifamily projects can flow more easily through certification.	
TG Recommendation:	Withdrawn	
Modification of Proposed Change:		
TG Reason:	TG 6 Based on discussion between the multifamily andenergy task groups, we defer to the energy group’s proposals regardingmultifamily energy modeling requirements.	
TG Vote:		

Proposal ID P195	LogID TG5-02	702.2.2 Energy cost performance analysis
Submitter:	Aaron Gary, US-EcoLogic	
Requested Action:	Revise as follows:	
Proposed Change:	**702.2.2 Energy cost performance analysis.** Energy cost savings levels above the ICC IECC are determined through an analysis that includes improvements in building envelope, air infiltration, heating system efficiencies, cooling system efficiencies, duct sealing, water heating system efficiencies, lighting, and appliances. Pointsare assigned for every 1% better than the ICC IECC2015 using the formula: Points = 30 + (percent above ICC IECC 2015) * 3. ~~(1) 15 percent~~ ~~(2) 30 percent~~ ~~(3) 40 percent~~ ~~(4) 50 percent~~	
Reason:	A green building is not defined only by energy efficiency but by many other metrics as well as demonstrated by Chapters 5,6,8,9 and 10 of the National Green Building Standard. Also,the 2015 IECC is an above the baseline energy code for most municipalities. Asking green buildings to exceed the 2015 IECC by an arbitrary percentage seems unnecessary and has the potential to be prohibitively expensive given the limited areas where the improvement can be captured with the heightened baseline. Complying with the 2015 IECC should qualify a project for Bronze certification. Additional points should be awarded for exceeding the 2015 IECC	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **702.2.2 Energy costperformance analysis.** Energy costsavings levels above the ICC IECC are determined through an analysis thatincludes improvements in building envelope, air infiltration, heating systemefficiencies, cooling system efficiencies, duct sealing, water heating systemefficiencies, lighting, and appliances. Pointsare assigned ~~for every 1% better than the ICC IECC2015~~ using the following formula: Points = 30 + (percent above ICC IECC 2015) * ~~3~~2. ~~(1) 15 percent~~ ~~(2) 30 percent~~ ~~(3) 40 percent~~ ~~(4)50 percent~~	
TG Reason:	Staff Note: add a reason at the November meeting	
TG Vote:	9-0-3	

Proposal ID P196	LogID TG5-26	703 Prescriptive Path
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	703.1.6.1 and 703.1.6.2 (*Add note below tables as follows*) Exception: For Sun-tempered designs meeting the requirements of Section 703.6.1, the SHGC is permitted to be 0.40 or higher.	
Reason:	This exception resolves the conflict between the sun-tempered design requirements and the SHGC values in the tables in section 703.1.6.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	12-0-0	

Proposal ID P197 **LogID TG5-20** **703.1.1 UA improvement**

Submitter: Amber Wood, NORESCO/AEC

Requested Action: Revise as follows:

Proposed Change:

703.1.1 UA improvement. The total buildingthermal envelope UA is less than or equal to the total UA resulting from theU-factors provided in Table 703.1.1(a). Where insulation is used to achieve the UA improvement, theinsulation installation is in accordance with Grade 1 requirements as graded bya third-party. Total UA is documented using a RESCheck, COMCheck, orequivalent report to verify the baseline and the UA improvement.

Table 703.1.1(a)
Equivalent U-Factors[a]

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U Factor	Frame Wall U-Factor	Mass Wall U-Factor[b]	Floor U-Factor	Basement Wall U-Factor	Crawlspace Wall U-Factor[c]
1	~~1.20~~0.50	0.75	0.035	0.08~~2~~4	0.197	0.064	0.360	0.477
2	~~0.65~~0.40	~~0.75~~0.65	~~0.035~~0.030	0.08~~2~~4	0.165	0.064	0.360	0.477
3	~~0.50~~0.35	~~0.65~~0.55	~~0.035~~0.030	0.08~~2~~60	0.~~14~~1098	0.047	0.0~~91~~0[c]	0.136
4 except Marine	0.35	~~0.60~~0.55	~~0.030~~0.026	0.08~~2~~60	0.~~14~~1098	0.047	0.059	0.065
5 and Marine 4	~~0.35~~0.32	~~0.60~~0.55	~~0.030~~0.026	0.0~~5~~760	0.082	0.033	0.0~~5~~90	0.0~~6~~55
6	~~0.35~~0.32	~~0.60~~0.55	0.026	0.0~~5~~745	0.060	0.033	0.050	0.0~~6~~55
7 and 8	~~0.35~~0.32	~~0.60~~0.55	0.026	0.0~~5~~745	0.057	0.028	0.050	0.0~~6~~55

Non-fenestration U-factors shall be obtained from measurement, calculation, or an approved source.

b. Where more the half the insulation is on the interior, the mass wall U-factors is a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except in Marine, and the same as the frame wall U-factor in Marine Zone 4 and Zones 5 through 8.

c.Basement wall U-factor of 0.360 in warm-humid locations.

Reason: Consistency with the 2015 IECC

TG Recommendation: Approved as Modified

Modification of Proposed Change:

Revise proposed change as follows (in red):

703.1.1 UA improvement. The total building thermal envelope UA is less than or equal to the total UA resulting from the U-factors provided in Table 703.1.1(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 Grade 1 requirements as graded bya third-party. Total UA is documented using a RESCheck, COMCheck, or equivalent report to verify the baseline and the UA improvement.

Table 703.1.1(a)
Equivalent U-Factors[a]

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U Factor	Frame Wall U-Factor	Mass Wall U-Factor[b]	Floor U-Factor	Basement Wall U-Factor	Crawlspace Wall U-Factor[c]
1	~~1.20~~0.50	0.75	0.035	0.08~~2~~4	0.197	0.064	0.360	0.477
2	~~0.65~~0.40	~~0.75~~0.65	~~0.035~~0.030	0.08~~2~~4	0.165	0.064	0.360	0.477
3	~~0.50~~0.35	~~0.65~~0.55	~~0.035~~0.030	0.08~~2~~60	0.~~14~~1098	0.047	0.0~~91~~0[c]	0.136
4 except Marine	0.35	~~0.60~~0.55	~~0.030~~0.026	0.08~~2~~60	0.~~14~~1098	0.047	0.059	0.065
5 and Marine 4	~~0.35~~0.32	~~0.60~~0.55	~~0.030~~0.026	0.0~~5~~760	0.082	0.033	0.0~~5~~90	0.0~~6~~55
6	~~0.35~~0.32	~~0.60~~0.55	0.026	0.0~~5~~745	0.060	0.033	0.050	0.0~~6~~55
7 and 8	~~0.35~~0.32	~~0.60~~0.55	0.026	0.0~~5~~745	0.057	0.028	0.050	0.0~~6~~55

Non-fenestration U-factors shall be obtained from measurement, calculation, or an approved source.

b. Where more the half the insulation is on the interior, the mass wall U-factors is a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except in Marine, and the same as the frame wall U-factor in Marine Zone 4 and Zones 5 through 8.

c.Basement wall U-factor of 0.360 in warm-humid locations.

TG Reason: To expand the provision to make it applicable to commercial code residential occupancy buildings.
Add a reference to the commercial U-factor table from the IECC: C402.1.4 and C402.4. and include language stating that these tables used as applicable per code – see the Mod above in the proposed change.

TG Vote: 10-1-0

Proposal ID P198	LogID TG5-21	703.1.1 UA improvement

Submitter: R. Christopher Mathis, Mathis Consulting Company

Requested Action: Revise as follows:

Proposed Change:

Table 703.1.1(a)
Equivalent U-Factors[a]

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor[b]	Floor U-Factor	Basement Wall U-Factor	Crawlspace Wall U-Factor[c]
1	~~1.20~~ 0.50	0.75	0.035	~~0.082~~ 0.084	0.197	0.064	0.360	0.477
2	~~0.65~~ 0.40	~~0.75~~ 0.65	~~0.035~~ 0.030	~~0.082~~ 0.084	0.165	0.064	0.360	0.477
3	~~0.50~~ 0.35	~~0.65~~ 0.55	~~0.035~~ 0.030	~~0.082~~ 0.060	~~0.141~~ 0.098	0.047	0.091c	0.136
4 except Marine	0.35	~~0.60~~ 0.55	~~0.030~~ 0.026	~~0.082~~ 0.060	~~0.141~~ 0.098	0.047	0.059	0.065
5 and Marine 4	~~0.35~~ 0.32	~~0.60~~ 0.55	~~0.030~~ 0.026	~~0.057~~ 0.060	0.082	0.033	~~0.059~~ 0.050	~~0.065~~ 0.055
6	~~0.35~~ 0.32	~~0.60~~ 0.55	0.026	~~0.057~~ 0.045	0.060	0.033	0.050	~~0.065~~ 0.055
7 and 8	~~0.35~~ 0.32	~~0.60~~ 0.55	0.026	~~0.057~~ 0.045	0.057	0.028	0.050	~~0.065~~ 0.055

a. Non-fenestration U-factors shall be obtained from measurement, calculation, or an approved source.

b. Where more than half the insulation is on the interior, the mass wall U-factors is a maximum of 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.10 in Zone 4 except in Marine, and the same as the frame wall U-factor in Marine Zone 4 and Zone 5 through 8.

Basement wall U-factor of 0.360 in warm-humid locations.

Reason:

· The IECC 2015 prescriptive table values areproposed since that code will be the national minimum code in place when thisstandard is published.

· Since ICC 700 is an above code, green buildingprogram, the national minimum energy code should be the starting point forprescriptive compliance with the energy provisions of this standard

· This table provides the minimum prescriptiveenvelope values for builders seeking compliance under the prescriptive path.

· While updating this tableis intended to be helpful, it if anticipated that most participants in the NGBSprogram will utilize the performance path top demonstrate above minimum codecompliance.

TG Recommendation: Disapprove

Modification of Proposed Change:

TG Reason: In favor of TG5-20 on the same practice.

TG Vote: 11-0-0

Proposal ID P199	LogID TG5-22	703.1.1 UA improvement

Submitter: R. Christopher Mathis, Mathis Consulting Company

Requested Action: Revise as follows:

Proposed Change:

Table 703.1.1(a)
Equivalent U-Factors[a]

Climate Zone		**Mass Wall** Insulation =/>50% on Exterior	**Mass Wall** Insulation >50% on Interior	~~**Mass Wall U-Factor[b]**~~
1		0.197	0.170	~~0.197~~
2		0.165	0.140	~~0.165~~
3		0.098	0.120	~~0.141~~
4 except Marine		0.098	0.087	~~0.141~~
5 and Marine 4		0.082	0.065	~~0.082~~
6		0.060	0.057	~~0.060~~
7 and 8		0.045	0.057	~~0.057~~

Delete the corresponding footnote(previously “b”) for mass wall insulation.

Note: Rest of the table to remain unchanged.

Table 702.2(a)
Minimum U-Factor Equivalents for Performance Compliance[a]

Climate Zone		~~**Mass Wall U-Factor[b]**~~	**Mass Wall** Insulation =/>50% on Exterior	**Mass Wall** Insulation >50% on Interior
1		~~0.197~~	0.197	0.17
2		~~0.165~~	0.165	0.14
3		~~0.141~~	0.141	0.12
4 except Marine		~~0.141~~	0.141	0.10
5 and Marine 4		~~0.082~~	0.082	0.057
6		~~0.060~~	0.082	0.057
7 and 8		~~0.057~~	0.057	0.057

a. Non-fenestration U-factors shall be obtained from measurement, calculation, or an approved source.

~~b. Where more than half the insulation is on the interior, the mass wall U-factors is a maximum of 0.17 in Zone 1, 0.14 in Zone2, 0.12 in Zone 3, 0.10 in Zone 4 except in Marine, and the same as the frame wall U-factor in Marine Zone 4 and Zone 5 through 8.~~

b~~c~~. Basement wall U-factor of 0.360 in warm-humid locations.

Note: Rest of the table to remain unchanged.

Reason:

· This proposal takes an often overlooked footnote regarding the amountand location of mass wall insulation and clarifies the requirement by making aseparate entry in the prescriptive table for each.

· The same formatting change is proposed for the compliance tables in the Prescriptive path and for the tables in the Performance path.

· No changes were made to code minimum efficiency levels, justclarification of the requirements in the tabular information.

· Therevised values in Table 703.1.1(a) are intended to match the values in thereferenced energy code (presumed to be the 2015 IECC as proposed in a separateproposal).

TG Recommendation: Disapprove

Modification of Proposed Change:

TG Reason: The footnote was not correctly implemented for exterior applications in certain Climate Zones. Overall, Task Group does not disagree with the intent of the proposed change.

TG Vote: 10-0-1

Proposal ID P200	LogID TG5-23	703.1.1 UA improvement
Submitter:	Howard Wiig, State Energy Office	
Requested Action:	Add new text as follows:	
Proposed Change:	Add <u>New Climate Zone 0 to Equiv. U Factor Table:</u> <u>Fenestration U-Factor .40</u> <u>Skylight U-Factor: .40</u> <u>Ceiling U-Factor: .035</u> <u>Frame Wall U-Factor 0.197</u> <u>Floor U-Factor: N/A</u> <u>Basement U-Factor N/A</u> <u>Crawlspace U-Factor N/A</u> <u>Exemption fully shaded glazing and walls</u> <u>Add Definition of Tropical Climate Zone</u>	
Reason:	Building components receiving direct solar radiation must have stringent requirements to retard solar heat gain. Building components not receiving direct solar radiation do not need insulation due tovery low delta T between interior and ambient exterior temperatures	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Intent of this proposal was better accomplished by of approval TG5-52. Also inconsistent with IECC & ASHRAE.	
TG Vote:	9-0-0	

Proposal ID P201	LogID 5276	703.1.2 Insulation installation
Submitter:	Shelly Leonard, Green Space Consultants LLC	
Requested Action:	Revise as follows	
Proposed Change:	Grade Points 1 ~~7~~ <u>10</u> 2 ~~4~~ <u>5</u>	
Reason:	Current points seem underweighted in relation to impact on this section.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Points were developed based on analysis of energy savings.	
TG Vote:	11-0-0	

Proposal ID P202	LogID 5058	703.1.2.1 Grade 1 and Grade 2 installations
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Delete without substitution	
Proposed Change:	delete the practice	
Reason:	Since 703.1.1 requires grade 1 and it contains a table for points by climate zone and % improvement in UA, it seems illogical that a home could get more points in 703.1.2.1 than for a 20% improvement in climate zone 1 or 10% improvement in climate zone 6-8. Perhaps the approach should be re-do table 703.1.1(b) to cover grade 1 when no US improvement has been demonstrated.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Based on action on 5312; still valuable information in sections proposed for deletion and should remain; unclear whether the section proposed for deletion is the section intended for proposed deletion by the proponent.	
TG Vote:	6-3-3	

Proposal ID P203	LogID TG5-24	703.1.3 Mass walls
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	Table 703.1.3 Exterior Mass Walls Mass ~~wall~~ thickness	
Reason:	Confusion exists concerning the wall thickness,e.g. if it includes the insulation for example in an ICF structure. The mass thickness referenced in the table applies only to the mass.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-0	

Proposal ID P204	LogID TG5-25	703.1.5 Building envelope leakage

Submitter:	Amber Wood, NORESCO/AEC
Requested Action:	Revise as follows:
Proposed Change:	703.1.5 Building envelope leakage.The maximum building envelope leakage rate is in accordance with Table 703.1.5 and whole building ventilation is provided in accordance with Section 902.2.1.

Table 703.1.5
Building Envelope Leakage

Max Envelope Leakage Rate (ACH50)	Climate Zone							
	1	2	3	4	5	6	7	8
	POINTS							
~~5~~	~~2~~	~~3~~	~~3~~	~~4~~	~~6~~	~~7~~	~~8~~	~~9~~
4	3	4	~~5~~	~~7~~	~~10~~	~~12~~	~~13~~	~~14~~
3	3	5	~~6~~	~~9~~	~~13~~	~~15~~	~~17~~	~~19~~
2	4	6	8	11	15	18	20	23
1	4	5	8	12	17	19	22	24

Reason:	Consistency with the 2015 IECC. Note – Table point values have not been adjusted.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	11-0-1

Proposal ID P205	LogID 5048	703.1.5 Building envelope leakage

Submitter:	Carl Seville, Seville Consulting
Requested Action:	Revise as follows
Proposed Change:	Expand table 703.1.5 to include points for Envelope Leakage Ratio at 50 Pa (ELR50) as an alternate to ACH50. An example of comparable points for climate zone 3 is shown below as an example:

Max. ACH50	ELR50	Point CZ3
5	0.33	3
4	0.28	5
3	0.23	6
2	0.18	8
1	0.13	8

Reason:	ACH50 is a less accurate measurement than ELR and benefits larger buildings over smaller ones. Units below 1200 SF frequently have much higher ACH50 measurements than less well sealed larger buildings. An excel file showing equivalent leakage at both measurements will be sent via email.
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Code uses ACH 50 and important to maintain consistency and not introduce other metrics that could result in misapplication.
TG Vote:	11-0-0

Proposal ID P206	LogID 5297	703.1.6.1 Fenestration
Submitter:	Jeff Inks, Window & Door Manufacturers Assn.	
Requested Action:	Revise as follows	
Proposed Change:	Revise the minimum fenestration specifications for the 2015 NGBS to the 2012 IECC specifications consistent with the 2012 NGBS based on the 2009 IECC.	
Reason:	This is to update the mandatory minimum fenestration requirements of the 2015 NGBS in accordance with the basis for the 2012 minimum requirements based on the 2009 IECC	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Based on action taken on 5220	
TG Vote:	13-0-0	

Proposal ID P207	LogID 5292	703.1.6.1 Fenestration
Submitter:	Thomas Culp, Birch Point Consulting LLC	
Requested Action:	Add new as follows	
Proposed Change:	*Dynamic glazing* shall be permitted to satisfy the SHGC requirements of Table 703.1.6.1 provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4, and the *dynamic glazing* is automatically controlled to modulate the amount of solar gain into the space in multiple steps. *Dynamic glazing* shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted. *Dynamic glazing* is not required to comply with this section when both the lower and higher labeled SHGC already comply with the requirements of Table 703.1.6.1.	
Reason:	On behalf of Dr. Helen Sanders, SAGE Electrochromics, Inc. Consistency with IECC. This adds the same language from the 2015 IECC clarifying how to determine compliance for dynamic glazing. Dynamic glazing offers the unique ability to reversibly change properties such as SHGC and VT to optimize energy performance, daylighting, and glare based on changing situations during the day, and over different seasons. As such, dynamic glazing represents a key technology on the route to zero energy buildings. The NFRC label for dynamic glazing lists two values for SHGC, representing the range over which the SHGC varies. It was previously not clear how this label should be used to determine compliance with maximum or minimum SHGC requirements, so this language was added to the 2015 IECC, including provisions for dynamic range (ratio of the high to low SHGC) and automatic control to ensure optimum performance. This should be a straightforward proposal for consistency with the IECC, but please contact me if you would like further information.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* *Dynamic glazing* shall be permitted to satisfy the SHGC requirements of Table 703.1.6.1 provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4, andthe *dynamic glazing* is automatically controlled to modulate the amount of solar gain into the space in multiple steps. *Dynamic glazing* shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted. *Dynamic glazing* is not required to ~~comply with this section~~ be automatically controlled or comply with minimum SHGC ratio when both the lower and higher labeled SHGC already comply with the requirements of Table 703.1.6.1.	
TG Reason:	Dynamic glazing is an important technology option for enhanced energy efficiency and should be recognized and encouraged.	
TG Vote:	14-0-0	

Proposal ID P208	LogID 5295	703.1.6.1 Fenestration Specifications

Submitter: Jeff Inks, Window & Door Manufacturers Assn.

Requested Action: Revise as follows

Proposed Change:

Table 703.1.6.2(a)
Enhanced Fenestration Specifications

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	POINTS
1	~~0.60~~0.40	~~0.27~~0.25	~~0.70~~0.60	~~0.30~~0.28	~~10~~ TBD
2	~~0.60~~0.40	~~0.27~~0.25	~~0.70~~0.60	~~0.30~~0.28	~~5~~ TBD
3	0.3~~5~~0	0.3~~0~~25	0.5~~7~~3	~~0.30~~0.28	~~6~~ TBD
4	0.3~~2~~0	0.40	0.5~~5~~3	0.4~~0~~35	~~2~~ TBD
5	~~0.30~~ 0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD
6	~~0.30~~0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD
7	~~0.30~~0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD
8	~~0.30~~0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD

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

Effective January 1, 2016 in accorda

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

TG Recommendation: Approved as Modified

Modification of Proposed Change:

Revise proposed change as follows (in red):

Table 703.1.6.2(a)

Enhanced Fenestration Specifications

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	POINTS
1	~~0.60~~0.40	~~0.27~~0.25	~~0.70~~0.60	~~0.30~~0.28	~~10~~ TBD
2	~~0.60~~0.40	~~0.27~~0.25	~~0.70~~0.60	~~0.30~~0.28	~~5~~ TBD
3	0.3~~5~~0	0.3~~0~~25	0.5~~7~~3	~~0.30~~0.28	~~6~~ TBD
4	0.3~~2~~0	0.40	0.5~~5~~3	0.4~~0~~35	~~2~~ TBD
5	~~0.30~~ 0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD
6	~~0.30~~0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD
7	~~0.30~~0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD
8	~~0.30~~0.27[a,b]	Any	~~0.55~~0.50	Any	~~5~~ TBD

a.) ~~For ClimateZones 5-8 an~~ An equivalent energy performance is permitted based on ~~either (1)windows with a U-factor = 0.31 and an SHGC = 0.35, or, a U-factor = 0.32 and anSHGC = 0.40 or (2)~~ fenestration meeting the ENERGY STAREquivalent Energy Performance in Eligibility Criteria Version 6.0.

b.) A U-factor of 0.30 or windows with aU-factor = 0.31 and an SHGC = 0.35, or, a U-factor = 0.32 and an SHGC = 0.40ispermitted for use through December 31, 2015. ~~Effective January 1,2016 in accordance with ENERGY STAR Version 6.0.~~

TG Reason: To make more fully consistent with the provisions of ENERGY STAR Version 6.0.

TG Vote: 13-0-0

Proposal ID P209	LogID 5220	703.1.6.1 Fenestration Specifications

Submitter: Eric Lacey, RECA

Requested Action: Revise as follows

Proposed Change:

703.1.6 Fenestration

703.1.6.1 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~~are in accordance with~~ Table 703.1.6.1. Area weighted averages are calculated separately for the categories of 1) windows and exterior doors and 2) skylights and tubular daylighting devices (TDDs). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m^2) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

Mandatory

Table 703.1.6.1
Fenestration Specifications

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	~~0.65~~ 0.50	~~0.30~~ 0.25
2	~~0.65~~ 0.40	~~0.30~~ 0.25
3	~~0.40~~ 0.35	~~0.30~~ 0.25
4 ~~to 8~~	0.35	~~Any~~ 0.40
5 to 8	0.32	Any
	Skylights and TDDs (maximum certified ratings)	
1~~ and 2~~	0.75	0.30
2~~ 3~~	0.65	0.30
3 ~~4 to 8~~	~~0.60~~ 0.55	~~Any~~ 0.30
4	0.55	0.40
5 to 8	0.55	Any

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

TG Recommendation: Approved

Modification of Proposed Change:

TG Reason: For the reasons stated – to update the minimum prescriptive provisions to the 2015 IECC.

TG Vote: 8-5-0

Proposal ID P210	LogID 5296	703.1.6.2 Enhanced Fenestration Specifications

Submitter:	Jeff Inks, Window & Door Manufacturers Assn.
Requested Action:	Revise as follows
Proposed Change:	**Table 703.1.6.2(b)** **Enhanced** Fenestration Specifications

Climate Zones	U-Factor Windows & Exterior Doors	SHGC Windows & Exterior Doors	U-Factor Skylights & TDD's	SHGC Skylights & TDD's	
1	~~0.400~~.38	0.25	0.50	0.30	~~13~~ TBD
2	~~0.400~~.38	0.25	0.50	0.30	~~9~~ TBD
3	0.30	0.25	0.50	0.35	~~9~~ TBD
4	0.28	0.40	0.50	0.40	~~4~~ TBD
5	0.25	Any	~~0.500~~.49	Any	~~8~~ TBD
6	0.25	Any	~~0.500~~.49	Any	~~9~~ TBD
7	0.25	Any	~~0.500~~.49	Any	~~9~~ TBD
8	0.25	Any	~~0.500~~.49	Any	9

Reason:	Revision consistent with 2012 revisions.
TG Recommendation:	Staff note: add recommendation at November meeting.
Modification of Proposed Change:	
TG Reason:	
TG Vote:	

Proposal ID P211	LogID 5293	703.1.6.2 Enhanced Fenestration Specifications
Submitter:	Thomas Culp, Birch Point Consulting LLC	
Requested Action:	Add new as follows	
Proposed Change:	*Dynamic glazing* shall be permitted to satisfy the SHGC requirements of Tables 703.1.6.2(a), 703.1.6.2(b), and 703.1.6.2(c) provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4, and the *dynamic glazing* is automatically controlled to modulate the amount of solar gain into the space in multiple steps. *Dynamic glazing* shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted. *Dynamic glazing* is not required to comply with this section when both the lower and higher labeled SHGC already comply with the requirements of Tables 703.1.6.2(a), 703.1.6.2(b), and 703.1.6.2(c).	
Reason:	On behalf of Dr. Helen Sanders, SAGE Electrochromics Inc. Consistency with IECC. This adds the same language from the 2015 IECC clarifying how to determine compliance for dynamic glazing. Dynamic glazing offers the unique ability to reversibly change properties such as SHGC and VT to optimize energy performance, daylighting, and glare based on changing situations during the day, and over different seasons. As such, dynamic glazing represents a key technology on the route to zero energy buildings. The NFRC label for dynamic glazing lists two values for SHGC, representing the range over which the SHGC varies. It was previously not clear how this label should be used to determine compliance with maximum or minimum SHGC requirements, so this language was added to the 2015 IECC, including provisions for dynamic range (ratio of the high to low SHGC) and automatic control to ensure optimum performance. This should be a straightforward proposal for consistency with the IECC, but please contact me if you would like further information.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* *Dynamic glazing* shall be permitted to satisfy the SHGC requirements of Tables 703.1.6.2(a), 703.1.6.2(b), and 703.1.6.2(c) provided the ratio of the higher to lower labeled SHGC is greater than or equal to 2.4, and the *dynamic glazing* is automatically controlled to modulate the amount of solar gain into the space in multiple steps. *Dynamic glazing* shall be considered separately from other fenestration, and area-weighted averaging with other fenestration that is not dynamic glazing shall not be permitted. *Dynamic glazing* is not required to ~~comply with this section~~ be automatically controlled or comply with minimum SHGC ratio when both the lower and higher labeled SHGC already comply with the requirements of Tables 703.1.6.2(a), 703.1.6.2(b), and 703.1.6.2(c).	
TG Reason:	Dynamic glazing is an important technology option for enhanced energy efficiency and should be recognized and encouraged.	
TG Vote:	14-0-0	

Proposal ID P212	LogID 5277	703.1.6.2 Fenestration
Submitter:	Shelly Leonard, Green Space Consultants LLC	
Requested Action:	Revise as follows	
Proposed Change:	Table 703.1.6.2(a) Climate Zone Points 2 ~~5~~ 6 4 ~~2~~ 4 Table 703.1.6.2(b) Climate Zone Points 1 ~~13~~ 12 4 ~~4~~ 6 Table 703.1.6.2(c) Climate Zone Points 4 ~~5~~ 7	
Reason:	Points seem under/over weighted in climate zones listed. Streamlines points allocation. All zones not listed and other chart data remain as is.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Points are developed based on analysis of energy savings.	
TG Vote:	10-0-0	

Proposal ID P213	LogID 5222	703.1.6.2 Fenestration

Submitter: Eric Lacey, RECA

Requested Action: Revise as follows

Proposed Change:

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

Table 703.1.6.2(a)
Enhanced Fenestration Specifications

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

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

TG Recommendation: Disapprove

Modification of Proposed Change:

TG Reason: Based on the action taken on LogID 5295.

TG Vote: 13-0-0

Proposal ID P214	LogID 5223	703.1.6.2 Fenestration

Submitter: Eric Lacey, RECA

Requested Action: Revise as follows

Proposed Change:

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

Table 703.1.6.2(a)
Enhanced Fenestration Specifications

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

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

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

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

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

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

TG Recommendation: Disapprove

Modification of Proposed Change:

TG Reason: Maintaining a provision encouraging the use of fenestration that exceeds ENERGY STAR is valuable to the NGBS.

TG Vote: 12-0-0

Proposal ID P215	LogID 5224	703.1.6.2 Fenestration

Submitter: Eric Lacey, RECA

Requested Action: Revise as follows

Proposed Change:

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

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

Table 703.1.6.2(a)
Enhanced Fenestration Specifications

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

Table 703.1.6.2(b)
Enhanced Fenestration Specifications

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

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

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

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

TG Recommendation: Disapprove

Modification of Proposed Change:

TG Reason: Based on action taken on LogID 5296

TG Vote: 11-0-0

Proposal ID P216	LogID TG5-27	703.1.6.2(a) Enhanced Fenestration Specifications
Submitter:	Howard Wiig, State Energy Office	
Requested Action:	Add new text as follows:	
Proposed Change:	Add Tropical climate Zone 0. U-Factor Windows and Exterior Doors 0.40 SHGC Windows and Exterior Doors 0.25 U-Factor Skylights and TDD's 0.40 SHGC Skylights and TDD's 0.25 Exempt: Fully shaded glazing Points: Up to10	
Reason:	Fenestration and skylight performance has improved rapidly. High performance glazing is cost competitive. Additional glazing enhances daylighting opportunities.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The footnote was not correctly implemented for exterior applications in certain Climate Zones. Overall, Task Group does not disagree with the intent of the proposed change.	
TG Vote:	9-0-0	

Proposal ID P217	LogID TG5-28	703.2 HVAC equipment efficiency
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	703.2 HVAC equipment efficiency. Add the following: For multiple heating or coolingsystems in one home, practices 703.2.1 through 703.2.6 apply to the system thatsupplies 80% or more of the total installed heating or cooling capacity. Wheremultiple systems each serve less than 80% of the total installed heating orcooling capacity, points under Sections 703.2.1 through 703.2.6 are awardedonly for the system eligible for the fewest points.	
Reason:	Some confusion exists when a home has multiple systems of different types. This change clarifies that the main system or if multiple systems of similar capacity are used, the least efficient system applies to all.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	10-0-0	

Proposal ID P218	LogID TG5-29	703.2, 703.3, 703.4, 801.2, 902.1, 602.2, 1, 801.6, 801.73, 11.602.2, 11.902.1.4

Submitter: Craig Conner, Gary Klein,

Requested Action: Add new text as follows:

Proposed Change:

Revise as follows:

Base all equipment efficiency points tables on updated federal minimums which will be in effect in 2015.

Update all Energy Star and WaterSense to reflect levels that will be in effect in 2015. This affects Chapters 6, 7, 8 9 and 11. Remove words Energy Star" and "WaterSense"from NGBS, except for "Energy Star Homes". Replace with key efficiency criteria (usually one or two numbers). Change metrics for efficiency if needed.

Consider what to do with WaterSense Budget Approach. At the least it is significantly out of date.

Note in commentary that Energy Star/ WaterSense levels change over the years.

Added specific language:

Section 703.5.3 put in points for

Refrigerator:

Refrigerator uses <= 500 kwh/yr (as listed on yellow label)

Refrigerator uses <= 300 kwh/yr (as listed on yellow label)

Dishwasher:
Standard water = 3.5 gallons per cycle & energy = 270 kwh/yr
Compact water = 3.1 gallons per cycle energy = 203 kwh/yr

Clothes Washer: (Energy Star Version 7.0)
Residential Clothes Washers, Front-loading(> 2.5 cu-ft) with IMEF = 2.38 & IWF = 3.7
Residential Clothes Washers, Top-loading(> 2.5 cu-ft) IMEF = 2.06 & IWF = 4.3
Residential Clothes Washers (= 2.5 cu-ft)IMEF = 2.07 & IWF = 4.2
Commercial Clothes Washers MEF = 2.2 & WF = 4.5

Section 801.2

Clothes Washers as above

Dishwashers as above

Delete Energy Star Geothermal Heat Pumps reference, not really used in 703.2.6

Section 703.2.7 Ceiling Fans

Use:

Fan Speed	Minimum Airflow	Minimum Efficiency Requirement
Low	1,250 CFM	155 CFM/watt
Medium	3,000 CFM	100 CFM/watt
High	5,000 CFM	75 CFM/watt

Sections 902.1.4 & 11.902.1.4

Use:

Range Hoods	up to 600 CFM max speed and up to 200 CFM working speed	2.8	2.0
Bathroom and Utility Room Fans	50 to 89 CFM	2.8	2.0
Bathroom and Utility Room Fans	90 to 200 CFM	3.5	2.0
Bathroom and Utility Room Fans	201 to 500 CFM (max speed)	4.0	3.0
In-Line (Single-port & Multi- port) Fans	N/A	3.8	N/A

Delete Section 602.2 and 11.602.2,leaving 505.2(2) – Cool Roofs.

EPA WaterSense professionals not used. Delete reference.

	Section 801.6(2) Toilets Use: Toilets 1.1 1.28 gpf (uses Federal law for test 10 CFR 429.30) Tested in accordance with ASME A112.19.2/CSAB45.1
Reason:	Goal is to update base efficiencies and to eliminate most uses of the proprietary Energy Star and maybe WaterSense programs. Federal minimum equipment efficiencies have changed since the 2012 NGBS. An update is needed to adjust at least water heaters, air conditioner,heat pump, and gas furnace levels. Any other federally regulated appliances whose minimum efficiencies have changed should also change. The points tables should all assume the federal minimum as 0 (zero) points. Energy Star levels have also changed or are changing. The levels in future energy star products should occur in the tables as a specific item with points. In some cases the metric used by Energy Star will/has changed. For example Energy Star clothes washers have now gone to Version 7.0 NGBS references Version 5.1 dated January 1 2011. NGBS should try to use the same key metrics that Energy Star uses. For example, clothes washers will be IWF(water) and IMEF (energy) see:https://www.energystar.gov/products/specs/system/files/ENERGY%20STAR%20Final%20Version%207.0%20Clothes%20Washer%20Program%20Requirements.pdf If WaterSense Water Budget Approach is retained, consider an additional prescriptive approach that accomplishes the same goal without a calculation and 2) eliminating the use of its “Option 2”,which is simply a limit on the amount of turf grass, but not the amount of water. See: http://www.epa.gov/watersense/docs/home_final_waterbudget508.pdf
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Language is not ready for implementation. There are technical issues with some of the proposed levels. The proponent may want to look at revising the equivalency language to achieve the intent by including the following: “or equivalent energy efficiency”. Note that the committee will discuss updating the reference documents during the public comment process.
TG Vote:	10-0-0

Proposal ID P219	**LogID 5289**	**703.2.2 Furnace and/or boiler efficiency**

Submitter:	Neil Leslie, Gas Technology Institute
Requested Action:	Add new as follows
Proposed Change:	**GREEN BUILDING PRACTICES** — **POINTS** **(5)** Electric Furnace — Per Table 703.2.2(5) **Table 703.2.2(5)** **Electric Furnace** **AFUE** | Climate Zone 1 | 2 | 3 | 4 | 5 | 6-8 **POINTS** =100% AFUE | -2 | -3 | -6 | -9 | -12 | -12
Reason:	To provide a prescriptive option for electric resistance furnaces that aligns with IECC Section R405 electric heating system minimum performance requirements that are the basis of the performance requirements in Section 702.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	The task group agrees in principle that this is an issue. The group believes that assigning negative points to a section is not practical. For highly efficient homes a small electric heating device can make sense.
TG Vote:	13-1-0

Proposal ID P220	LogID 5087	703.2.3 Heat pump heating efficiency
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	**703.2.3** Heat pump heating efficiency is in accordance with Table 703.2.3. Refrigerant charge is verified for compliance with manufacturer's instructions utilizing methods approved in ACCA 5 QI-2010.	
Reason:	Every OEM approved method is included or accepted in the QI 5 instruction set. Later in the document this instruction is contradicted by selecting superheat and subcooling methods. ACCA will also recommend a similar change there to clarify instructions provided in this standard.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **703.2.3** Heat pump heating efficiency is in accordance with Table 703.2.3. Refrigerant charge is verified for compliance with manufacturer's instructions utilizing a method~~s~~ approved in section 4.3 of ACCA 5QI-2010.	
TG Reason:	TG agreed in principle to the revision but wanted to clarify the wording.	
TG Vote:	13-0-0	

Proposal ID P221	LogID TG5-30	703.2.3 Heat pump heating efficiency

Submitter: Neil Leslie, Gas Technology Institute

Requested Action: Add new text as follows:

Proposed Change: Add Tables 703.2.3(2) and 703.4.2(2) as follows:

GREEN BUILDING PRACTICES	POINTS
703.2.3 Heat pump heating efficiency is in accordance with Table 703.2.3(1) or Table 703.2.3(2). … **(1)** Electric Heat Pump **Table 703.2.3(1)** **Electric Heat Pump Heating** … **(2)** Gas Engine-Driven Heat Pump **Table 703.2.3(2)** **Gas Engine-Driven Heat Pump Heating**	Per Table 703.2.3(1) or Table 703.2.3(2)

Efficiency	Climate Zone					
	1	2	3	4	5	6-8
	POINTS					
>1.3 COP at 47°F	2	7	11	14	16	18

GREEN BUILDING PRACTICES	POINTS
703.2.4 Cooling efficiency is in accordance with Table 703.2.4(1) or Table 703.2.4(2). … **(1)** Electric Air Conditioner or Heat Pump **Table 703.2.4(1)** **Electric Air Conditioner and Heat Pump Cooling** … **(2)** Gas Engine-Driven Heat Pump **Table 703.2.4(2)** **Gas Engine-Driven Heat Pump Cooling**	Per Table 703.2.4(1) or Table 703.2.4(2)

Efficiency	Climate Zone					
	1	2	3	4	5	6-8
	POINTS					
>1.2 COP at 95°F	7	5	2	1	1	0

Reason: Allows recognition of the energy efficiency benefits of newly available gas engine-driven heat pumps with rated COP's of 1.2 to 1.4 depending on climate zone. In heating mode this is significantly higher than a condensing gas furnace, and in cooling mode on a cost or source energy basis it is equivalent to a 15 or 16 site energy SEER air conditioner.

Supplemental information can be found at:

http://intellichoiceenergy.com/product-info/8-ton-multi-zone
http://www1.eere.energy.gov/manufacturing/distributedenergy/pdfs/swgas_heatpump.pdf
http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=1626608

TG Recommendation: Approved

Modification of Proposed Change:

TG Reason: Points are subject to further revision

TG Vote: 9-0-1

Proposal ID P222	LogID 5088	703.2.4 Cooling efficiency
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	**703.2.4** Cooling efficiency is in accordance with Table 703.2.3. Refrigerant charge is verified for compliance with manufacturer's instructions utilizing methods approved in ACCA 5 QI-2010.	
Reason:	Every OEM approved method is included or accepted in the QI 5 instruction set. Later in the document this instruction is contradicted by selecting superheat and subcooling methods. ACCA will also recommend a similar change there to clarify instructions provided in this standard.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **703.2.4** ~~Cooling efficiency is in accordance with Table 703.2.4.~~Refrigerant charge is verified for compliance with manufacturer's instructions utilizing a method in section 4.3 of ACCA 5 QI-2010.	
TG Reason:	TG agreed in principle to the revision but wanted to clarify the wording.	
TG Vote:	13-0-0	

Proposal ID P223	LogID 5089	703.2.5 Water source cooling and heating efficiency
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Add the following wording to table 703.2.5: Refrigerant charge is verified for compliance with manufacturer's instructions utilizing methods approved in ACCA 5 QI-2010.	
Reason:	For consistency with previous sections, these systems are charged systems too.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* 703.2.5 Water source cooling and heating efficiency is in accordance with Table 703.2.5. Refrigerant charge is verified for compliance with manufacturer's instructions utilizing a method in section 4.3 of ACCA 5QI-2010.	
TG Reason:	TG agreed in principle to the revision but wanted to clarify the wording.	
TG Vote:	13-0-0	

Proposal ID P224	LogID 5090	703.2.6 Ground source heat pump installation
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Add the following wording to table 703.2.6: Refrigerant charge is verified for compliance with manufacturer's instructions utilizing methods approved in ACCA 5 QI-2010.	
Reason:	For consistency with previous sections, these systems are charged systems too.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **703.2.6** Ground source heat pump is installed by a Certified Geothermal Service Contractor in accordance with Table 703.2.6. Refrigerant charge is verified for compliance with manufacturer's instructions utilizing a method in section 4.3 of ACCA 5QI-2010	
TG Reason:	TG agreed in principle to the revision but wanted to clarify the wording.	
TG Vote:	13-0-0	

Proposal ID P225	LogID TG5-32	703.3.2 All space cooling
Submitter:	Howard Wiig, State Energy Office	
Requested Action:	Add new text as follows:	
Proposed Change:	Table 703.3.2 Ductless cooling system Add a Tropical Climate Zone. Ductless cooling system Points: 11	
Reason:	The Tropical Climate Zone includes a mandatory requirement no more than 50% of enclosed space shall be mechanically cooled. Cooling is therefore confined to limited areas such as bedrooms. Ductless systems are ideally suited to limited areas, reduce costs and improve efficiency.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Firstpart already accomplished by approval of TG5-52. Second part already covered in section 703.3.2and high efficiency products receive points is 703.2.4	
TG Vote:	9-0-0	

Proposal ID P226	LogID 5070	703.3.4 Duct Leakage
Submitter:	Philip LaRocque, LaRocque Business Management Services, LLC	
Requested Action:	Revise as follows	
Proposed Change:	703.3.4 Duct Leakage. The entire central HVAC duct system, including air handlers and register boots, is tested by a third party for total leakage at a pressure differential of 0.1 inches w.g. (25 Pa) and maximum air leakage is equal to or less than ~~6~~ 8 percent of the system design flow rate.	
Reason:	This change reflects the ENERGY STAR version 3 (later addendums) changes from 6% to 8% of the system design flow rate. This should have been changed in the 2012 NGBS but was not if we care to be consistent with ENERGY STAR in this regard.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	In favor of modified LogID 5300. In addition, using the 2015 IECC as baseline not ENERGY STAR for homes.	
TG Vote:	11-0-0	

Proposal ID P227	LogID 769	703.4 Water heating design, equipment, and installation
Submitter:	Gary Klein, Affiliated International Management, LLC	
Requested Action:		
Proposed Change:	New Sections Demand recirculation system is installed in single family units. Points awarded per circulation zone 1 Maximum points per building 2 Demand recirculation system is installed in multi-family units in place of a standard circulation pump and control. Points awarded per circulation zone 2 Maximum points per building 4	
Reason:	Waiting for hot water to arrive at fixtures wastes energy as well as water. In fact, the waste of energy gets worse as the flow rate goes down because the amount of water wasted goes up as the flow rate goes down. In multi-family buildings, a demand recirculation system can reduce the hours of operation of a typical system to less than 2 hours per day in retrofit applications, even lower in new buildings where the hot water piping is installed in accordance with the NGBS. There is electricity saved by reduced pumping energy, but the big savings is in the reduced heat loss in the loop. The reason for the large number of points is that water heating in multi-family buildings is equal to or larger than space heating in much of the country now and will certainly be true in buildings built in accordance with the NGBS.	
TG Recommendation:	See below	
Modification of Proposed Change:	TG 5 - Approve as Modified *Revise standard as follows:* *New Sections* 704.5.4 Potable hot water demand re-circulation system is installed in single family units. Points awarded per circulation zone 1 Maximum points per building 2 Potable hot water demand re-circulation system is installed in multi-family units in place of a standardcirculation pump and control. Points awarded per circulation zone 2 Maximum points per building 4	
TG Reason:	TG 5 - Approve as Modified Add to section 704 with additional clarification. --- TG 6 - Approve	
TG Vote:	TG 5 13-0-0 TG 6 5-0-0	

Proposal ID P228	LogID TG5-33	703.4 Water heating system
Submitter:	Gary Klein, Craig Conner,	
Requested Action:	Revise as follows:	
Proposed Change:	**703.4.3** Drain-water heat recovery system is installed ~~in multi-family units~~.	
Reason:	Drain-water heat recovery works in single family homes too.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P229	LogID 761	703.4.1 Water Heater Energy Factor
Submitter:	Gary Klein, Affiliated International Management, LLC	
Requested Action:		
Proposed Change:	Add a new line to Table 703.4.1(1)(b) Size (gallons Energy Factor[1] POINTS Any 0.97 10 1. Electric instantaneous water heaters have either an Energy Factor (capacity less than or equal to 12 kW) or a Thermal Efficiency (capacity greater than 12kW)	
Reason:	Electric instantaneous water heaters come in a wide variety of sizes (kW) and can be located very close to the points of use. This can reduce the energy needed for heating water by as much as 50 percent. Even when not located closer to the points of use, they are more efficient to operate than electric storage water heaters. They should be included in the table within the standard in the same way that gas instantaneous water heaters are.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise the proposed change as follows (in red):* Add a new line to Table 703.4.1(~~1~~2)(b) Size(gallons Energy Factor[1] POINTS Any 0.97 10 1. Electric instantaneous water heaters have either an Energy Factor (capacity less than or equal to 12 kW) or a Thermal Efficiency(capacity greater than 12 kW)	
TG Reason:	Corrected the table reference	
TG Vote:	13-0-0	

Proposal ID P230	LogID TG5-44	703.5 Lighting and appliances
Submitter:	Steve Rosenstock, Edison Electric Institute	
Requested Action:	Add new section as follows:	
Proposed Change:	**703.5.5 Gas Lamp /Lighting Fixtures.** Gas Lamps or Gas DecorativeLighting Fixtures are installed. (1) Gas Lamp/Fixture installed with a continuously burning pilot light -50 Points per Lamp or Fixture Installed (2) Gas Lamp/Fixture installed without a continuously burning pilot light andwith manual or automatic shutoff controls -10 Points per Lamp or Fixture Installed	
Reason:	The current standard is silent on the use of gas lamps in green homes. No points are added or deducted for their use. This new section will properly account for their energy usage. According to the latest DOE Energy Information Administration publication Residential Energy Consumption Survey (RECS 2009), the average home in the US uses about 89.6 Million Btu's per year (site energy). See http://www.eia.gov/consumption/residential/data/2009/index.cfm?view=consumption#summary Typical gas lighting fixtures use anywhere from 1,500 Btu/hour to 3,500 Btu/hour (examples can be found at http://www.mhpgrills.com/everglow-gas-lights/features/ and http://www.faubourglighting.com/faq.asp). A typical gas lamp with a continuous burning pilot light that uses 2,500 Btu/hour will consume 18 therms of gas per month, or 216 therms (21.6 Million Btu's) per year. This would be equivalent of 24.1% of the total energy used annually by a typical house in the US, and a higher percentage of the energy used annually in a green home. At an average US price of $1.128 per therm (See the DOE notice in the *Federal Register*, "Representative Average Unit Costs of Energy", March 18, 2014, page 15112), this typical gas lamp will cost $243.65 to operate annually. According to the AGA publication *Gas Facts 2013*, the typical residential water heater in the US consumed 19.1 Mcf (about 196 therms) per year in 2011. According to this publication, a typical gas range used 4.3 Mcf (about 44 therms), and a typical gas clothes dryer also used 4.3 Mcf (about 44 therms). In other words, one gas light with a continuously burning pilot light will use more energy in a year than a residential gas water heater, and well over two times more energy in a year than a residential gas range and residential gas clothes dryer combined. The typical gas lamp using 2,500 Btu/hour (equivalent to 732.5 Watts)will produce about as much light as a traditional 60 Watt incandescent light bulb, which produces about 800-860 lumens of light (see http://www.washingtongasliving.com/For_Your_Home/OutdoorProducts/Lighting.xml), or a federally compliant 43 Watt halogen bulb, or a 13 Watt compact fluorescent bulb, or a 10 Watt LED bulb. In other words, the gas light will consume anywhere from 17 to 73 times more energy to produce the same amount of light. If installed with controls (photosensors, on/off switches, electronic ignitions, etc), the typical energy use will be reduced by 80%, but they will still be using 17 to 73 times more energy than electric lighting fixtures. This proposal will account for the energy usage of gas lights in green homes, consistent with the methodology used for estimated energy impacts in the standard.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Negative points are not practical and not consistent with the format of the standard	
TG Vote:	9-0-1	

Proposal ID P231	LogID 5322	703.5.1 (2)
Submitter:	John M Schneider, City of Moundsville	
Requested Action:	Revise as follows	
Proposed Change:		
Reason:	Practice 703.5.1 (2) refers to a minimum efficiency of 40 Lumens / Watt for exterior lighting. Efficiency is a unit less value (watts out / watts in). Efficacy is a measure comparing different units of measure (lumens / watt). Practice 701.4.4 uses the correct Efficacy term. I believe Efficacy should be used in Practice 703.5.1 (2) as well?????	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* (2) A minimum of 80 percent of the exterior lighting wattage has a minimum ~~efficiency~~ efficacy of 40 lumens per watt or is solar-powered.	
TG Reason:	To use a more accurate term	
TG Vote:	11-0-2	

Proposal ID P232	LogID TG5-34	703.5.1 Hard-wired lighting
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	703.5.1 Hard-wired lighting.Hard-wired lighting is in accordance with one of the following: (1) A minimum percent of the total hard-wired interior luminaires or lamps qualify as ENERGY STAR or equivalent. Table703.5.1 Hard-wired Lighting (2) A minimum of 80 percent of the exterior lighting wattage has an efficiency of 40 lumens per watt minimum or be a solar-powered light fixture. (3)In multiunit buildings, common area lighting power density (LPD) is less than 0.51 W/sqft.	
Reason:	Consistency with the 2015 IECC. Separate the exterior (2) from the interior (1) and make explicit. Add credit for common area LPD	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	12-0-0	

Minimum Percent of Fixtures	Climate Zone							
	1	2	3	4	5	6	7	8
	Points							
~~75%~~	~~5~~	~~4~~	~~3~~	~~3~~	~~3~~	~~2~~	~~2~~	~~1~~
95%	9	6	5	4	4	3	2	1

Proposal ID P233	LogID TG5-31	703.5.3 Appliances
Submitter:	Howard Wiig, State Energy Office	
Requested Action:	Add new text as follows:	
Proposed Change:	Table 703.5.3(1) Add Tropical Climate Zone ENERGY STAR or equivalent appliances are installed (points) Refrigerator (3) Washing Machine (1) Dishwasher (1) Induction Range (1) <u>TV Cable Box (1)</u> <u>Add one point each for demand-response capability</u>	
Reason:	EnergyStar appliances are important in the tropics because they produce less heat. Set-top boxes have become major energy users in many homes. Demand response is an extremely effective means of shaving peak loads.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Points for ES products are not allocated by climate zone elsewhere except for refrigerators and TV cable boxes is not an appropriate category and uncertain how many points could be awarded, e.g. for multiple boxes, and, demand-response capability products are already awarded points elsewhere.	
TG Vote:	9-0-0	

Proposal ID P234	LogID TG6-06	703.6.1 Sun-tempered design
Submitter:	Katrina Rosa, The EcoLogic Studio	
Requested Action:	Add new text as follows:	
Proposed Change:	<u>Multi-unit Building Note:</u> <u>Design the site such at least 40% of the multi-unit dwelling units have one wall, with at least 50% of glazing for each unit, that faces south (within 15 degrees of south).</u> <u>Effective shading is required for passive solar control on all south facing glazing.</u> <u>The floor area of at least 15 feet from the south facing perimeter glazing is massive and exposed to capture solar heat during the day and reradiated at night.</u>	
Reason:	Current language is not fully applicable to multi-unit buildings. Note: definitions are recommended for “massive” and “exposed” and “effective shading.”	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	7-0-0	

Proposal ID P235	LogID 5294	703.6.2 Window shading
Submitter:	Thomas Culp, Birch Point Consulting LLC	
Requested Action:	Revise as follows	
Proposed Change:	**703.6.2 Window shading.** Automated solar protection or *dynamic glazing* is installed to provide shading for windows.	
Reason:	On behalf of Dr. Helen Sanders, SAGE Electrochromics Inc. Dynamic glazing provides an equivalent method for window shading as traditional methods, by directly varying the SHGC and VT of the window rather than secondarily modifying it through an attachment. As such, dynamic glazing is already included as an alternative to exterior shading requirements in both the International Green Construction Code and ASHRAE 189.1, and its inclusion here is also appropriate.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	14-0-0	

Proposal ID P236	LogID TG5-35	703.6.3 Passive cooling design
Submitter:	Howard Wiig, State Energy Office	
Requested Action:	Add new text as follows:	
Proposed Change:	703.3.6 (7) In Tropical Climate Zone 0, attached unconditioned spaces that provide full shade (PF 1.0 or greater, including garages and lanais) of east, west and south faces shading 10-20% of enclosed wall/window area, 10 points; Shading 21% 30% of enclosed wall/window area: 20 points Shading 30% or more of enclosed wall/window area: 30 points. For Shading Factors of 0.5 to 0.99 assign ½ as many points	
Reason:	Shading is the most effective means of ameliorating heat gain in the Tropics, where the typical delta T between the interior and exterior ambient is approximately 10F. The tropical climate lends itself to outdoor (low EUI) living and covered areas encourage same.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Climate zone has already been incorporated, Climate Zone 0 is not applicable, and shading is already covered in the IECC and therefore the proposed baseline.	
TG Vote:	9-0-0	

Proposal ID P237	LogID TG5-39	704 Additional Practices
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Add new text as follows:	
Proposed Change:	**704.6 Exhaust Fans.** Occupancy sensors or other automatic controls are installed on 80 percent of exhaust fans, excluding kitchen and garage exhaust fans.	
Reason:	Allowance made for controls on exhaust fan to save energy.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	10-0-0	

Proposal ID P238	LogID 5121	704.2 Lighting
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	704.2.4 **Non-unit lighting design**. In multi-family design interior, non-residential lighting to achieve the following lighting power density (1) Less than or equal to 0.7 watts/sf (2) Less than or equal to 0.5 watts/sf (3)Less than or equal to 0.3 watts/sf	
Reason:	Encourage efficient lighting design in MF residential associated and non-unit spaces	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG 5 – Disapprove Concern about meeting IES minimum illumination requirements. A lack of certainty on the size of spaces. Difficult to assign points Potential conflict with other minimum lighting requirements of other codes, e.g. means of egress lighting requirements. --- TG 6 – Disapprove The task group agrees with commenter that the NGBS would benefit from a provision addressing common area lighting in multi-unit buildings. This item is rejected in favor of the task group- generated proposal in this area.	
TG Vote:	TG 5 11-0-0 TG 6 5-0-0	

Proposal ID P239	LogID TG6-04	704.2 Lighting
Submitter:	Shaun Taylor, Lutron Electronics	
Requested Action:	Add new text as follows:	
Proposed Change:	Automatic daylight controls or time clocks are installed for multi-unit exterior lighting. (1) 50 percent of lighting load (2) 75 percent of lighting load (3) 100 percent of lighting load Exceptions: (1) Solar photovoltaic exterior lights (2) Lighting required to comply with local egress and life safety code requirements. Recommended Definition: DAYLIGHT CONTROL. A device or system that provides automatic control of electric light levels based on the amount of daylight.	
Reason:	Daylight controls are effective energy management tools that prevent energy waste where exterior lights are left on during daylight hours. This can be done using controls such as photo sensors or a time clock. The proposal is crafted to specifically address multi-unit buildings. While we feel the concept is generalizable to all residential building types, the multifamily task group is deferring to the energy task group for their consideration. This recognizes that the use of these control devices may be different in multifamily and single-family buildings. For example, the percentage tiers are necessary in the multi-unit context because of the large number of devices that may be required in an apartment project, while a single-family home may only require two or three devices.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-0-0	

Proposal ID P240	LogID TG6-05	704.2.1 Occupancy sensors
Submitter:	Shaun Taylor, Lutron Electronics	
Requested Action:	Revise as follows:	
Proposed Change:	Occupancy/Vacancy Sensors. Occupancy or vacancy sensors are installed on indoor lights, and photo or motion sensors are installed on outdoor lights to control lighting. Multi-unit building note: Occupancy sensors or vacancy sensors are installed on interior lighting. 1. Occupancy or vacancy sensors are installed in dwelling units: (1) 25 percent of lighting (2) 50 percent of lighting. 2. Vacancy sensors are installed in multi-unit common areas: EXCLUSION: Corridors and stairwells. (1) 50 percent of lighting (2) 75 percent of lighting (3) 100 percent of lighting Recommended Definitions: OCCUPANCY SENSOR. Devices that generally use passive infrared and/or ultrasonic technology or a combination of multiple sensing technologies to automatically turn lights on and off or from one preset light level to another based on whether or not the sensor detects that a space is occupied. VACANCY SENSOR. Devices that generally use passive infrared and/or ultrasonic technology or a combination of multiple sensing technologies to determine if a space is occupied. If a space is unoccupied, the device will automatically turn the lights off, but the device does not automatically turn lights on.	
Reason:	Vacancy sensors may save more energy than occupancy sensors because they do not automatically turn lights on. This proposal gives flexibility to homeowners who may want their lights to come on automatically. For common areas, lights will need to be manually turned on but will automatically turn off when a space is vacant. Multifamily corridors and exit stairwells are excluded because there is a separate proposal that allows light level reduction instead of turning the lights off that enables corridors and stairwells to meet life safety codes.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	7-0-0	

Proposal ID P241	LogID TG6-03	704.2.1 Occupancy sensors
Submitter:	Shaun Taylor, Lutron Electronics	
Requested Action:	Revise as follows:	
Proposed Change:	704.2.1 Occupancy Sensors. (1) Occupancy sensors are installed on indoor lights,and photo or motion sensors are installed on outdoor lights to control lighting. (a)~~(1)~~ 25 percent of lighting (b)~~(2)~~ 50 percent of lighting (2) In a multi-unit building, occupancy controls are installed to automatically reduce light levels in interior corridors and exit stairwells when the space is unoccupied. Light levels are reduced by: (a) A minimum of 50 percent or to local minimum requirements (b)A minimum of 75 percent or to local minimum requirements	
Reason:	Most corridor and exit stairwell lights in multifamily housing stay on 24 hours a day whether a space is occupied or not. Substantial energy savings may be achieved by reducing light levels in these areas when not in use. Although many of these areas must remain lighted 24 hours a day in order to meet life safety codes, safety requirements can be nonetheless be fulfilled, while reducing light levels and achieving as much as a 90 percent reduction in energy use relative to full-on lighting.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	Revise standard as follows: (3) In a multi-unit building, occupancy controls are installed to automatically reduce light levels in garages and parking structures when the space is unoccupied. Light levels are reduced by: (a) A minimum of 50 percent or to local minimum requirements (b) A minimum of 75 percent or to local minimum requirements	
TG Reason:	The task group agrees that there are significant energy savings opportunities utilizing occupancy sensors and controls in multi-unit buildings. Garages and parking structures are other areas that can benefit from lighting reduction technologies, but present separate challenges and involve different considerations from corridor and stairwell lighting. Therefore, it is appropriate to include a separate provision for garage and parking structure lighting.	
TG Vote:	6-0-0	

Proposal ID P242	LogID TG5-36	704.2.1 Occupancy sensors
Submitter:	Wayne Stoppelmoor, Schneider Electric	
Requested Action:	Revise as follows:	
Proposed Change:	~~**704.2.1 Occupancy Sensors.** Occupancy sensors are installed on indoor lights, and photo or motion sensors are installed on outdoor lights to control lighting.~~ **704.2.1 Interior Lighting Controls.** In dwelling units, permanently installed lighting fixtures shall be controlled with a vacancy sensor, occupancy sensor, or dimmer for: (1) ~~25~~ 75 percent of lighting fixtures. (2) ~~50~~ 100 percent of lighting fixtures.	
Reason:	The most efficient light is the one that is off. The current standard does not effectively account for use of lighting controls as a means of energy savings. Regardless of efficacy, light sources achieve maximum energy savings when they are off or reduced to the minimum required by the task. For 120 volt incandescent/halogen sources, dimming reduces energy use, increases lamp life, and dimmers are inexpensive. Automatic controls turn lighting off when not being used. (See reference documentation listed below.). Several reports document savings from using controls residentially, such as: · http://www.lrc.rpi.edu/programs/lightingTransformatio/economics/table2.asp [shows 20% to 40% savings depending on space type for using occupancy sensors] · http://www.energy.ca.gov/title24/2013standards/prerulemaking/documents/current/Reports/Residential/Lighting/ open Residential Lighting PDF and see page 32[shows 10% savings from dimmers, 30% savings from occupancy sensors] · Heschong Mahone Group Lighting Efficiency Technology Report Vol. 1, see page 83. www.energy.ca.gov/efficiency/lighting/VOLUME01.PDF [shows 20% savings from dimmers and 54%savings from occupancy sensors]	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* ~~**704.2.1 Occupancy Sensors.** Occupancy sensors are installed on indoor lights, and photo or motion sensors are installed on outdoor lights to control lighting.~~ **704.2.1 Interior Lighting Controls.** In dwelling units, permanently installed lighting fixtures shall be controlled with a vacancy sensor, occupancy sensor, or dimmer for: (1) ~~25~~ ~~75~~ 25 percent of lighting fixtures. (2) ~~50~~ ~~100~~50 percent of lighting fixtures. (3) 75 percent of lighting fixtures.	
TG Reason:	Recognizes such controls are not needed, desired or otherwise appropriate for all lighting and provides a reasonable incentive for the installation of these controls where appropriate or desired.	
TG Vote:	14-0-0	

Proposal ID P243	LogID TG5-37	704.2.1 Occupancy sensors
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	**704.2.1 Occupancy sensors.** **704.2.1.1 Interior Lighting.** Occupancy sensors are installed on the interior living space ~~indoor~~ lights **(1)** 25 percent of lighting **(2)** 50 percent of lighting **704.2.1.2 Exterior Lighting.** ~~and~~ ~~p~~Photo or motion sensors are installed on outdoor lights to control lighting. **(1)** 25 percent of lighting **(2)** 50 percent of lighting **704.2.1.3 Common Areas.** Occupancy sensors are installed on common area lights (excluding storage, electrical, and mechanical, & exterior lighting).	
Reason:	Consistency with the 2015 IECC. Allowance made for special lighting requirements in MF buildings.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **704.2.1 Occupancy sensors.** ~~**704.2.1.1 Interior Lighting.** Occupancy sensors are installed on the interior living space indoor lights~~ ~~(1) **25 percent of lighting**~~ ~~(2) 50 percent of lighting~~ **704.2.1.2 Exterior Lighting.** ~~and p~~Photo or motion sensors are installed on outdoor lighting fixtures to control lighting. **(1)** 25 percent of lighting fixtures. **(2)** 50 percent of lighting fixtures. **(3)** 75 percent of lighting fixtures. **704.2.1.3 Common Areas.** ~~**Occupancy sensors**~~ Vacancy sensors, occupancy sensors, or dimmers are installed ~~on~~ in common areas. ~~(excluding storage, electrical, and mechanical, & exterior lighting).~~ **(1)** 25 percent of lighting fixtures. **(2)** 50 percent of lighting fixtures. **(3)** 75 percent of lighting fixtures.	
TG Reason:	To be consistent with action taken on TG5-35 and including for common areas.	
TG Vote:	14-0-0	

Proposal ID P244	LogID 5091	704.2.1 Occupancy sensors (Lighting)
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	704.2.1 **Occupancy sensors.** Occupancy sensors are installed on indoor lights, and motion photo sensors are installed on outdoor lights to control lights <u>and/or occupancy sensors are installed with setback thermostats for HVAC equipment and hot water heaters.</u> (1) 25 Percent of lighting (2) 50 Percent of lighting <u>(3) HVAC System set back plus occupancy</u> <u>(4) Hot water heater occupancy</u>	
Reason:	Since HVAC and hot water heating use more energy they should be considered too as options for occupancy sensors. The two additional items recommended would result in a much larger energy savings than the lighting options and should be awarded more points.	
TG Recommendation:	Withdrawn	
Modification of Proposed Change:		
TG Reason:	Withdrawn by proponent on TG 5 conference call June 25, 2014.	
TG Vote:		

Proposal ID P245	LogID 5053	704.2.2 TDDs and skylights
Submitter:	Angelo Marasco, ODL	
Requested Action:	Revise as follows	
Proposed Change:	<u>ENERGY STAR or equivalent</u> tubular daylighting device (TDD) or skylight with sealed, insulated, low-E glass is installed in rooms without windows.	
Reason:	Similar to other NGBS sections that reference ENERGY STAR compliant or equivalent glazing this assures that the TDD being used meets a minimum standard of energy efficient performance.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **704.2.2 TDDs and skylights.** <u>A</u> tubular daylighting device (TDD) or a skylight that <u>meets the requirements of Table 703.1.6.2(a)</u>~~with sealed, insulated, low-E glass~~ is installed in rooms without windows.	
TG Reason:	Specific technical requirements need to be provided with the intention for the requirements to be equivalent to ES Version 6.0.	
TG Vote:	14-0-0	

Proposal ID P246	LogID TG5-38	704.2.3 Lighting outlets
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	704.2.3 Lighting Outlets. Occupancy sensors are installed for a minimum of 80% of hard-wired lighting outlets in <u>the interior living space</u>.	
Reason:	Confusion exists concerning the extent of the required fixtures. – exclude exterior, garages, crawlspaces etc.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-3	

Proposal ID P247	LogID 5092	704.4.2 HVAC performance verification
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Change to make this section align with mandatory requirements in other sections: 704.4.2 Performance of the heating and/or cooling system is verified by a third-party on-site inspection ~~the HVAC contractor~~ in accordance with all of the following QI-5 2010 procedures: (1) Start-up procedure documentations is completed and within OEM tolerances~~is performed in accordance with the manufacturer's instructions.~~ (2) Refrigerant Charge ~~is verified by~~ super-heat and /or sub-cooling method recorded results are verified (when required) (3) When required, verification that: Burner is set to fire at input level listed on nameplate. (4) Verification that: Air handler setting/fan speed is set in accordance with manufacturer's instructions. (5) Verification that: Total airflow is within ~~10 percent of design flow.~~ The OEM requied operating range at all speeds the system will operate and within 20% of the design value. (6) Verification that: Total external system static does not exceed equipment capability at rated airflow.	
Reason:	Change to make this section align with mandatory requirements in other sections: ACCA recommends making the minimum requirements for installing an HVAC system mandatory in section 701.4.1 and providing points for 3rd party verification. That verification could be done by the builder or another subcontractor.	
TG Recommendation:	Withdrawn	
Modification of Proposed Change:		
TG Reason:	Withdrawn by proponent – on 7/30 conference call	
TG Vote:		

Proposal ID P248	LogID 5117	704.4.2 HVAC performance verification
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	704.4.2 **HVAC System set up.** Performance of the heating and/or cooling system is verified by the HVAC contractor in accordance with manufacturer's instructions including all of the following: ~~(1) Start-up procedure is performed in accordance withthe manufacturer's instructions~~ ~~(2) Refrigerant charge is verified by the super heatand/or sub-cooling method~~ ~~(3) Burner is set to fire at input level listed onnameplate~~ ~~(4) Air handler setting/fan speed is set in accordancewith manufacturer's instructions~~ (1) Total airflow is within 10% of design flow (2) Total external system static does not exceed equipmentcapacity at rated airflow	
Reason:	704.4.2 (1-4) are basic requirements and recommended to be moved to mandatory practices [701.4.1.3(1-4)]. 704.4.2 (5) and (6) would change to (1) and (2) for credit	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	In favor of LogID 5092 which also addresses the samesubject matter and intent.	
TG Vote:	13-0-0	

Proposal ID P249	LogID 5250	704.4.2 HVAC performance verification
Submitter:	Jeremy Velasquez, US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	subsection (1) Start-up & subsection (2) Ref. Charge should be made Mandatory. Award the 3+ points for completions of subsections (3) through (6) - which will need to be performed by the HVAC contractor.	
Reason:	Proper refrigerant charge and start-up procedure is extremely important and affect the efficiency of the unit. Most MF teams will not choose this credit - and as a result the HVAC systems start up and charge are not properly performed or documented. subsections 3-6 will require equipment that contractors typically do not possess - and this is time consuming for a rater to self verify.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	In favor of 5092 which also addresses the same subject matter and intent.	
TG Vote:	13-0-0	

Proposal ID P250	LogID TG5-40	704.5 Installation and performance varification
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	704.5.1 Third party on-site inspection is conducted to verify compliance with all of the following as applicable. Minimum of two inspections are performed: one inspection after insulation is installed and prior to covering, and another inspection upon completion of the building. ~~Where multiple buildings or dwelling units of the same model are built by the same builder, a representative sample inspection of a minimum of 15 percent of the buildings or dwelling units is permitted.~~ Multi-Unit Building Note: For multiple buildings or dwelling units of the same model that are built by the same builder, a representative sample inspection of a minimum of 15 percent of the buildings or dwelling units is permitted	
Reason:	Delete the direct reference to sampling for all buildings. Recommended to add a new sub-section for multi-family units to allow sampling. Sampling protocols are most effective when the same contractor is performing the same work on identical units over a limited time period – a situation that is not often the case in single family home construction today.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG desires to continue to have the provision to apply to single- and multi-unit buildings.	
TG Vote:	10-0-1	

Proposal ID P251	LogID TG5-41	704.5.2 Testing
Submitter:	Aaron Gary, US-EcoLogic	
Requested Action:	Add new text as follows:	
Proposed Change:	*Add new section:* **704.5.2.X Duct leakage testing.** For projects where duct testing is not required under the 2015 IECC because of Scope (R401.1) or Compliance path selected (R401.2), ducts are pressure tested to determine air leakage in accordance with the following: (1) A total leakage test of the ducts is conducted in accordance with 2015 IECC R403.3.3 and R403.3.4. (2) Testing conducted by an independent third-party.	
Reason:	Many multifamily projects that follow NGBS certification are not required to do duct testing by Code. Duct testing is not required by Commercial IECC (if they are 4 stories or taller). These projects should be rewarded forimplementing above-code energy-efficient practices. **This version appliesto all projects where Duct Leakage testing is not Mandatory under the 2015 IECCfor Commercial (Multifamily 3+ stories)or Residential (when they follow the Performance or ERI paths**	
TG Recommendation:	Withdrawn	
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID P252	LogID 5303	704.5.2 Testing
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	Add 704.5.2.3 Duct Leakage (for Multifamily projects ONLY). The entire HVAC duct system...to be tested by third party...maximum air leakage is equal to or less than X (to be determined based on IECC baseline of 2015 NGBS) percent of system fan flow.	
Reason:	Duct leakage is not required under IECC Commercial Code (2009 or 2012). As this testing is not required by Code, multifamily projects should be rewarded for going beyond baseline CODE requirements to improve the energy efficiency of their project.	
TG Recommendation:	See below	
Modification of Proposed Change:		
TG Reason:	TG 5 - Withdrawn --- TG 6 - Approve	
TG Vote:	TG 6 5-0-0	

Proposal ID P253	LogID 5128	704.5.2 Testing
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	704.5.2.3 Test ventilation in accordance with design (1) Test spot exhaust at point of origin or termination (2) Test supply and/or exhaust ventilation in accordancewith Appendix B	
Reason:	ENERGY STAR performance compliance is tested in Ch 7, these practices should be available for testing under other paths. Testing at exhaust termination is not safe or practical for many multifamily projects	
TG Recommendation:	See below	
Modification of Proposed Change:		
TG Reason:	TG 5 - Disapprove This issue is already addressed in Chapter 9 and the proposal would lead to duplication of credit. --- TG 6 - Approve	
TG Vote:	TG 5 11-0-0 TG 6 5-0-0	

Proposal ID P254	LogID 5076	704.5.2 Testing
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	Testing ~~above mandatory requirements~~ is conducted to verify performance.	
Reason:	It is not clear what "above mandatory requirements" is intended to mean. If the blower door result is supposed to be less than the 7 ACH50 of 701 then that should be specified.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	This section should be reviewed for revisions that may be needed in order to bring into consistency with 2015 IECC.	
TG Vote:	10-0-1	

Proposal ID P255	LogID TG5-42	704.5.2.1 Building envelope leakage testing
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	704.5.2.1 Where not required by 2015 IECC, points are awarded for building envelope leakage testing. (1) A blower door test and a visual inspection are performed as described in 701.4.3.2. **~~5~~ TBD** (2) Third party verification is completed. **~~5~~ TBD**	
Reason:	The 2015 IECC requires both visual and testing verification for residential-code buildings. Points are awarded for envelope leakage measures beyond the 2015 IECC.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-0	

Proposal ID P256	LogID 5093	704.5.2.2 HVAC airflow testing
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Change to make this section align with mandatory requirements in other sections: (1) Measured flow at each supply and return register is ~~within 25 percent of design flow~~ meets or exceeds the requirements in QI-5-2010 Total airflow ~~is within 10% of design flow.~~ meets or exceeds the requirements in QI-5-2010	
Reason:	Recommend changing the balancing verification requirements to align with QI-5. QI-5 took into account the accuracy of the tools used to measure and verify in the tolerances allowed. Thus, this third party check would be a natural fit with those requirements. For example if the contractor's tool was off by 5% when balancing to plus or minus 10% and the verifiers tool was off by 5% when verifying a properly done balance was within 10% could be given a failing grade.	
TG Recommendation:	Approved as Modified.	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* ~~Change to make this section align with mandatory requirements in other sections:~~ (1) Measured flow at each supply and return register ~~is within 25 percent of design flow~~ meets or exceeds the requirements in QI-5-2010, Section 5.2. Total airflow ~~is within 10% of design flow.~~ meets or exceeds the requirements in QI-5-2010, Section 5.2.	
TG Reason:	Because QI-5 requirements were disapproved as mandatory requirements, this modification allows the use of QI-5 for this specific purpose as an option for additional points. The addition of the specific reference to Section 5.2 was added to provide further clarification of the specific QI-5 provisions that are applicable to this option. The"Change…..in other sections" was deleted as it was included as commentary for the original proposal and has been deleted to avoid any confusion.	
TG Vote:	11-0-0	

Proposal ID P257	LogID TG5-43	704.5.3 Insulating hot water pipes

Submitter:	Amber Wood, NORESCO/AEC
Requested Action:	Revise as follows:
Proposed Change:	704.5.3 Insulating hot water pipes. Where not required by 2015 IECC, points are awarded for insulation with a minimum thermal resistance (R-value) of at least R-3 ~~is~~ applied to the following: (a) piping ~~larger than~~ 3/4 in. and larger in outside diameter (b) piping serving more than one dwelling unit ~~(c) piping branches serving kitchen sinks~~ (d) piping located outside the conditioned space (e) piping from the water heater to a distribution manifold (f) piping located under a floor slab (g) buried piping (h) supply and return piping in recirculation systems other than demand recirculation systems ~~(i) all other piping except the piping that meets the length requirements of Table 704.5.3~~ ~~Table 704.5.3~~ ~~Maximum Pipe Run Length~~

~~Nominal Pipe Diameter of largest pipe in run (inches)~~	~~Maximum pipe length (feet)~~ [1]
~~3/8~~	~~30~~
~~1/2~~	~~20~~
~~3/4~~	~~10~~

~~1. Total length of all piping from the source of hot water (either a water heater or distribution manifold (or tee) on a trunk line or a recirculation loop) to a point of use~~

Reason:	The table was deleted in the 2015 IECC.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	10-0-0

Proposal ID P258	LogID TG5-45 705 Innovative practices
Submitter:	Steve Rosenstock, Edison Electric Institute
Requested Action:	Add new text as follows:
Proposed Change:	Section 202: **GRID-INTERACTIVE ELECTRIC THERMAL STORAGE (GETS)**.An energy storage system that provides electric system grid operators such as utilities, independent system operators (ISOs) and regional transmission organizations (RTOs), with variable control of a building's space heating and service water heating end uses. **705.7 Grid-Interactive Electric Thermal StorageSystem.** A Grid-Interactive Electric Thermal Storage System is installed. (1) Grid-Interactive Water Heating System 1 Point (2) Grid-Interactive Space Heating System 2 Points
Reason:	Grid-Interactive Electric Thermal Storage is an innovative technology with a growing reputation among market participants as a solution to some of today's most pressing energy issues. 1. Building owners like GETS because it provides affordable and dependable space and service water heating for their structures. 2. Electric grid operators like GETS because it helps them balance energy supply and demand in real time, thereby increasing grid stability while simultaneously reducing costs, energy and emissions. Maintaining grid stability becomes more challenging as the output of renewable energy generation (like wind and solar) is added to electric grids which explains why grid operators across the country (as well as the Federal Energy Regulatory Commission and the U.S. Department of Energy) have expressed their support for energy storage. 3. Renewable energy developers like GETS because it complements their projects by providing cost-effective energy storage when renewable energy production exceeds demand. Without adequate energy storage, these projects areoften curtailed. **What is a Grid-Interactive Electric Thermal System ("GETS")?** For building owners and operators, GETS serve as traditional space and service water heating systems. GETS provide affordable and dependable space conditioning and domestic hot water. Nonetheless, GETS have significantly different operational and energy consumption characteristics from traditional space and service water heating systems as described in more detail below. **Thermal battery.** Electric utilities dispatch their generators in the order from the most cost efficient (base load generation) to the least cost efficient (peaking load generation). GETS complements the efficient dispatch of generation by utilities by allowing the storage of energy that is produced more efficiently for use later, and by avoiding the requirement to operate less efficient generators at peak load conditions. GTS accomplishes this feat by charging (heating bricks, water, orother storage media) at times when utilities have excess capacity. Often this is at night but it can vary between utilities. Because the system is grid-interactive, a GTS can charge at times that are optimum for the utility,allowing utilities to efficiently manage their peak demands and their customer costs. Heat that is stored for later use effectively makes GETS a thermal battery. **Renewable energy.** GETS is a unique complement to the generation of electricity from renewable energy like wind and solar. Many times peak power production from renewable energy sources does not coincide with a utility's demand for electricity. As an example, wind generation usually peaks at night when demand for energy is not usually the greatest. For that reason, the Bonneville Power Administration in the Pacific Northwest and ERCOT in Texas in past years were forced to curtail the generation from wind generators at certain times because it didn't need all the electricity the wind generators were producing. GETS is a good fit for storing excess renewable energy and has been successfully deployed in Bonneville's service territory as well as the service territory of other electric utilities. **Reduces winter peak.** When electrical demands on a utility's system grow, it may be forced to dispatch less efficient generators to meet that demand, so to the extent demand is reduced the utility avoids costs (that would ultimately be passed on to customers) and saves energy. GETS allows the storage of energy produced by moreefficient and/or renewable generators. **Replaces fossil fuel in utility grid control.** When electrical demand on a utility's grid changes (up or down), the most immediate system response is for the grid's frequency to drift away from ideal (60 cycles per second). To control these frequency excursions, utilities have traditionally operated fossil fuels generators to add voltage to the grid to raise the frequency as it falls away from 60 cycles. Grid-interactive GETS can be dispatched in lieu of fossil fuel generators to remedy frequency excursions, thereby saving energy and costs. According to a Kema report, usage of a non-carbon emitting resource such as GETS for providing regulation services can reduce carbon emissions for regulation by nearly 65%. GETS offer significant benefits to customers, including

	the ability to store renewable energy, the ability to reduce utility costs, and the ability to reduce the consumption of fossil fuel by utilities in the regulation of system frequency. **Bibliography:** See article at http://www.pjm.com/~/media/about-pjm/newsroom/renewables/greener-grid.ashxfor information on the value of ETS in the PJM Interconnection serviceterritory. See article at http://www.sustainablebusinessoregon.com/articles/2012/04/bonneville-power-calls-for-first-wind.html?page=all for information on BonnevillePower curtailment of wind generation amounting to almost 100,000 MWH's in 2011. See Kema Consulting report (Commissioned by the U.S. Department ofEnergy under the supervision of Sandia National Laboratory) noting significant reduction in carbon emissions at http://prod.sandia.gov/techlib/access-control.cgi/2008/088229.pdf . See http://www.steffes.com/off-peak-heating/ets.html for more information on utility benefits of WTS, including energy savings associated with thermal storage and frequency regulation. See Sandia National Laboratory website at http://www.sandia.gov/ess/ for information on the contributions of energy storage to electric grid stability. For a detailed description of frequency regulation in North America seeDepartment of Energy / National Energy Technology Laboratory Report FrequencyInstability Problems in North American Interconnections, DOE/NETL-2011/1473,Final Report dated May 1, 2011 found at http://www.netl.doe.gov/energy/analyses/pubs/TransmissionFreqProb.pdf
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	This may facilitate integration of renewables into the grid.
TG Vote:	8-1-2

Proposal ID P259	**LogID TG5-50**	**705 Innovative practices**
Submitter:	Wayne Stoppelmoor, Schneider Electric	
Requested Action:	Add new text as follows:	
Proposed Change:	**705.7 Vampire load control.** At least 25% of the receptacles in the home shall be controlled with an automatic control device. Controlled receptacles shall be marked to differentiate them from uncontrolled receptacles.	
Reason:	Plug loads are one of the largest and fastest growing energy end uses in residential and commercial spaces. Vampiric load is electric power consumed by electronic appliances while they are switched off or in a standby mode. · 13% of total residential electric demand is standby load. (PIER CEC-500-2008-035) · Microwave uses more energy in 24 hour period for standby than it does for cooking. (Plug load resi controls presentation from Energy Solution for CA IOU Stakeholder meeting June 1, 2011) · Residential standby load in CA requires four 500 MW power plants. (Plug load resi controls presentation from Energy Solution for CA IOU Stakeholder meeting June 1, 2011) · A TV with a remote, for example, can use more energy during the 20 hours it is turned off than it does the four hours you watch it. (source: ConEdison Power of Green Poster) Receptacle control helps manage these vampiric loads by turning off the power to certain appliances when we don't need them. Additional info and studies are here: http://www.efficientproducts.org/product.php?productID=11	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The energy savings are uncertain because it requires the occupant to match the receptacle with the specific appliance to make the practice effective (i.e., dependent on occupant behavior)	
TG Vote:	9-1-0	

Proposal ID P260	LogID TG5-51	705 Innovative practices
Submitter:	Wayne Stoppelmoor and Steve Rosenstock,	
Requested Action:	Add new text as follows:	
Proposed Change:	**705.7 Electrical Vehicle Charging Station**. A Level 2 (208-240 Volt) vehicle charging station is installed on the building site. Points 1	
Reason:	This proposal will promote the usage of green energy in the transportation sector. Electric vehicles reduce the amount of energy used for transportation and do not create vehicle tailpipe emissions. The following is a link to a 2007 EPRI/NRDC report on the impact of the use of electric vehicles: http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?productId=000000000001015325	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Add new text to section 705 Innovative practices as follows:* **705.7 Electrical Vehicle Charging Station**. A Level 2 or Level 3 electric vehicle charging station is installed on the building site. Points 1 *Add new text to section 202 Definitions as follows:* **Level 2 Electric Vehicle Charging Station** – A device that is used to supply electricity to a plug-in hybrid electric vehicle or a plug-in electric vehicle and is rated for use with 208 to 240 Volts AC input. **Level 3 Electric Vehicle Charging Station** – A device that is used to supply electricity to a plug-in hybrid electric vehicle or a plug-in electric vehicle and is rated for use with 208 to 500 Volts, 3 phase electric AC input.	
TG Reason:		
TG Vote:	10-0-0	

Proposal ID P261	LogID TG5-52	705 Innovative practices
Submitter:	Wayne Stoppelmoor , Schneider Electric	
Requested Action:	Add new text as follows:	
Proposed Change:	**705.7 Automatic demand response.** Automatic demand response system is installed that curtails energy usage upon a signal from the utility or an energy service provider. Points: 2	
Reason:	Demand response programs and systems reduce peak demand thereby reducing utilities' need to consume greater amounts of natural resources and emit greater amounts of carbon into the atmosphere.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Approve with points assigned at a later date	
TG Vote:	11-0-0	

Proposal ID P262	LogID TD5-49	705 Innovative practices
Submitter:	Craig Conner, Building Quality	
Requested Action:	Add new text as follows:	
Proposed Change:	705.7 Controls for conditioned air, IAQ and heated water. Controls are provided that deliver conditioned air, IAQ services, humidity control, ventilation air and/or service water heating more efficiently.	
Reason:	As the thermal shell and equipment get moreefficient, the remaining efficiency will be found in control systems for energyuseing devices and in the distribution systems for air and water. This would recognize innovative devices or designs that have more efficient controls. For example, it might include systems that control when “fresh air” is added to the home so that it was only added when really needed, that are smarter about when to modify indoor humidity, more efficiently distribute conditioned air, or limit the energy and water wasted in hot water delivery.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Other proposals and other sections of the Standard address this issue. This proposed change is not fully developed for inclusion in the Standard.	
TG Vote:	7-2-2	

Proposal ID P263	LogID TG5-46	705.1 Energy consumption control
Submitter:	Wayne Stoppelmoor, Schneider Electric	
Requested Action:	Revise as follows:	
Proposed Change:	**705. 1 Energy consumption control.** A whole-building or whole-dwelling unit device or system is installed that controls or monitors energy consumption. (1) programmable communicating thermostat having the capability to be controlled remotely (2) energy-monitoring device or system (3) energy management control system (4) programmable thermostat having control capability based on occupant presence or usage pattern	
Reason:	1)It is not clear from the existing language in item (1) that the thermostat is required to be controlled remotely. Having a thermostat that only communicates does not necessarily reduce energy consumption. For energy reduction, It is import for the thermostat to be controlled remotely. 2)Systems should not be excluded from utilization to satisfy the requirement. In many cases, the requirement cannot be satisfied without the use of a system. 3) Item 4 was added because implementation of these types of technologies will provide additional energy reduction.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-0	

Proposal ID P264	LogID TG5-47	705.1 Energy consumption control
Submitter:	Wayne Stoppelmoor, Schneider Electric	
Requested Action:	Revise as follows:	
Proposed Change:	**705.1 Energy consumption control.** A whole-building or whole-dwelling unit device is installed that controls or monitors energy consumption. (1) Programmable communicating thermostat (2) Energy monitoring device (3) <u>Lighting control system</u> (4) Energy management control system	
Reason:	A whole-home lighting control system reduces energy consumption by allowing home owners the ability control (turn OFF or ON or to a specific light level in between ON and OFF) and/or monitor all the lighting from one location or from a remote location. These lighting control system allow for both automatic control of the lighting (e.g. lighting turned OFF at certain times of the day or night) and manual control of the lighting. Some also control temperature, window shades, or other home systems. Many high-performance green homes have them installed.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-0	

Proposal ID P265	LogID 5307	705.5 Additional renewable energy options
Submitter:	Lorraine Ross, L Ross Consulting Inc	
Requested Action:	Revise as follows	
Proposed Change:	705.5 ~~Additional~~ On-site renewable energy system ~~options~~. An on-site renewable ~~Renewable~~ energy system(s) is installed on the property: ~~(e.g., solar photovoltaic panels, building integrated photovoltaic system, wind energy system, on-site micro-hydro power system, active solar space heating system, solar thermal hydronic heating system, photovoltaic hybrid heating system)~~. ~~Points: 1 (Points awarded per 100 W of system rating per 2,000 square feet of total conditioned floor area of the building.)~~ Points: 1 Points awarded for every 100 W of system rating installed for every 2,000 square feet of total conditioned floor area of the building. No points shall be awarded in this section for solar thermal or geothermal systems that provide space heating, space cooling or water heating, Points for these systems are awarded in section 703. Note:: Also revise these definitions: ON-SITE RENEWABLE ENERGY SYSTEM. An energy generation system located on the building or building site that derives its energy from a renewable energy source. RENEWABLE ENERGY. Energy derived from renewable energy ~~sources that are regenerative or cannot be depleted~~. RENEWABLE ENERGY SOURCE. ~~Source of energy (excluding minerals)~~ Energy derived from ~~incoming~~ solar radiation, ~~including natural solar radiation itself, photosynthetic processes; from~~ ~~phenomenon resulting therefrom, including~~ wind, hydropower, waves, ~~and~~ tides, biogas, biomass, or geothermal energy. ~~and lake or pond thermal differences; from decomposition of waste material, including methane from landfills; from processes that use regenerated materials, including wood and bio-based products; and from the internal heat of the earth, including nocturnal thermal exchanges.~~	
Reason:	Reason: Adding and revising definitions for accuracy and to be in line with the I-codes. Several editorial changes are made for clarity and accuracy. The examples of systems have been deleted. Laundry lists such as these are not appropriate. The term Renewable Energy System is defined. There is a potential conflict that exists with solar thermal and geothermal heating, cooling, and water heating systems. These systems already get points via section 703. To avoid double counting a statement has been added to point users of these systems to the correct location for obtaining credit.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	11-0-2	

Proposal ID P266	LogID TG5-48	705.5 Additional renewable energy optoins
Submitter:	Amber Wood, NORESCO/AEC	
Requested Action:	Revise as follows:	
Proposed Change:	**705.5 Additional renewable energy options.** Renewable energy system(s) is installed on the property (e.g., solar photovoltaic panels, building integrated photovoltaic system, wind energy system, on-site micro-hydro power system, active solar space heating system, solar thermal hydronic heating system, photovoltaic hybrid heating system). **(Points awarded per 100 W of system rating per 2,000 square feet of total conditioned floor area of the building.)** Multi-unit note: conditioned common area and non-residential space is permitted to be excluded from the total conditioned floor area for the purpose of calculating awarded points	
Reason:	Allowance made for limited roof space for MF buildings.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	10-0-0	

Proposal ID P267	LogID 5071	Other for Chapter 7 (include section number and title below)
Submitter:	Philip LaRocque, LaRocque Business Management Services, LLC	
Requested Action:	Add new as follows	
Proposed Change:	704.6 ENERGY STAR or equivalent appliance(s) are installed: (1) refrigerator 5 (2) dishwasher 2 (3) washing machine 4	
Reason:	This change returns to the 2008 NGBS where a builder is rewarded for ENERGY STAR appliances as an excellent energy conservation tool (more cost effective than the 705 ENERGY SMART practice -though that should be retained)and returns to consistency with ES kilowatt hours saved factors. I recognize that the NGBS REM-based cost comparison report may reflect and reward this energy savings practice but this amendment is much more instructive and promotional for greater energy efficiency with a direct practice point structure for the ES appliance investment. In addition, we give water conservation points for ES dishwashers and washing machines in Chapter 8 so we should have some consistency on direct ES appliance rewards in Chapter 7. This should be available and keep the ENERGY SMART appliance practice points under Innovative Practices to further motivate the builder/buyer to do even more.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Already included in 703.5.3. In addition points are assigned based on energy savings under a separate committee task.	
TG Vote:	9-0-0	

Proposal ID P268	LogID 5152	Other for Chapter 7 (include section number and title below)
Submitter:	Stephen J Holzer, eM8s, LLC	
Requested Action:	Add new as follows	
Proposed Change:	**705.7 Building Information Modeling (BIM)** Project Team uses BIM to develop a whole house energy model, and applies the model to optimize energy efficiency.	
Reason:	Building Information Modeling (BIM) is a computer generated model based process that simulates planning, design, construction and operations for buildings. It is a single repository for both three-dimensional, two-dimensional, and material properties information that allows data interoperability of all stakeholders to better inform design and construction decisions with the goal of producing the best product possible. This information technology will increase design and construction efficiencies and decrease costs for builders and end users. BIM may also facilitate better communication, collaboration and coordination among building industry professionals and trades working on the same project. Credit should be given to Builders utilizing the open industry standards as defined in the National Building Information Modeling Standard.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Unclear how compliance would be achieved and what the metric would be. Doesn't save energy directly. Energy modeling is also accommodated elsewhere in the standard.	
TG Vote:	9-0-0	

Proposal ID P269	LogID 5324	Other for Chapter 7 (include section number and title below)

Submitter: Randall Melvin, Winchester Homes, Inc.

Requested Action: Add new as follows

Proposed Change:

701.1.4 Alternate Compliance Path 2

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

Table 701.1.4

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

Reason: The HERS Index is now an approved voluntary nationalstandard - ANSI/RESNET 301-2014 making it available as a direct reference fromthe NGBS. The HERS index has widespreadacceptance and use by builders, code officials, energy raters and consumersalike. Leveraging the benefits of the well established HERS Index will provideа familiar streamlined alternative for compliance with the Energy Chapter ofthe NGBS. The threshold HERS Index score provided for the Bronze level in Table 701.1.4, corresponds with the historical practice of the committee ofmaking the bronze level of the Energy Chapter of the NGBS approximately 15%more stringent than the baseline energy code which in this case could beeither the 2012 or 2015 IECC, as they are nearly identical in theirstringencies. The Emerald threshold has been set at the "practical achievable"limit and silver and gold levels set at intermediary interpolated levels betweenbronze and emerald. The additional 2NGBS points awarded for every additional point reduction in HERS Index scores, below the establishedthreshold limit, were added to parallela recent improvement made to the NGBS. The NGBS now recognizes and providesincentive for performance efficiency improvements beyond achieving the basethreshold points.

TG Recommendation: Approved as Modified

Modification of Proposed Change:

Revise standard as follows:

701.1 Mandatory requirements. The building shall comply with ~~either~~ Section 702 (Performance Path), ~~or~~ Section 703 (Prescriptive Path), or Section 704 (HERS Index Target Path). Items listed as"mandatory" in Section 701.4 apply to ~~both Performance and Prescriptive~~ all Paths.

701.1.1 Minimum Performance Path requirements. Abuilding complying with Section 702 ~~shall exceed the baseline minimum performance required by the ICC IECC by 15 percent, and~~ shall include a minimum of two practices from Section ~~704~~ 705.

701.1.2 Minimum Prescriptive Path requirements. A building complying with Section 703 shall obtain a minimum of 30 points from Section 703, and shall include a minimum of two practices from Section ~~704~~705.

701.1.3 HERS Index Target Compliance. A building complying with Section 704 shall obtain a minimum of 30 points from Section 704 and shall include a minimum of two practices from 705.

(Renumber 701.1.3 Alternative bronze level compliance to 701.1.4)

ADD NEW

SECTION 704 HERS INDEX TARGET

704.1 HERS index Target Compliance. Compliance with the energy chapter shall be permitted to be based on the EPA HERS Index Target Procedure for Energy Star Qualified Homes. Points from Section 704(HERS Index Target) shall not be combined with points from Section 702(Performance Path) or Section 703 (Prescriptive Path).

	704.2 Point calculation. Points 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: Points = 30 + (percent less than EnergyStar HERS Index Target for that building) * 2. This calculation shall not include the home size adjustment factor. This section shall not require compliance with other Energy Star Certified Homes requirements or be adjusted for state or local energy codes. **ADD REFERENCE in Section 1302–** **EPA – ENERGY STAR Documents** HERS Index Target Procedure for EnergyStar Qualified Homes, Version 3.0, Revision 07, National Program Requirements
TG Reason:	The intent is to provide an additional compliance path and use a specific house-to-house reference calculation using the EPA HERS Index Target Procedure (V3.0); it also allows for the use of the existing HERS infrastructure around the country; the HERS Index metric found broad market acceptance by builders, consumers, code officials, and energy raters.
TG Vote:	8-2-3

Proposal ID P270	**LogID 5249**	**Other for Chapter 7 (include section number and title below)**
Submitter:	Jeremy Velasquez, US-EcoLogic	
Requested Action:	Add new as follows	
Proposed Change:	Under SECTION 704 - Additional practices: 1. Add option for "light" commissioning for unitary water heating systems - 5 pts 2. Add option for "light" commissioning for Lighting systems and controls - 5 pts (this particular scope of work would have to be clearly defined at a future date - or "borrowed" from LEED-NC type commissioning for water heating and lighting systems.	
Reason:	Commissioning of systems does provide some additional quality assurance that systems are installed and working properly- and therefore makes the project more energy efficient.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This proposal is conceptual only and does not provide specific provisions for the TG to consider. In addition the term "light" for such provisions would also need to be defined.	
TG Vote:	9-0-0	

Proposal ID P271	LogID 5234	Other for Chapter 7 (include section number and title below)

Submitter:	Eric DeVito, BBRS
Requested Action:	Add new as follows
Proposed Change:	**Chapter 2** **DEFINITIONS** **VISIBLE TRANSMITTANCE (VT).** The ratio of visible light entering the space through the fenestration product assembly to the incident visible light, Visible Transmittance, includes the effects of glazing material and frame and is expressed as a number between 0 and 1. **Chapter 7** **ENERGY EFFICIENCY**

704.2 Lighting

704.2.4 Visible Light. In climate zones 1-4, windows, glazed doors (with more than 50% glazing) and skylights meet the requirements of Table 703.1.6.2(a), have a total area equal to at least 15% of conditioned floor area and, on an area-weighted average basis, have an NFRC-certified (or equivalent) VT that exceeds the following applicable minimum values:		
Windows Fixed Operable **Skylights**	0.42 0.32 0.49	**5**

Reason:	Natural light provides a variety of benefits to the occupants of a green home, many of which are not credited in the current ICC-700. Aside from the potential energy savings associated with the incorporation of daylight into lighting design, more natural light can increase indoor aesthetics, improve occupant health and provide a better connection between the occupants and the outdoors. The vast majority of residential windows are labeled with an NFRC label that includes a measurement of the visible light transmittance of the window unit, but currently there is no reference to visible light transmittance in ICC-700. The proposal above adopts the IECC definition of Visible Transmittance into ICC-700 and sets a very achievable minimum VT requirement. We have limited this proposal to climate zones 1-4 to coincide with the current fenestration requirements under the IECC and ICC-700 for climate zones 1-4 that include low-SHGC requirements. Although there are many products that achieve both a low SHGC and a high VT, there are also products and methods that reduce the amount of VT to levels that do not provide adequate natural light to the indoors. This proposal simply gives a credit for: (a) installing a reasonable amount of fenestration to increase the likelihood of windows placed to provide daylight, (b) selecting fenestration products that allow a moderate amount of natural light into the living space, and (c) selecting enhanced fenestration products (table 703.1.6.2(a)) to offset the impact of any increase in installed fenestration. For reference, because VT is expressed as a measurement between 0 and 1, a window unit (including frame) with a 0.32 VT is allowing 32% of the visible light into the interior space.
TG Recommendation:	Withdrawn
Modification of Proposed Change:	
TG Reason:	
TG Vote:	

Chapter 8. Water Efficiency

Proposal ID P272	LogID TG4-01	801.1 Indoor hot water usage

Submitter:	Michael Cudahy, PPFA
Requested Action:	Modify as follows:
Proposed Change:	**Table 801.1 (2)** **Common Hot Water PipeInternal Volumes**

OUNCES OF WATER PER FOOT OF TUBE

Size Nominal, Inch	Copper Type M	Copper Type L	Copper Type K	CPVC CTS SDR 11	CPVC SCH 40	CPVC SCH 80	PE-RT SDR 9	Composite ASTM F 1281	PEX CTS SDR 9	PP SDR 7.4 F2389	PP SDR 9 F2389
3/8”	1.06	0.97	0.84	N/A	1.17		0.64	0.63	0.64	N/A	N/A
1/2”	1.69	1.55	1.45	1.25	1.89	1.46	1.18	1.31	1.18	1.72	1.96
3/4”	3.43	3.22	2.90	2.67	3.38	2.74	2.35	3.39	2.35	2.69	3.06
1”	5.81	5.49	5.17	4.43	5.53	4.57	3.91	5.56	3.91	4.41	5.01
1 ¼”	8.70	8.36	8.09	6.61	9.66	8.24	5.81	8.49	5.81	6.90	7.83
1 ½”	12.18	11.83	11.45	9.22	13.20	11.38	8.09	13.88	8.09	10.77	12.24
2”	21.08	20.58	20.04	15.79	21.88	19.11	13.86	21.48	13.86	17.11	19.43

Reason:	PP (polypropylene) is a newer hot water material for plumbing now recognized and approved in the plumbing codes and should be included here. The types commonly used in residential type plumbing applications are SDR 7.4 and SDR 9.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	Unanimous

Proposal ID P273	LogID TG4-02	801.1(2)

Submitter:	Michael Cudahy, PPFA
Requested Action:	Add new text as follows:
Proposed Change:	*Add new section to 802 Innovative practices as follows:* 802.2 Reclaimed water, graywater, or rainwater pre-piping. Reclaimed, graywater, or rainwater systems are rough plumbed into buildings for future use where service is not yet available or permitted by applicable codes or by the authority having jurisdiction. 1 point per roughed in system *(renumber following sections)*
Reason:	The NGBS could offer some points for "pre-plumbing" a home for the eventual use of alternate water sources where it my not be available. The NGBS already offers many points for including systems, but, why not offer points for pre-plumbing in areas where it is not yet to code, or currently available? The buildings will last many years,and installing plumbing systems after the building is complete is a serious challenge, if not too difficult to implement.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	Unanimous

Proposal ID P274	LogID 5164	801.2 Water-conserving appliances
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(3) washing machine with a water factor of ~~6.0~~ 4.0 or less	
Reason:	The maximum water factor for an ENERGY STAR qualified washing machine is 6.0. (a lower value is more water efficient) It would seem that the highest number of points should go to more efficient washing machines. There are 494 labeled ENERGY STAR models of clothes washers and 360 have a water factor of 4.0 or less.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P275	LogID 5165	801.3 Showerheads
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(2) All shower compartments in the dwelling unit(s) and common areas meet the requirements of 801.3(1) and all showerheads are in accordance with one of the following: (a)~~2.0 to less than 2.5 gpm. 11 Additional~~ WaterSense labeled -- 11 points (b)~~1.6 to less than 2.0 gpm~~ WaterSense labeled and flow rate of 1.7 gpm or less -- 14 points	
Reason:	All EPACT compliant showerheads that flowed at 2.5 or less would receive points under (1). They could simplify by recognizing high efficiency showerheads labeled by WaterSense which have a maximum flow of 2.0 gpm. This would ensure that performance criteria would be met – allowing the floor of 1.6 gpm could be eliminated. Provide additional points for WaterSense labeled showerheads that flow at 1.7 gpm or less.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove in favor of a new proposed change TG4-06 The added WaterSense label is unnecessary with the values listed. Task Group believes we should be using performance instead of any 3rd party listings.	
TG Vote:	Unanimous	

Proposal ID P276	LogID 5138	801.3 Showerheads
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	801.3 (1) The total maximum combined flow rate of all showerheads controlled by a single valve at any point in time in a shower compartment is 1.6 to less than 2.4~~5~~ gpm. Maximum of two valves are installed per shower compartment. The flow rate is tested at 80 psi (552 kPa) in accordance with ASME A112.18.1. Showerheads are served by an automatic compensating valve that complies with ASSE 1016 or ASME A112.18.1 and specifically designed to provide thermal shock and scald protection at the flow rate of the showerhead.	
Reason:	The federal minimum rate is 2.5 gpm. With the practice worded at "… to less than 2.5 gpm" makes it too easy for someone to quickly read it and assume that a 2.5 gpm showerhead complies. The "less than" should be defined to be substantial enough to be rewarded with points. A showerhead at 2.49 gpm would get the points but is that really worth 4 points. The upper limit of 2.4 is merely a suggestion. The committee is encouraged to set a value that represents a practical reduction over the current federal minimum worthy of the points.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The Task Group did not think that the originalwas ambiguous and the change would add confusion.	
TG Vote:	Unanimous	

Proposal ID P277	LogID TG4-06	801.3 Showerheads
Submitter:	Hope Medina and Joe Green,	
Requested Action:	Revise text as follows:	
Proposed Change:	(2) All shower compartments in the dwelling unit(s) and common areas meet the requirements of 801.3(1) and all showerheads are in accordance with one of the following: (a) 2.0 to less than 2.5 gpm (b) 1.6 to less than 2.0 gpm (c) Less than 1.6 gpm	
Reason:	An additional line item was added to allow for those who would choose showerheads which expel water at a rate of less than 1.6 gallons per minute. The addition of this line item will allow for the opportunity for more points for those who would choose a showerhead which exceeds the previous best practice.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P278	LogID TG4-03	801.4.1 Lavatory Faucets
Submitter:	Hope Medina & Joe Green,	
Requested Action:	Revise	
Proposed Change:	(2) all lavatory faucets located within each ~~the~~ dwelling unit(s) and within all common areas of a multi-unit building	
Reason:	This section causes some confusion for when to apply it and how it is applied. This was an editorial cleanup to clarify how this section was intended to be administered	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove in favor of LogID 5167	
TG Vote:	Unanimous	

Proposal ID P279	LogID 5139	801.4.1 Lavatory faucets
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**801.4.1** Water-efficient lavatory faucets with a maximum flow rate of 1.5 gpm (5.68 L/m), tested at 60 psi (414kPa) in accordance with ASME A112.18.1, are installed: (Points awarded for 801.4.1 or 801.4.2, not both).	
Reason:	This change is to make it consistent with the treatment for all the toilets in the home meeting 801.5.2. Or a change could be made to 801.5 to be consistent with 801.4.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	No reason to get points for both options because they are separate issues.	
TG Vote:	Unanimous	

Proposal ID P280	LogID 5166	801.4.1 Lavatory faucets
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	WaterSense labeled water-efficiency lavatory faucets…	
Reason:	We recommend referencing WaterSense labeled lavatory faucets which flow at 1.5 gpm or less.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The added WaterSense label is unnecessary with the values listed. Task Group believes we should be using performance instead of any 3rd party listings.	
TG Vote:	Unanimous	

Proposal ID P281	LogID 5167	801.4.1 Lavatory faucets
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Revise: (2) all lavatory faucets in the dwelling unit(s) ~~and common areas~~ Replace "and common areas with" new text: 801.4.3 Water-efficient lavatory faucets with a maximum flow rate of 0.5 gpm (1.89 L/m), tested at 60 pst (414 kPa) in accordance with ASME A112.18.1, are installed in all common areas. – 3 points	
Reason:	In a public use or common area, they should not use private use lavatory faucets (which WaterSense labels at 1.5 gpm or less). The commonly accepted flow rate for public use lavatory faucets is 0.5 gpm, so giving points for a faucet that flows at 1.5 gpm is counter to the ”greening” intent of the standard.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* (2) all lavatory faucets in the dwelling unit(s) ~~and common areas~~ ~~Replace "and common areas with" new text:~~ ~~801.4.3 Water-efficient lavatory faucets with a maximum flow rate of 0.5 gpm (1.89 L/m), tested at 60 pst (414 kPa) in accordance with ASME A112.18.1, are installed in all common areas. 3 points~~	
TG Reason:	By the definition of common area this lavatory does not fall under the scope of this standard. These common area lavatory faucets are covered by federal law. The task group believes this topic should be covered in the commentary.	
TG Vote:	6-4-0	

Proposal ID P282	LogID TG4-05	801.5 Water closests and urinals
Submitter:	Hope Medina, Cherry Hills Village	
Requested Action:	Revise as follows:	
Proposed Change:	(2) A water closet is installed with an effective flush volume of 1.28 gallons (4.85 L) or less when tested in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.19.14, as applicable. ~~and is in accordance with EPA WaterSense Tank-Type Toilets.~~	
Reason:	The values and testing standards are what should be placed in this standard. EPA's WaterSense is a governmental funded program which is subject to budget cuts or with a change of administration may no longer exist. We have no control over what direction the EPA's WaterSense program may choose to go, but we do have control over this standard with it's values. By requiring water closets and urinals to be labeled in accordance to WaterSense we may start to eliminate innovation from smaller companies that would not have the financial opportunity to acquire the WaterSense label, but have products that meet or exceed those specific requirements.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* (2) A water closet is installed with an effective flush volume of 1.28 gallons (4.85 L) or less and meets the flush performance criteria when tested in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.19.14, as applicable. ~~and is in accordance with EPAWaterSense Tank-Type Toilets.~~	
TG Reason:	The added WaterSense label is unnecessary with the values listed. Task Group believes we should be using performance instead of any 3rd party listings. The flush performance criteria was part of the water sense program, and should be included even if the Water Sense name is removed.	
TG Vote:	Unanimous	

Proposal ID P283	LogID 5168	801.5 Water closets and urinals
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(2) A water closet is installed with an effective flush volume of 1.28 gallons (4.85 L) or less when tested in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.18.14 as applicable, and is ~~in accordance with EPA~~ WaterSense labeled ~~Tank-Type Toilets~~.	
Reason:	Simplify language to ensure that products are certified as meeting the WaterSense specification of 1.28 gpf. As currently drafted, it could suggest that a product that met the specification but had not been certified as doing so could earn the points.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The added WaterSense label is unnecessary with the values listed. Task Group believes we should be using performance instead of any 3rd party listings.	
TG Vote:	Unanimous	

Proposal ID P284	LogID 5169	801.5 Water closets and urinals
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	**(4)(b)** One or more WaterSense labeled urinals with a flush volume of 0.5 gallons (1.9L) or less when tested in accordance with ASME A112.19.2.	
Reason:	Simplify language to ensure that products are certified as meeting the WaterSense specification, which allows a maximum volume of 0.5 gpf. Although not a comment, there does not appear to be a maximum value for this subsection as there is for water closets.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The added WaterSense label is unnecessary with the values listed. Task Group believes we should be using performance instead of any 3rd party listings.	
TG Vote:	Unanimous	

Proposal ID P285	LogID TG4-07	801.6 Irrigation systems
Submitter:	Hope Medina, Cherry Hills Village	
Requested Action:	Revise text as follows:	
Proposed Change:	801.6 **Irrigation systems**. Irrigation system that use up to 1 inch of water for the design of the irrigation or landscape system.	
Reason:	Irrigation and landscape systems are offenders of large amounts of water usage and there is no limit assigned to when points can be awarded for them in either this standard or the base codes. Because this is considered an above code program it would make sense to start regulating the amount of water that these systems are designed and installed to.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	In favor of TG4-08	
TG Vote:	Unanimous	

Proposal ID P286	LogID TG4-08	801.6 Irrigation systems
Submitter:	Brent Mecham, Irrigation Association	
Requested Action:	Revise text as follows:	
Proposed Change:	**801.6.1** Multi-stream, multi-trajectory rotating nozzles ~~are installed in lieu of~~ or spray head nozzles with improved performance characteristics shall have a maximum precipitation rate of 1.20 inches per hour for turf or landscaping. Nozzle performance shall be tested by an accredited third party laboratory and have results posted. 6 points	
Reason:	There have been advances in nozzle technology that improves distribution uniformity and lowers the precipitation rate from the typical 1.50-2.00 inches per hour range for spray heads nozzles, but not all of these nozzles fall into the “multi-stream, multi-trajectory rotating nozzle” category. By making this change with a cap of 1.20 inches per hour (which is a minimum 25% reduction in precipitation rate), it will encourage more innovation by manufacturers to continue improving sprinkler nozzles without limiting the technology to be used. Ultimately it is the irrigationschedule that takes into account the precipitation rate when determining runtimes, but a lower precipitation rate will mean fewer cycles to apply therequired water. Having the nozzleperformance validated through testing by an accredited independent third partylaboratory would be similar to the process used by EPA WaterSense when theylabel products	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* 801.6.1 Multi-stream, multi-trajectory rotating nozzles ~~are installed in lieu of~~ or spray head nozzles ~~with improved performance characteristics~~ shall have a maximum precipitation rate of 1.20 inches per hour for turf or landscaping. Nozzle performance shall be tested by an accredited third party laboratory and have results posted. 6 points	
TG Reason:	Improved performance characteristics were not measurable	
TG Vote:	Unanimous	

Proposal ID P287	LogID TG4-09	801.6 Irrigation systems
Submitter:	Brent Mecham, Irrigation Association	
Requested Action:	Add new text as follows:	
Proposed Change:	**801.6.6** All sprinkler irrigation zones utilize pressure regulation so sprinklers operate at manufacturers recommended operating pressure. 3 points	
Reason:	Sprinkler nozzles have a preferred or optimal operating pressure to achieve maximum performance, but most irrigation systems are operated at higher pressures than the equipment really needs. Higher pressure then increases the flow and changes the distribution pattern of the nozzle and it is seldom accounted for in the irrigation schedule. Additionally, different sprinklers work best at different pressures, for example spray heads typically work best at 30 psi while rotors or rotating nozzles will work best in the 40-50 psi range depending on the manufacturer.This over pressurization of sprinklers is a silent water waster but it can be regulated with currently available products that will improve irrigation efficiency. Currently EPA WaterSense program is considering labeling pressure regulating spray heads because of the potential in water savings, but pressure regulation can take place at the sprinkler head (for spray heads) or at the zone valve, (applicable to all sprinkler types) depending on the designer’s preference when considering all site conditions.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P288	LogID 5140	801.6.2 Drip irrigation is installed
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**801.6.2** Drip irrigation is installed. (1) Drip irrigation is installed for <u>all</u> landscape beds. (2) Subsurface drip is installed for <u>all</u> turf grass areas. <u>(3) Drip irrigation zones specifications show plant type by name and water use/need for each emitter (Points awarded only if specifications are implemented.)</u>	
Reason:	Some indication of how much drip irrigation is needed for the points should be included in the practice. 801.6.4 seems out of place when it should be connected to 801.6.2. If this change is done the “8 Max” needs to be deleted.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-1-0	

Proposal ID P289	LogID 5141	801.6.3 Landscape plan and implementation
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**801.6.3** Landscape plan and implementation are executed by a certified WaterSense Professional or equivalent as approved by Adopting Entity. 5 ~~Additional.~~	
Reason:	It is not clear what these points are in addition to. Are points required in 801.6.1 and/or 801.6.2 and if so how many are required.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P290	LogID 5170	801.6.3 Landscape plan and implementation
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Landscape <u>irrigation</u> plan and implementation are executed by a ~~certified WaterSense Professional or~~ <u>professional certified by a WaterSense labeled program</u> or equivalent as approved by Adopting Entity.	
Reason:	WaterSense does not have a professional certification category for landscape planning – only for irrigation design, installation and audits. Language has been changed to reflect irrigation focus and also to reflect pending changes to the WaterSense program that will require changes in how we talk about certified professionals.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* ~~Landscape~~ <u>Irrigation</u> plan and implementation are executed by a ~~certifiedWaterSense Professional or~~ <u>professional certified by a WaterSense labeled program</u> or equivalent as approved by Adopting Entity.	
TG Reason:	To be specific to an irrigation plan.	
TG Vote:	9-1-0	

Proposal ID P291	LogID 5142	801.6.4 Drip irrigation zones specifications show plant type
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Delete without substitution	
Proposed Change:	801.6.4 delete without replacement	
Reason:	Another proposed change has been submitted to include this practice as part of 801.6.2.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Addressed in ID 5140 modification	
TG Vote:	Unanimous	

Proposal ID P292	LogID 5067	801.6.5 Irrigation system(s) smart controller or no irrigation is installed
Submitter:	Philip LaRocque, LaRocque Business Management Services, LLC	
Requested Action:	Revise as follows	
Proposed Change:	801.6.5 (2) No irrigation is installed ~~and a landscape plan is developed in accordance with Section503.5, as~~ applicable~~.~~	
Reason:	We need to return to the 2008 NGBS on this practice. A builder should be rewarded for simply not having an irrigation system with no requirement to have a landscape plan. We should be motivating the conservation of water thru no irrigation system installation without the builder adding the expense of a landscape plan with two practices.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-4-0	

Proposal ID P293	LogID 5052	801.6.5 Irrigation system(s) smart controller or no irrigation is installed
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	(2) No irrigation is installed and a landscape plan is developed <u>and implemented</u> in accordance with Section 503.5~~, as applicable.~~<u>(1)-(4) and achieving at minimum of X points from (1)-(4).</u>	
Reason:	The 2012 NGBS is not clear if all or only some of the 503.5 practices must be met. Some of the 503.5 practices do not really impact water usage. The task group should recommend the appropriate number of points.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove in favor of ID 5067	
TG Vote:	9-1-0	

Proposal ID P294	LogID 5171	801.6.5 Irrigation system(s) smart controller or no irrigation is installed
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(1) Evapotranspiration (ET) based irrigation controller with a rain sensor or soil moisture sensor based irrigation controller. --- 8 points (2) WaterSense labeled irrigation controller -- 10 points (3) ~~(2)~~ No irrigation is installed....	
Reason:	EPA WaterSense now has a specification to label weather-based irrigation controllers and is in the process of developing a similar specification for soil moisture based irrigation controllers. We suggest providing points for those controllers.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **801.6.5** The irrigation system(s) is controlled by a smart controller or no irrigation is installed. **(Points~~for 801.6.5(2)~~ are not additive.) ~~with points for 801.6.5(1)~~** (1) Evapotranspiration (ET) based irrigation controller with a rain sensor or soil moisture sensor based irrigation controller. --- 8 points (2) WaterSense labeled irrigation controller -- 10 points (3) ~~(2)~~No irrigation is installed....applicable	
TG Reason:	The heading on that section needed to be clarified as to how the points should be administered, and that they were not additive.	
TG Vote:	9-1-0	

Proposal ID P295	LogID TG4-04	801.7 Rainwater collection and distribution
Submitter:	Hope Medina, Cherry Hills Village	
Requested Action:	Add new text as follows:	
Proposed Change:	**801.7.3** Rainwater is used to supply a residential fire sprinkler system when installed by a certified professional.	
Reason:	Rainwater collection and distribution for domestic water uses is becoming a more common practice. With fire sprinklers requirements also becoming required in more jurisdictions as time goes by we should be offering innovative ideas for water “efficiency” for their supply. NFPA13 section A.24.2(7) states that captured rainwater is not generally considered a problem, since NFPA13 has allowed the use of open lakes,rivers, ponds for supply of fire sprinkler systems.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Using rainwater for a sprinkler system is a benefit of having rain water collection system, and does not need distinct points awarded.	
TG Vote:	Unanimous	

Proposal ID P296	LogID 5153	Other for Chapter 8 (include section number and title below)
Submitter:	Stephen J Holzer, eM8s, LLC	
Requested Action:	Add new as follows	
Proposed Change:	**802.6 Building Information Modeling (BIM)** Project Team uses BIM to develop a whole house model and applies that model to optimize water efficiency requirements.	
Reason:	Building Information Modeling (BIM) is a computer generated model based process that simulates planning, design, construction and operations for buildings. It is a single repository for both three-dimensional, two-dimensional, and material properties information that allows data interoperability of all stakeholders to better inform design and construction decisions with the goal of producing the best product possible. This information technology will increase design and construction efficiencies and decrease costs for builders and end users. BIM may also facilitate better communication, collaboration and coordination among building industry professionals and trades working on the same project. Credit should be given to Builders utilizing the open industry standards as defined in the National Building Information Modeling Standard.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The inclusion and implementation of tools and software, like BIM, during the design process is important and should be included somewhere in the standard. The recommendation would be to add a Building Project Management chapter before Chapter 3.	
TG Vote:	Unanimous	

Chapter 9. Indoor Environmental Quality

Proposal ID P297	LogID 5269	901.1.4 Gas fireplaces and direct heating equipment vented outdoors
Submitter:	Ted A. Williams, American Gas Association	
Requested Action:	Revise as follows	
Proposed Change:	**901.1.4** Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. ~~Gas-fired fireplaces and direct heating equipment are vented to the outdoors.~~ [a duplicative proposed change on **11.901.1.4** is submitted.]	
Reason:	Banning unvented or "vent-free" fireplaces, the net effect of this "mandatory" requirement, have never been justified in terms of environmental criteria consistent with a “green” standard. During deliberations on the 2012 Edition, air pollutant emissions associated with use of such products were not documented or referenced in terms of concentrations or specific effects on the indoor environment or human health. Likewise, the ban does not address positive environmental benefits associated with virtual 100% thermal efficiency of heating in the installed space and reduced need for central heating from spot heating afforded by unvented combustion heating appliances, both of which reduce overall energy demand and externalities (including total air emissions) associated with less efficient heating approaches. These positive effects should be evaluated on balance with hypothesized negative effects associated with altered indoor air concentrations of the identified contaminants. No effort is made or documented to assess this balance. While points are proposed for use of these products, their banning from green building represents unbalanced and non-technical consideration of the net effects of their installation and use. The ban appears to appeal to simplistic views of environmental acceptability based on an “additive” impact on indoor air quality from operation of unvented combustion appliances. It ignores important design and product standardization considerations. For example, appliance sizing and, most directly, heat gain beyond tolerable limits in tight buildings impose a fundamental limit on the generation of combustion products. The tighter the installation location, the lower the firing rate and duration the appliance can be operated while avoiding intolerable temperatures. This principle has been applied to gas-fired residential cooking appliances since 1921 (ANSI Standard Z21.1), which associated combustion product loadings with the tightness of kitchens, emission factors from the appliances, and heat rise tolerances for occupants. A technical review in 1994, reviewed by U. S Consumer Product Safety Commission and considering modern air change rates, combustion product exposure criteria, and ASHRAE thermal comfort requirements confirmed the continued efficacy of this approach. Unvented fireplaces are design certified in the same manner. If unvented combustion appliances represent a public health or safety hazard, they should be prohibited from all occupancies (not just “green” buildings) because to do less would imply a toleration of unequal treatment of occupants with respect to health and safety. Standards development for “green” buildings would be better conducted on technically justified grounds and not focus on banning products based on heuristic arguments. It should be noted that proposed Addendum be to ASHRAE Standard 189.1, “Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings” would have imposed a similar ban of unvented fireplaces, but the Addendum has been returned to the 189.1 Standard Project Committee following public review and receipt of negative comments.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	4-4-6 Request input from full Consensus Committee.	

Proposal ID P298	LogID 5252	901.1.4 Gas fireplaces and direct heating equipment vented outdoors
Submitter:	Frank A. Stanonik, AHRI	
Requested Action:	Revise as follows	
Proposed Change:	901.1.4. Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. ~~Gas-fired fireplaces and direct heating equipment are vented to the outdoors.~~	
Reason:	Reference to the applicable installation code covers all aspects of the safe and proper installation of gas appliances, including provisions for combustion and ventilation air supply and venting. The last sentence as it applies to vented gas fireplaces and direct heating equipment is redundant. This deletion also removes the unjustified situation presented by the current standard that a home which has a gas-fired unvented or vent-free heater is automatically disqualified from carrying any level of “Green” designation regardless of any other aspects of the home’s design or features. The provisions in Section 902.2, Building ventilation systems, and Appendix B, Whole Building Ventilation System Specifications, address several different ways to provide ventilation to a residence. It is a technical fact that some of those methods of providing ventilation to the residence will allow the operation of a gas–fired unvented heater with no detrimental effect on the air quality in the residence. This proposal does not promote the use of unvented gas heaters. Rather it allows the builder to decide whether to install such equipment and the corresponding ventilation system, as required to meet both the combustion and ventilation air requirements of the heaters installation instructions and the ventilation provisions of this Green Building Standard.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	5-4-5 Request input from full Consensus Committee	

Proposal ID P299	LogID TG3-07	901.10 Interior adhesives and sealants

Submitter: Theresa Weston, DuPont Building Innovations

Requested Action: Revise as follows:

Proposed Change:

SCAQMD Rule 1168 in accordance with Table 901.10(3), ~~excluding products that are sold in 16 ounce containers or less and are regulated by the California Air Resources Board (CARB) Consumer Products Regulations~~.

Exception:

Adhesives and sealants subject to consumer product *VOC* regulations or products packaged as < 1 pound and < 16 fluid ounces shall comply with VOC content limits in Table XXX. VOC content and exempt compound content shall be determined by *CARB Final Regulation Order Regulation for Reducing Volatile Organic Compound Emissions from Consumer Products.*

TABLE XXXX
CONSUMER PRODUCT VOC LIMITS

ADHESIVE	VOC LIMIT
Adhesives, Aerosol	75
mist spray adhesives	65
web spray adhesives	55
construction, panel, and floor covering adhesive	7
contact adhesive – general purpose	55
contact adhesive – special purpose	80
Sealants and Caulking Compounds	4

The *VOC* limit is expressed in percent volatile organic compound by weight.

Add Referenced Standards:

California Air Resources Board, CARB Final Regulation Order Regulation for Reducing Volatile Organic Compound Emissions from Consumer Products

Reason: Covers same area as LogID 5211. References the industry standards for consumer and small packages.

TG Recommendation: Approved as Modified

Modification of Proposed Change:

Revise proposed change as follows (in red):

Adhesives and sealants ~~subject to consumer product *VOC* regulations or~~ products packaged as < 1 pound and < 16 fluid ounces shall comply with VOC content limits in Table XXX. VOC content and exempt compound content shall be determined by*CARB Final Regulation Order Regulation for Reducing Volatile Organic Compound Emissions from Consumer Products.*

TABLE XXXX
CONSUMER PRODUCT VOC LIMITS

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Sealants and Caulking Compounds	4

The *VOC* limit is expressed in percent volatile organiccompound by weight.

AddReferenced Standards:

California Air ResourcesBoard, CARB Final Regulation Order Regulation for Reducing Volatile OrganicCompound Emissions from Consumer Products

TG Reason: Unnecessary language cleaned-up.

TG Vote: 9-0-2

Proposal ID P300	LogID 5211	901.10 Interior adhesives and sealants
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	SCAQMD Rule 1168 in accordance with Table 901.10(3),~~excluding products that are sold in 16 ounce containers or less and are regulated by the California Air Resources Board (CARB) Consumer Products Regulations.~~	
Reason:	This practice is not clear regarding what is excluded. It seems like if the product does not comply with the emissions of Table 901.10(3) then it should not be excluded just because is sold in 16 oz or less containers. If the intent is to give points for 16 oz products that are CARB regulated then then "excluding" should be changed to "or".	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove in lieu of new proposal from Theresa Weston.	
TG Vote:	9-0-2	

Proposal ID P301	LogID 5212	901.12 Carbon monoxide alarms
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**901.12 Carbon monoxide (CO) alarms.** ~~Where not required by local codes,~~ a carbon monoxide (CO) alarm is installed in a central location outside of each separate sleeping area in the immediate vicinity of the bedrooms.....	
Reason:	We get lots of questions regarding why this practice only gets points when not required by local code. It seems inconsistent that the same house could achieve a different level simply because it is on one side of a jurisdictional boundary or the other side. Other confusion arises when the home is all electric and there is no fossil fuel combustion or attached garage. Perhaps the practice should be changed to mandatory when required by the IRC. Clarification on this practice would be helpful.	
TG Recommendation:	Approved	
Modification of Proposed Change:	Accept text changes as is. Make this practice mandatory for all homes, without regard to heating source	
TG Reason:	Eliminates “unfairness” of local code differences and ability for a home to achieve NGBS points.	
TG Vote:	15-0-1	

Proposal ID P302	LogID 5143	901.2.1 Solid fuel-burning fireplaces, inserts, stoves, and heaters
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	901.2.1(2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA ~~certified~~ Phase 2 Qualified.	
Reason:	The EPA does not certify wood burning fireplaces.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **901.2.1** (2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified or Phase 2 Qualified.	
TG Reason:	EPA certification does exist and is separate from Phase 2 qualification.	
TG Vote:	11-0-4	

Proposal ID P303	LogID 5254	901.2.1 Solid fuel-burning fireplaces, inserts, stoves, and heaters
Submitter:	Thomas Stroud, HPBA	
Requested Action:	Add new as follows	
Proposed Change:	"Factory-built wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified or qualified." The modification adds "or qualified."	
Reason:	During the last revision of this code it was discussed that this language should be included. The difficulty was that this category had not been fully adopted by EPA. Now EPA has fully adopted this category and promotes it http://www.epa.gov/burnwise/fireplacelist.html. Fireplaces in the EPA's Qualified program are specifically designed to operate as fireplaces rather than wood stoves (as are the EPA Certified Appliances). The certified products make sense for some regions that are seeking to heat with the fireplace. The EPA has created the Qualified program for new homes in warmer climates and for homes seeking just the ambiance of the fireplace, yet want to have that product clean-burning. Given that EPA has chosen not to regulate fireplaces in the current NSPS this classification will reinforce the use of cleaner burning EPA Qualified Fireplaces.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove in lieu of previous actions. See 5143.	
TG Vote:	11-0-5	

Proposal ID P304	LogID 5251	901.2.1 Solid fuel-burning fireplaces, inserts, stoves, and heaters
Submitter:	Kat Benner, TexEnergy	
Requested Action:	Delete without substitution	
Proposed Change:	(2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 ~~and are EPA certified~~.	
Reason:	•Removal of Mandatory 901.2.1(2) "EPA certified" fireplace requirement BACKGROUND: The way currently written allows no large multifamily property to afford the option of decorative wood burning fireplaces, very common in the South. Standard assumes all fireplaces are as sole heat-source of unit vs. decorative/supplemental. Traditionally, a decoration wood-burning fireplace would have no added 'Indoor Air Quality' measures-fire box flue and damper, that's it. A progressive step would be to mandate, outside combustion air and gasketed fireplace doors. (see cost comparison below). This would allow the fireplace to burn wood without using the conditioned indoor air for combustion and it would allow for the fireplace to no spill combustion byproducts into the conditioned space. EPA certification does not certify decoration wood burning fireplaces, It only certifies fireplaces that are to be used as a primary or sub-primary heat sources, for a home/dwelling; the certification is based on the ability of the fireplace to be loaded up with enough wood to burn efficiently for long hours (through the night). Moreover, the ideology for this certification is based less on 'Indoor Air Quality' as it is atmospheric or 'Outdoor Air Quality'-the more efficiently the wood burns the less byproduct exhausting up the flue. This also, seems to be misaligned with the basic principals of a green building program to be, incrementally better than a base code, with a progressive 'stair stepping' of more efficient(greener) practices. Requiring EPA certification, is not a incremental step, the market does not exist for fireplaces of this type on a multifamily production scale. I would venture to say that the market will never exist due the nature of mechanical systems typically being oversized for smaller dwelling units. The need for a primary or sub-primary wood burning fireplace heat source, in an apartment unit, is just not necessary – the most practical solution is to have the EPA certification for Decoration Fireplace (currently being lobbied by many fireplace manufacturers), but until this exists the requirement of an EPA certified wood burning fireplace will only add a design restriction associated with NGBS – No wood burning fireplaces in apartments. Traditional wood burning fireplace - $150.00 per unit x 300 units = $45,000.00 per project (progressive step) Indoor Air Quality appropriate wood burning fireplace with gasketed doors and outside combustion air - $350.00-$450.00 per unit x 300 units = $105,000.00 - $135,000.00 per project (unachievable requirement) EPA certified - $750.00-$1,000 per unit x 300 units = $225,000.00 - $300,000.00 per project	
TG Recommendation:	See below	
Modification of Proposed Change:		
TG Reason:	TG 3 - Disapprove in lieu of previous action. See 5143. --- TG 6 - Withdrawn by submitter	
TG Vote:	TG 3 12-0-4	

Proposal ID P305	LogID 714	901.3 Garages
Submitter:	Gladys Quinto Marrone, BIA Hawaii	
Requested Action:		
Proposed Change:	Better definition of what constitutes a 'carport' is needed. For example, the amount of enclosed space and amount of ventilation for garages with open block walls and windows.	
Reason:	Better definition of what constitutes a 'carport' is needed.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Lack of clarity. Submitter needs to provide an actual proposal with suggested text.	
TG Vote:	9-0-1	

Proposal ID P306	LogID 5144	901.4 Wood materials
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**901.4 Wood materials.** ~~A minimum of 85 percent of material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:~~ (1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.	
Reason:	Structural use panels are almost never used for countertops, woodwork, or shelving. Structural use panels are a different product type and should not be lumped together with the other types. All structural use panels should comply not just 85%. A new practice is needed to split the original one into two practices.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Existing section accomplishes the committee's intent.	
TG Vote:	10-1-5	

Proposal ID P307	LogID 5145	901.4 Wood materials
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Add new as follows	
Proposed Change:	901.5 **Wood materials.** A minimum of 85 percent of material within a product group (i.e. countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following (1) Particleboard and MDF (medium density fiberboard) is manufactured and labeled in accordance with CPA A208.1 and CPAA208.2, respectively. **(Points awarded per product group.)** (2) Hardwood plywood in accordance with HPVAHP-1. **(Points awarded per product group.)** (3) Particleboard, MDF, or hardwood plywood is in accordance with CPA 4. **(Points awarded per product group.)** (4) Composite wood or agrifiber panel products contain no added urea-formaldehyde or are in accordance with the CARB *Composite Wood Air Toxic Contaminant Measure Standard*. **(Points awarded per product group.)** (5) Non-emitting products. **(Points awarded per product group.)**	
Reason:	The original 901.4 practice lumped structural use panels in with countertop, trim, and shelving materials. These are two significantly different materials and uses. The practice should be split.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove in lieu of previous action. See 5144.Sam & Maribeth will develop new proposals to finesse this section.	
TG Vote:	13-0-3	

Proposal ID P308	LogID 5146	901.6 Carpets
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**901.6 Carpets.** Carpets are in accordance with the following: (1) Wall-to-wall carpeting is not installed adjacent to water closets and bathing fixtures. ~~(2) A minimum of 10 percent of the conditioned floor space has carpet and at least 85 percent of installed carpet area and/or carpet cushion (padding) are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 except footnote b in Table 4.1 does not apply(i.e., allowable maximum formaldehyde concentration is 16.5 µg/m^3(13.5 ppb)). Product is tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those in Appendix D.~~	
Reason:	Another proposed change has been submitted addressing flooring materials in total that will incorporate the deleted portion of this practice.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Disapprove in lieu of action below LogID 5147.	
TG Vote:	13-0-2	

Proposal ID P309	LogID 5147	901.7 Hard-surface flooring
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**901.7 ~~Hard-surface flooring~~.** Flooring Materials: The following types of finished flooring materials are used. The materials have emission levels in accordance with CDPH/EHLB Standard Method v 1.1 except footnote b in Table 4.1 does not apply (i.e., allowable maximum formaldehyde concentration is 16.5 µg/m^3(13.5 ppb)). Product is tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those in Appendix D. (1) Hard surface flooring: ~~A minimum of 10 percent of the conditioned floor space has pre-finished hard-surface flooring installed and a minimum of 85 percent of all~~ ~~prefinished installed hard-surface flooring is in accordance with the emission concentration limits of CDPH/EHLB Standard Method v1.1 except footnote b in Table 4.1 does not apply (i.e., allowable maximum formaldehyde concentration is 16.5 µg/m^3 (13.5 ppb)). Emission levels are determined by a laboratory accredited to ISO/IEC 17025 and the CDPH/EHLB Standard Method v 1.1 is in its scope of accreditation. The product is certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those found in Appendix D.~~ Prefinished installed hard-surface flooring is installed. Where post-manufacture coatings or surface applications have not been applied, the following hardsurface flooring types are deemed to comply with the emission requirements of this practice:… (2) Carpet. (Points are awarded for every 10% of conditioned floor space using one of the above materials. When carpet cushion meeting the emission limits of the practice is also installed, the percentage of compliant carpet area is calculated at 1.33 times the actual installed area).	
Reason:	It seems more logical to treat all flooring materials in a similar and connected way and give more points for more compliant flooring that just the minimum of 10% of the conditioned floor space. More points should be awarded for a home with 100% of the floor space complying compared to one that only 10% complies. Suggested point level is 1 or 2 points per 10% of conditioned floor space.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **901.7 ~~Hard-surface flooring~~.** Flooring Materials: The following types of finished flooring materials are used. The materials have emission levels in accordance with CDPH/EHLB Standard Method v1.1 except footnote b in Table 4.1 does not apply (i.e., allowable maximum formaldehyde concentration is 16.5µg/m^3(13.5 ppb)). Product is tested by a laboratory with the CDPH/EHLB Standard Method v1.1 within the laboratory scope of accreditation to ISO/IEC 17025 and certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those in Appendix D. Points are awarded for every 10% of conditioned floor space using one of the below materials: ~~A minimum of 10 percent of the conditioned floor space has prefinished hard-surface flooring installed and a minimum of 85 percent of all~~ ~~prefinished installed hard-surface flooring is in accordance with the emission concentration limits of CDPH/EHLB Standard Method v1.1 except footnote b in Table 4.1 does not apply (i.e., allowable maximum formaldehyde concentration is 16.5 µg/m^3 (13.5 ppb)).~~ ~~Emission levels are determined by a laboratory accredited to ISO/IEC 17025 and the CDPH/EHLB Standard Method v1.1 is in its scope of accreditation. The product is certified by a third-party program accredited to ISO Guide 65, such as, but not limited to, those found in Appendix D.~~ (1) Hard surface flooring: Prefinished installed hard-surface flooring is installed. Where post-manufacture coatings or surface applications have not been applied, the following hard surface flooring types are deemed to comply with the emission requirements of this practice: (a)Ceramic tile flooring (b)Organic-free, mineral-based flooring (c)Clay masonry flooring (d)Concrete masonry flooring (e)Concrete flooring (f)Metal flooring (2) Carpet and carpet cushion is installed. (When carpet cushion meeting the emission limits of the practice is also installed, the percentage of compliant carpet area is calculated at 1.33 times the actual installed area.)	
TG Reason:	The modifications more appropriately address the concerns of the submitters and the issue brought to light by their comment.	
TG Vote:	13-0-2	

Proposal ID P310	LogID 5311	901.9 Interior architectural coatings
Submitter:	Lorraine Ross, L Ross Consulting Inc	
Requested Action:	Add new as follows	
Proposed Change:	Add this exception to Section 901.9: Exception: Interior architectural coatings that are formulated to remove formaldehyde and other aldehydes in indoor air and are tested and labeled in accordance with ISO 16000-23, “Indoor Air – Performance test for evaluating the reduction of formaldehyde concentrations by sorptive building materials”.	
Reason:	Reason: This proposal recognizes new technology for additives that have proven to abate, or remove, formaldehyde and other aldehydes when part of formulations for paints, coatings, acoustical ceilings and wall systems. The new proposed reference standard is the standard method used to assess the performance of these formulations.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-1-5	

Proposal ID P311	LogID TG3-14	902 Pollutant Control
Submitter:	Ryan Taylor, Ryan Taylor Architects LLC	
Requested Action:	Modify as follows:	
Proposed Change:	Add the following to section 902 on page 83: 902.2.4 MERV 14 filters or greater are installed on central forced air systems and are accessible. Designer or installer is to verify that the HVAC equipment is able to accommodate the pressure drop of the filter used.	
Reason:	In his presentation at the 2014 RESNET Conference in Atlanta, Iain Walker of the Lawrence Berkeley National Lab stated MERV 14 and up (slide 48 of the presentation linked) is needed to filter the ultrafine particles created from cooking in homes – a significant source of indoor air pollution. As part of his presentation, Walker noted that the lab has been testing the effectiveness of kitchen exhaust performance and found that the capture efficiency is not as high as many people believe. With a capture efficiency that may be less than 50% (slide 37 of the presentation linked above), we’re contributing pollution we thought was being properly exhausted from the home. Please consider adding this section and adjusting the points of 902.2.3 and 902.2.4 to steer users to the higher MERV rating so we can enjoy healthier homes. http://www.resnet.us/blog/wp-content/uploads/2014/03/RESNET_2014_IAQinTightHomes_presentation.pdf	
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Uncertain of health benefits associated with higher MERV filters. Recognize higher energy demand associated.	
TG Vote:	9-1-0	

Proposal ID P312	LogID 5229	902.1 Spot ventilation
Submitter:	Eric DeVito, BBRS	
Requested Action:	Add new as follows	
Proposed Change:	*Add new section to 902.1 Spot ventilation as follows:* **902.1.5** Fenestration in dwelling areas is designed for cross-ventilation in accordance with all of the following: (1) Operable windows and sliding glass doors with a total area of at least 15 percent of the conditioned floor area are provided. (2) Insect screens are provided for all operable windows and sliding glass doors. (3) A minimum of two windows or sliding glass doors are placed in adjacent or opposite walls.	**5**
Reason:	One often overlooked source of spot ventilation and potential energy efficiency is the proper installation of operable windows and sliding glass doors. Much of the debate over indoor environmental quality focuses on keeping outdoor air out, but a homeowner needs the flexibility to occasionally move a great deal of air through the home – whether to remove indoor air toxins or to simply take advantage of a favorable breeze in the spring or fall. The proposal above is designed to be a simple three-part design checklist that ultimately will enable homeowners to easily and quickly ventilate the main living areas of the home. While we could have designed a much more complicated set of criteria, this proposal catches the most essential elements. The three important elements are as follows: •Enough operable windows or doors to air out the primary living areas: We have selected 15% as a reasonable amount, recognizing that not every window or door needs to be operable in a typical residential building. •Screens for each window or sliding glass door: A homeowner is much more likely to take advantage of the benefits of spot ventilation if insect screens are in place. •Windows and doors must create conditions for cross-ventilation: It is not as effective to place all operable fenestration on one side of the home. To take advantage of a favorable breeze or to efficiently ventilate a living area, windows should be located on adjacent or opposite walls. We note that although there is some likelihood of energy savings associated with proper cross-ventilation, this will depend on the user knowing when to operate the windows and doors. At least one state – Florida – provides an energy efficiency performance credit for cross ventilation, although the requirements are much more complicated than what we have proposed here. Because the energy efficiency benefit cannot be guaranteed, this proposal is probably best listed among other spot ventilation measures, such as exhaust fans, that depend on the user to operate properly.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **902.1.5** Fenestration in ~~dwelling areas~~ spaces other than those identified in 902.1.1 through 902.1.4 are ~~is~~ designed for cross-ventilation in accordance with all of the following: (1) Operable windows and sliding glass doors with a total area of at least 15 percent of the conditioned floor area are provided. (2) Insect screens are provided for all operable windows and sliding glass doors. (3) A minimum of two windows or sliding glass doors are placed in adjacent or opposite walls. If there is only one wall surface in that space exposed to the exterior, the minimum windows or sliding glass doors may be on the same wall.	
TG Reason:	Modification replaces “dwelling areas,” for more specific language and clarifies Item (3).	
TG Vote:	7-0-2	

Proposal ID P313	LogID 5210	902.1.1 Spot Ventilation
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	(2) Clothes dryers (including condensing dryers) are vented to the outdoors.	
Reason:	We have had several requests to allow condensing dryers even though they are not vented to the outdoors. The argument is that the moisture is removed by the condensation process. But my concern is with possible out gassing from fabric softener sheets, detergents, etc. I don't know if this really is an IEQ issue or not but I wanted to raise the issue for consideration by others more knowledgeable than me. If it is not a concern please reject this proposed change.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Code as written specifies that all clothes dryers are to be vented. It is not necessary to clarify further.	
TG Vote:	15-0-1	

Proposal ID P314	LogID 5063	902.2.1 Whole building ventilation system
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	One of the following whole building ventilation systems is implemented and is in accordance with the specifications of Appendix B. and an explanation of the operation and importance of the ventilation system is included in either 1001.1 or 1003.2.	
Reason:	Proper ventilation is important especially in tight houses. 902.2.1(a)needs more explanation about operation and importance for the typical home owner.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	15-0-1	

Proposal ID P315	LogID 5094	902.2.1 Whole building ventilation system
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Recommend the following additions be made: (3) Heat-recovery ventilator *(HRV)* (4) Energy- recovery ventilator *(ERV)* (5) *HRV or ERV is used as exhaust fan for one or more bathrooms or for a kitchen application*	
Reason:	This should be provided as a 9 or 10 point option because it saves up to 45% on the energy losses caused by simple negative air pressure exhaust only outside air /make up air designs.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Actual energy loss/gain unsubstantiated. Need evidence.	
TG Vote:	11-0-1	

Proposal ID P316	LogID 5132	902.2.2 Whole building ventilation airflow is tested
Submitter:	Marie Nisson, TexEnergy/US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	902.2.2 Ventilation airflow is tested to achieve the design fan airflow ~~at point of exhaust~~ in accordance with Section 902.2.1	
Reason:	Exhaust ductwork is visually inspected during predrywall for NGBS and Code. Testing at point of exhaust is not safe nor practical for many multifamily and multiple story, single family homes.	
TG Recommendation:	See below	
Modification of Proposed Change:		
TG Reason:	TG 3 - Disapprove Reason suggests visual inspection in lieu of testing. Yet, section still requires testing. Information needed about how test would be run. --- TG 6 - Approve	
TG Vote:	TG 3 12-0-1 TG 6 6-0-0	

Proposal ID P317	LogID 5248	902.2.3 MERV 8 filters
Submitter:	Jeremy Velasquez, US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	Measure should be mandatory at MERV 6 and award additional points for MERV 8+: (a)MERV Filters 6 are installed..... Mandatory (b) MERV Filters 8 are installed .... 3 pts (c) MERN Filter 11 or greater .... 6 pts	
Reason:	To address IAQ concerns, MERV filtration should be required for GREEN BUILDINGS. Many design teams will not choose this measure for MF, as it is not required, and so the indoor air quality suffers for most NGBS projects.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	System will stipulate best filter for performance. Consideration should be given to system requirements. System with a higher MERV alone does not give you better IEQ.	
TG Vote:	10-0-3	

Proposal ID P318	LogID 5304	902.3 Radon control
Submitter:	aaron gary, US-EcoLogic	
Requested Action:	Revise as follows	
Proposed Change:	Radon control measures are in accordance with ICC IRC Appendix F or (insert appropriate IBC reference)...	
Reason:	Multifamily buildings are not built to the ICC IRC, they follow the ICC IBC. NGBS protocol should reflect the appropriate code requirements.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	TG 3 - Disapprove Proposal is incomplete, lacking specific alternative code reference. Proposal does not provide information that the measures included in Appendix F would not be appropriate for multifamily building. Reached out to proposal writer and MF TG for alternative language. Received the following responses: Aaron Gary: "Thank you for the opportunity Cindy. After further research, I am not aware of an appropriate standard for Radon Resistant Construction for Commercial (Multifamily) projects. With no alternative standard to reference I think we are left with applying the single-family standard to all projects, regardless of building scope." MF Task Group Co-Chair: "I think we should leave the disapproval as is. The current section 902.3 says that buildings within Zone 1 have a mandatory requirement to install radon control. However, they give 7 points for a passive radon system, which is required under IRC Appendix F. In Maryland, the Zone 1 counties of Montgomery and Howard simply adopt a local amendment saying that all residential occupancies, including multifamily, need to follow IRC appendix F. I do not know what other states do. Ron Nickson has spent years arguing against a radon appendix in the IBC. I am copying him in the hopes that he can provide some additional guidance. We will be discussing this in our multifamily task group conference call tomorrow and I will push for disapproval ---------- TG 6 - Disapprove Radon control is not required by the 2012 or 2015 IBC for any occupancy type, including multifamily. There is not an industry consensus as to the applicability or effectiveness of radon control measures in various multifamily construction types. There is no current applicable industry best practice or standard for the installation of radon mitigation and control measures in multifamily structures.	
TG Vote:	TG 3 Unanimous TG 6 5-0-0	

Proposal ID P319	LogID 5095	904.2 Kitchen exhaust
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	904.2 **Kitchen Exhaust.** A kitchen exhaust unit(s) that equals or exceeds 400cfm (189 l/s) is installed and makeup air is provided <u>(1) ERV or HRV is installed to temper the outside air being brought in.</u>	
Reason:	Recommend making the makeup air requirement mandatory and awarding the 2 points for making it economical	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Unclear if ERV/HRV system is to be installed throughout the ventilation system or just in kitchen.	
TG Vote:	6-0-1	

Proposal ID P320	LogID TG3-05 905
Submitter:	Ed Light, Building Dynamics, LLC
Requested Action:	Add new text as follows:
Proposed Change:	**905. Verify acceptable IAQ by documenting:** (a) HVAC meets specified design requirements. (b) Materials comply with specified emission requirements. (c) Sources of excess moisture encountered during the construction process have been eliminated. (d) Surfaces are dry, free of visible dust, suspect growth and water damage.
Reason:	NGBS currently does not consider overall IAQ. This provision would require an assessment to identify and resolve any ongoing IAQ problems. IAQ complaints in new homes are generally related to HVAC deficiencies, excess moisture and inadequate source control. Current NGBS provisions address HVAC operation, materials emissions and exhausts. If these requirements are met, this can simply be noted in the pre-occupancy assessment. Sufficient moisture control can be verified by an inspection, along with documentation that any moisture problems during the construction process have been resolved. The assessment must also verify that surfaces are clean.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	TG likes the idea/intent of this practice, but the language currently lacks clarity.
TG Vote:	8-1-3

Proposal ID P321	LogID TG3-03 Chapter 9
Submitter:	Josh Jacobs, UL
Requested Action:	Revise as follows:
Proposed Change:	*Revise sections 901.7 Hard-surface flooring, 901.8 Wall coverings, 901.9 Architectural coatings, 901.10 Adhesives and sealants, and 901.11 Insulation as follows:* UL GREENGUARD Gold ~~Environmental Institute Children & Schools Certification Program~~ UL 2768 ~~EcoLogo CCD 047~~
Reason:	This is a simple brand change to referenced programs. The requirements of the programs haven't changed since the committee put these in, it is simply a renaming to more align with the marketplace.
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	
TG Vote:	8-0-1

Proposal ID P322	LogID 5079	Chapter 9 (include section number and title below)
Submitter:	Josh Jacobs, UL	
Requested Action:	Revise as follows	
Proposed Change:	For Sections 901.6, 901.7, 901.8, 901.9, 901.10, & 901.11 A minimum……in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 ~~except footnote b in table 4.1 does not apply (i.e., allowable maximum formaldehyde concentration is 16.5 ug/m3 (13.5 ppb))~~…….	
Reason:	Formaldehyde exposure in indoor environments is one of the most prevalent indoor environmental quality issues. The referenced standard, CDPH/EHLB Standard Method v1.1 set a new limit for formaldehyde on January 1, 2012. At the last revision of this standard the committee felt that it was not enough time to ask manufacturers to comply with the lowering of the levels. As of today, the marketplace has done a good job of adjusting their levels and many products show compliance to the lower required level.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-0-2	

Proposal ID P323	LogID 5172	Other for Chapter 9 (include section number and title below)
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Add new as follows	
Proposed Change:	**902.7 Pest Barriers** 1) Minimize Pathways for Pest Entry NOTE: Completion of the ENERGY STAR checklists now satisfies the following Indoor airPLUS requirements: ·· Seal all penetrations and joints between the foundation and exterior wall assemblies (TES 5). ·· Air seal all sump covers (WMS 1.7). No additional Indoor airPLUS Requirements · Advisories: 1. When sealing larger gaps that provide potential points of entry for rodents, copper or stainless steel wool is recommended in addition to sealant. 2. Additional precautions should be taken in areas classified as “Moderate to Heavy” termite infestation probability (as identified by 2009 IRC Figure 301.2 [6]): ·· Foundation walls should be solid concrete or masonry with a top course of solid block, bond beam, or concrete-filled block. ·· Interior concrete slabs should be constructed with 6 x 6 in. welded wire fabric, or the equivalent, and concrete walls should be constructed with reinforcing rods to reduce cracking. ·· Sill plates should be made of metal or preservative-treated wood. 3. Additional precautions should be taken in areas classified as “Very Heavy” termite infestation probability (as identified by 2009 IRC Figure 301.2[6]) i.e., Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina and parts of California and Texas: ·· Foam plastic insulation should not be installed on the exterior face of below-grade foundation walls or under slabs. ·· Foam plastic insulation installed on the exterior of above-grade foundation walls should be kept a minimum of 6 in. above the final grade and any landscape bedding materials and should be covered with moisture-resistant, pest-proof material (e.g., fiber cement board or galvanized insect screen at the bottom-edge of openings). ·· Foam plastic insulation applied to the interior side of conditioned crawlspace walls should be kept a minimum of 3 in. below the sill plate. (2) Rodent/Bird Screens for Building Openings Indoor airPLUS Requirements: · Provide corrosion-proof rodent/bird screens (e.g., copper or stainless steel mesh) for all building openings that cannot be fully sealed and caulked (e.g., ventilation system intake/exhaust outlets and attic vent openings). · Exception: This requirement does not apply to clothes dryer vents.	
Reason:	Pest barriers are important to preventing animal-related pollutant loading of the indoor environment.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Not written as code language, numerous “should” statements rather than prescriptive text. Possible conflicts with below-grade insulation requirements. Not applicable to all construction methods.	
TG Vote:	6-0-2	

Proposal ID P324	LogID 5080	Other for Chapter 9 (include section number and title below)
Submitter:	Josh Jacobs, UL	
Requested Action:	Add new as follows	
Proposed Change:	**904.3 Total Volatile Organic Compound Emission Limit**. A minimum of 50% of all installed products that comply with Sections 901.6, 901.7, 901.8, 901.9.3, 901.10 (1), and 901.11 shall demonstrate a Total Volatile Organic Compounds (TVOC) emission limit of </= 500 ug/m3 per the CDPH/EHLB Standard Method v1.1. The emission levels are determined by a laboratory accredited to ISO/IEC 17025 and the CDPH/EHLB Standard Method v1.1 is in its cope of accreditation. Points 2	
Reason:	The existing product emission criteria in 901.6, 901.7, 901.8, 901.9, 901.10, & 901.11 only covers 35 individual chemicals. While this list covers some of our more well-known potentially harmful chemical, it does not cover the thousands of other chemicals that could be coming off products. With over 10,000 chemicals having been found to emit from man-made products there is a lot of uncovered area. This proposal helps us marry the coverage of the known concerns (the existing limits) with the coverage against the unknown.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Lacks disclosure language.	
TG Vote:	8-1-0	

Chapter 10. Operation, Maintenance, and Building Owner Education

Proposal ID P325	LogID TG1-02	1001.1 Building Owner's Manual for one and Two-Family Dwellings

Submitter:	Task Group 1,
Requested Action:	Revise as follow:
Proposed Change:	*Revise and renumber as follows:*

GREEN BUILDING PRACTICES		POINTS
1001 HOMEOWNERS ~~BUILDING OWNERS~~' MANUAL and TRAINING FOR ONE- AND TWO-FAMILY DWELLINGS		
1001.0 Intent. Information on the building's use, maintenance, and green components is provided.		
1001.1 A homeowners ~~building owner~~'s manual is provided and stored in a permanent location in the dwelling that includes the following, as available and applicable. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**		**1** **8 Max**
(1)	Detailed information about the National Green Building Standard, its requirements, and how NGBS compliance was determined, along with a ~~A~~ green building program certificate or completion document.	**Mandatory**
(2)	List of green building features (can include the national green building checklist).	**Mandatory**
(3)	Product manufacturer's manuals or product data sheet for installed major equipment, fixtures, and appliances. If product data sheet is in the building owners' manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owners' manual.	**Mandatory**
(4)	Maintenance checklist.	
(5)	Information on local recycling programs.	
(6)	Information on available local utility programs that purchase a portion of energy from renewable energy providers.	
(7)	Explanation of the benefits of using energy-efficient lighting systems [e.g., compact fluorescent light bulbs, light emitting diode (LED)] in high-usage areas.	
(8)	A list of practices to conserve water and energy.	
(8)	Information on the importance and operation of the home's fresh air ventilation system.	**[all following are renumbered**
(9)	Local public transportation options.	
(10)	A diagram showing the location of safety valves and controls for major building systems.	
(11)	Where frost-protected shallow foundations are used, owner is informed of precautions including:	
(a)	instructions to not remove or damage insulation when modifying landscaping.	
(b)	providing heat to the building as required by the ICC IRC or IBC.	

	(c)	keeping base materials beneath and around the building free from moisture caused by broken water pipes or other water sources.
(12)		A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure (e.g., HVAC, water-heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).
(13)		A photo record of framing with utilities installed. Photos are taken prior to installing insulation, clearly labeled, and included as part of the building owners' manual.
(14)		List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.
(15)		Information on organic pest control, fertilizers, deicers, and cleaning products.
(16)		Information on native landscape materials and/or those that have low water requirements.
(17)		Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.
(18)		Instructions for inspecting the building for termite infestation.
(19)		Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of 5 feet away from foundation.
(20)		A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building.
(21)		Where stormwater management measures are installed on the lot, information on the location, purpose, and upkeep of these measures.
(22)		Explanation of and benefits from green cleaning in the home
(23)		Retrofit energy calculator that provides baseline for future energy retrofits

1001.2 Training of homeowners. Homeowners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:
(1)HVAC filters
(2) thermostat operation and programming
(3) lighting controls
(4)appliances operation
(5)water heater settings and hot water use
(6) fan controls
(7) recycling and composting practices

~~1002~~

~~TRAINING OF BUILDING OWNERS ON OPERATION AND MAINTENANCE FOR ONE- AND TWO-FAMILY DWELLINGS AND MULTI-UNIT BUILDINGS~~

1002.4.~~1~~ Training of building owners. Building owners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding equipment operation and maintenance, control	**8**

systems, and occupant actions that will improve the environmental performance of the building. These include:		
(1)	HVAC filters	
(2)	thermostat operation and programming	
(3)	lighting controls	
(4)	appliances operation	
(5)	water heater settings and hot water use	
(6)	fan controls	
(7)	recycling and composting practices	

1002~~3~~
CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTI-UNIT BUILDINGS

1002~~3~~.0 Intent. Manuals are provided to the responsible parties (owner, management, tenant, and/or maintenance team) regarding the construction, operation, and maintenance of the building. Paper or digital format manuals are to include information regarding those aspects of the building's construction, maintenance, and operation that are within the area of responsibilities of the respective recipient. One or more responsible parties are to receive a copy of all documentation for archival purposes.

1002~~3~~.1 Building construction manual. A building construction manual, including five or more of the following, is compiled and distributed in accordance with Section 1003.0. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**		**1**
(1)	A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties' manuals.	**Mandatory**
(2)	A local green building program certificate as well as a copy of the *National Green Building Standard™*, as adopted by the Adopting Entity, and the individual measures achieved by the building.	**Mandatory**
(3)	Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes.	**Mandatory**
(4)	Record drawings of the building.	
(5)	A record drawing of the site including stormwater management plans, utility lines, landscaping with common name and genus/species of plantings.	
(6)	A diagram showing the location of safety valves and controls for major building systems.	
(7)	A list of the type and wattage of light bulbs installed in light fixtures.	
(8)	A photo record of framing with utilities installed. Photos are taken prior to installing insulation and clearly labeled.	

1002~~3~~.2 Operations manual. Operations manuals are created and distributed to the responsible parties in accordance with Section 1003.0. Between all of the operation manuals, five or more of the following options are included. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**		**1**
(1)	A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties' manuals.	**Mandatory**

(2)	A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).	**Mandatory**
(3)	Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.	
(4)	Information on opportunities to purchase renewable energy from local utilities or national green power providers and information on utility and tax incentives for the installation of on-site renewable energy systems.	
(5)	Information on local and on-site recycling and hazardous waste disposal programs and, if applicable, building recycling and hazardous waste handling and disposal procedures.	
(6)	Local public transportation options.	
(7)	Explanation of the benefits of using compact fluorescent light bulbs, LEDs, or other high-efficiency lighting.	
(8)	Information on native landscape materials and/or those that have low water requirements.	
(9)	Information on the radon mitigation system, where applicable.	
(10)	A procedure for educating tenants in rental properties on the proper use, benefits, and maintenance of green building systems including a maintenance staff notification process for improperly functioning equipment.	
(11)	Information on the importance and operation of the building's fresh air ventilation system.	

1002~~3~~.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with Section 1003.0. Between all of the maintenance manuals, five or more of the following options are included. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**		**1**
(1)	A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties' manuals.	**Mandatory**
(2)	A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure (e.g., HVAC, water-heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).	
(3)	User-friendly maintenance checklist that includes:	
	(a) HVAC filters	
	(b) thermostat operation and programming	
	(c) lighting controls	
	(d) appliances and settings	
	(e) water heater settings	
	(f) fan controls	
(4)	List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.	
(5)	Information on organic pest control, fertilizers, deicers, and cleaning products.	
(6)	Instructions for maintaining gutters and downspouts and the importance of diverting water a minimum of 5 feet away from foundation.	
(7)	Instructions for inspecting the building for termite infestation.	

	(8) A procedure for rental tenant occupancy turnover that preserves the green features. **(9)** An outline of a formal green building training program for maintenance staff. **(10)** A green cleaning plan which shall include guidance on sustainable cleaning products. 100~~4~~03 INNOVATIVE PRACTICES **100~~4~~03.1** (Reserved) **As part of this change, Chapter 11 should be reconsidered for re-formatting as well.**
Reason:	The proposed changes improve the requirements of Chapter 10
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	The TG believes that the revised Chapter 10 is improved and more comprehensive with the proposed changes.
TG Vote:	7-0-0

Proposal ID P326	**LogID 5064**	**1001.1 Building owner's manual is provided**
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Add new as follows	
Proposed Change:	(22) Information on the importance and operation of the home's fresh air ventilation system.	
Reason:	Proper ventilation is important especially in tight homes. Most home owners do not understand the importance of this and may turn off the equipment in an attempt to save energy.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P327	**LogID 5173**	**1001.1 Building owner's manual is provided**
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	**(5)** Information on local recycling and composting programs.	
Reason:	Section 1001.1 states that information be included in the owner's manual as available and applicable. Information on composting programs should be referenced in part (5).	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Improvement to NGBS because there are many recognized local composting programs and they should be part of the building owner information	
TG Vote:	5-0-0	

Proposal ID P328	LogID 726	1001.1 Homeowner's Manual
Submitter:	Josh Jacobs, GREENGUARD Environmental Institute	
Requested Action:	Revise as follows:	
Proposed Change:	**(19)** Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of 5 feet away from foundation. **(20)** A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building. **(21)** Where storm water management measures are installed on the lot, information on the location, purpose, and upkeep of these measures. (22) Explanation of and benefits from green cleaning in the home.	
Reason:	This section discusses many things that can contribute to not only the buildings continued 'greeness', but also the sustainable footprint of the people that occupy it. One of the main things that can be detrimental to a home's sustainability following construction is the introduction of unhealthy/unsafe cleaning practices. These can directly impact not only the occupant's health, but also the natural environment around the home and even far afield. We should require information be provided to the homeowner on green cleaning practices.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P329	LogID 742	1001.1 Homeowner's Manual
Submitter:	Susan Gitlin, US Environmental Protection Agency	
Requested Action:	Revise as follows:	
Proposed Change:	1001.1 (5) Information on local recycling programs, including any programs to dispose of refrigerators and freezers in a manner consistent with EPA's Responsible Appliance Disposal program.	
Reason:	We are glad to see that this section includes information on local recycling programs. The section should also specify information identifying local governments, utilities, retailers and manufacturers who offer proper disposal of refrigerators and freezers in partnership with EPA's Responsible Appliance Disposal (RAD) Program. RAD is an EPA partnership program that protects the ozone layer and reduces emissions of greenhouse gases (http://www.epa.gov/ozone/partnerships/rad/). The requirements of the RAD program include ensuring that: 1) refrigerant from appliances is recovered and either reclaimed or destroyed; 2) appliances' insulating foam, which contains harmful foam-blowing agents, is recovered and destroyed, or the blowing agent is recovered and reclaimed; 3) metals, plastic and glass are recycled; and 4) PCBs, mercury and used oil are recovered and properly disposed of.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* 1001.1 (5) Information on local recycling programs, including any programs to properly dispose of and recycle appliances.	
TG Reason:	The TG felt this was an important component to include on HO manual and wanted to include information on disposal of all types of appliances.	
TG Vote:	9-0-0	

Proposal ID P330	LogID 5174	1002.1 Training of building owners (one- and two-family dwellings)
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(7) recycling and composting practices	
Reason:	Training on composting practices should be included in the training dealing with recycling and waste management.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Improvement to NGBS because there are many recognized local composting programs and they should be part of the building owner training	
TG Vote:	5-0-0	

Proposal ID P331	LogID 5096	1002.1 Training of building owners (one- and two-family dwellings)
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	(8) Documentation and training as required in QI-5 2010	
Reason:	QI-5 2010 designates documentation and owner training based on the type of equipment installed. Re-listing every combination in this standard would be duplicative. By adding the QI-5 requirement all HVAC system types would be covered.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Proposal is too complex for the NGBS. If there are specific HVAC maintenance items that the proponent is aware should be included in the HO training, the proponent of this item should come back with this information.	
TG Vote:	6-0-0	

Proposal ID P332	LogID 5175	1003.1 Building construction manual
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Add new as follows	
Proposed Change:	(9) A Disassembly Plan with as-built drawings and the chemical and mechanical inventory yielding information about the method of disassembly of building systems and the properties of major materials and components.	
Reason:	A disassembly plan should be provided to the owner to facilitate deconstruction and disassembly of the home to maximize reuse and salvaging of materials during renovation or at the end of the building's useful life.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Plans would have to be held for 50+ years (the lifetime of the building) to be used which is unrealistic. Building likely not to be in same condition when it is time to be disassembled. Buildings are not designed to be disassembled and thus bringing in this component might drastically change the design and construction methodology of the building. We want to encourage people to build multi-unit buildings that will last forever, not to be taken apart.	
TG Vote:	6-0-0	

Proposal ID P333	LogID 5097	1003.2 Operations manual
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	(10) Documentation and OEM manuals as required in QI-5 2010	
Reason:	QI-5 2010 designates documentation and how to highlight it for ease of usage based on the type of equipment installed. Re listing every combination in this standard would be duplicative. By adding the QI-5 requirement all HVAC system types would be covered.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Proposal is too complex for the NGBS. If there are specific HVAC maintenance items that the proponent is aware should be included in the building training, the proponent of this item should come back with this information.	
TG Vote:	7-0-0	

Proposal ID P334	LogID 5065	1003.2 Operations manual
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Add new as follows	
Proposed Change:	(11) Information on the importance and operation of the building's fresh air ventilation system.	
Reason:	Proper ventilation is important especially for tight buildings. Including this information in the operations manual is appropriate..	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P335	LogID 744	1003.2 Operations Manuals
Submitter:	Susan Gitlin, US Environmental Protection Agency	
Requested Action:		
Proposed Change:		
Reason:	a) We are glad to see that this section includes information on local and on-site recycling and hazardous waste disposal programs. The section should specifically mention local recycling of refrigerators and freezers, which contain hazardous materials subject to proper management and storage requirements under Subtitle C of the Resource Conservation and Recovery Act. These materials include mercury, used oil, and PCBs (see 40 CFR Parts 273, 279 and 761). b) We are glad to see that this section includes a list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics). The example of "purchasing ENERGY STAR® appliances and electronics" should be modified to state "replacing older, inefficient appliances and electronics with ENERGY STAR appliances and electronics" so as to capture the additional benefit associated with removing older appliances from the grid.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise standard as follows:* **1003.2 Operations Manual** (5) Information on local and on-site recycling, ~~and~~ hazardous waste, and appliance disposal programs…"	
TG Reason:	The TG felt this was an important component to include on MF manual and wanted to include information on disposal of all types of appliances.	
TG Vote:	8-0-0	

Proposal ID P336	LogID 5081	1003.3 Maintenance manual
Submitter:	Josh Jacobs, UL	
Requested Action:	Add new as follows	
Proposed Change:	(10) A green cleaning plan which shall include guidance on sustainable cleaning products.	
Reason:	Cleaning can have a negative impact on the indoor environmental quality that a builder and occupant have tried to ensure. By providing an understanding of a green cleaning plan to the owners and occupants, you can minimize this potential risk.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	9-0-0	

Proposal ID P337	LogID 5098	1003.3 Maintenance manual
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	(10) OEM Maintenance requirements as required in QI-5 2010	
Reason:	QI-5 2010 designates information that is needed by owners with regards to maintenance. Relisting every combination in this standard would be duplicative. By adding the QI-5 requirement all HVAC system types would be covered.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Proposal is too complex for the NGBS. If there are specific HVAC maintenance items that the proponent is aware should be included in the HO training, the proponent of this item should come back with this information.	
TG Vote:	6-0-0	

Proposal ID P338	LogID 5154	1004.1 Reserved
Submitter:	Stephen J Holzer, eM8s, LLC	
Requested Action:	Delete and substitute as follows	
Proposed Change:	**1004.1 Building Information Modeling (BIM)**. Multifamily building owner uses BIM as primary means to operate and maintain a more efficient building.	
Reason:	Building Information Modeling (BIM) is a computer generated model based process that simulates planning, design, construction and operations for buildings. It is a single repository for both three-dimensional, two-dimensional, and material properties information that allows data interoperability of all stakeholders to better inform design and construction decisions with the goal of producing the best product possible. This information technology will increase design and construction efficiencies and decrease costs for builders and end users. BIM may also facilitate better communication, collaboration and coordination among building industry professionals and trades working on the same project. Credit should be given to Builders utilizing the open industry standards as defined in the National Building Information Modeling Standard.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Standard already covers certain aspects of BIM adequately.	
TG Vote:	8-1-0	

Chapter 11. Remodeling

Proposal ID P339	LogID TG7-07	11.1001 Building owner's manual
Submitter:	Task Group 7,	
Requested Action:	Revise as follows:	

Proposed Change:

11.1001
Edit heading: Building owners' manual and training for one- and two-family dwellings.

11.1001.0 Intent. Information on the building's use, maintenance, and green components is provided.

11.1001.1 A building owner's manual is provided that includes the following, as available and applicable. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**		**1** **8 Max**
(1)	**A green building program certificate or completion document.**	**Mandatory**
(2)	**List of green building features (can include the national green building checklist).**	**Mandatory**
(3)	**Product manufacturer's manuals or product data sheet for newly installed major equipment, fixtures, and appliances. If product data sheet is in the building owners' manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owners' manual.**	**Mandatory**
(4)	**Maintenance checklist.**	
(5)	**Information on local recycling programs.**	
(6)	**Information on available local utility programs that purchase a portion of energy from renewable energy providers.**	
(7)	**Explanation of the benefits of using energy-efficient lighting systems [e.g., compact fluorescent light bulbs, light emitting diode (LED)] in high-usage areas.**	
(8)	**A list of practices to conserve water and energy.**	
(9)	**Local public transportation options.**	
(10)	**A diagram showing the location of safety valves and controls for major building systems.**	
(11)	**Where frost-protected shallow foundations are used, owner is informed of precautions including:**	
	(a) instructions to not remove or damage insulation when modifying landscaping.	
	(b) providing heat to the building as required by the ICC IRC or IBC.	
	(c) keeping base materials beneath and around the building free from moisture caused by broken water pipes or other water sources.	
(12)	**A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure (e.g., HVAC, water-heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).**	

(13)	**A photo record of framing with utilities installed. Photos are taken prior to installing insulation, clearly labeled, and included as part of the building owners' manual.**
(14)	**List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.**
(15)	**Information on organic pest control, fertilizers, deicers, and cleaning products.**
(16)	**Information on native landscape materials and/or those that have low-water requirements.**
(17)	**Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.**
(18)	**Instructions for inspecting the building for termite infestation.**
(19)	**Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of 5 feet away from foundation.**
(20)	**A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building.**
(21)	**Where stormwater management measures are installed on the lot, information on the location, purpose, and upkeep of these measures.**
(22)	**For buildings originally built before 1978, the EPA publications "Reducing Lead Hazards When Remodeling Your Home" and "Abestos in Your Home: A Homeowner's Guide".**

Change section number below to11.1001.2 for one and two-family dwellings, and 11.1002.4 for multi-unit buildings

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~~11.1002~~
TRAINING OF BUILDING OWNERS ON OPERATION AND MAINTENANCE FOR ONE- AND TWO-FAMILY DWELLINGS AND MULTI-UNIT BUILDINGS

11.1002.1 Training of building owners. Building owners are familiarized with the role of occupants in achieving green goals. On-site training is provided to the responsible party(ies) regarding newly installed equipment operation and maintenance, control systems, and occupant actions that will improve the environmental performance of the building. These include:	**Mandatory** **8**
(1) HVAC filters	
(2) thermostat operation and programming	
(3) lighting controls	
(4) appliances operation	
(5) water heater settings and hot water use	
(6) fan controls	
(7) recycling practices	

11.100~~3~~2
CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTI-UNIT BUILDINGS

11.100~~3~~2.0 Intent. Manuals are provided to the responsible parties (owner, management, tenant, and/or maintenance team) regarding the construction, operation, and maintenance of the building. Paper or digital format manuals are to include information regarding those aspects of the building's construction, maintenance, and operation that are within the

area of responsibilities of the respective recipient. One or more responsible parties are to receive a copy of all documentation for archival purposes.	

11.1003<u>2</u>.1 Building construction manual. A building construction manual, including five or more of the following, is compiled and distributed in accordance with Section 11.1003.0. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**		**1**
(1)	**A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties' manuals.**	**Mandatory**
(2)	**A local green building program certificate as well as a copy of the *National Green Building Standard™*, as adopted by the Adopting Entity, and the individual measures achieved by the building.**	**Mandatory**
(3)	**Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes.**	**Mandatory**
(4)	**Record drawings of the building.**	
(5)	**A record drawing of the site including stormwater management plans, utility lines, landscaping with common name and genus/species of plantings.**	
(6)	**A diagram showing the location of safety valves and controls for major building systems.**	
(7)	**A list of the type and wattage of light bulbs installed in light fixtures.**	
(8)	**A photo record of framing with utilities installed. Photos are taken prior to installing insulation and clearly labeled.**	

11.1003<u>2</u>.2 Operations manual. Operations manuals are created and distributed to the responsible parties in accordance with Section 11.1003.0. Among all of the operation manuals, five or more of the following options are included. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**		**1**
(1)	**A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties' manuals.**	**Mandatory**
(2)	**A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).**	**Mandatory**
(3)	**Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.**	
(4)	**Information on opportunities to purchase renewable energy from local utilities or national green power providers and information on utility and tax incentives for the installation of on-site renewable energy systems.**	
(5)	**Information on local and on-site recycling and hazardous waste disposal programs and, if applicable, building recycling and hazardous waste handling and disposal procedures.**	
(6)	**Local public transportation options.**	
(7)	**Explanation of the benefits of using compact fluorescent light bulbs, LEDs, or other high-efficiency lighting.**	

	(8) Information on native landscape materials and/or those that have low water requirements. (9) Information on the radon mitigation system, where applicable. (10) A procedure for educating tenants in rental properties on the proper use, benefits, and maintenance of green building systems including a maintenance staff notification process for improperly functioning equipment.
	11.1003~~2~~.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with Section 11.1003.0. Between all of the maintenance manuals, five or more of the following options are included. **1** **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)** **(1) A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties' manuals.** **Mandatory** **(2) A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure (e.g., HVAC, water-heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system).** **(3) User-friendly maintenance checklist that includes:** **(a) HVAC filters** **(b) thermostat operation and programming** **(c) lighting controls** **(d) appliances and settings** **(e) water heater settings** **(f) fan controls** **(4) List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials.** **(5) Information on organic pest control, fertilizers, deicers, and cleaning products.** **(6) Instructions for maintaining gutters and downspouts and the importance of diverting water a minimum of 5 feet away from foundation.** **(7) Instructions for inspecting the building for termite infestation.** **(8) A procedure for rental tenant occupancy turnover that preserves the green features.** **(9) An outline of a formal green building training program for maintenance staff.**
Reason:	Clarification of the requirements and options for one-and two-family dwellings as well as differentiating those for multi-unit buildings
TG Recommendation:	Approved
Modification of Proposed Change:	
TG Reason:	For consistency
TG Vote:	Unanimous

Proposal ID P340	LogID TG7-08	11.1001.1 Building owner's manual
Submitter:	Task Group 7,	
Requested Action:	Revise as follows:	
Proposed Change:	Product manufacturer's manuals or product data sheet for newly installed major equipment, fixtures, and appliances <u>including product model numbers and serial numbers</u>. If product data sheet is in the building owners' manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owners' manual.	
Reason:	Important information for the homeowner	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P341	LogID TG7-01	11.1001.1 Building owner's manual
Submitter:	Task Group 7,	
Requested Action:	Revise as follows:	
Proposed Change:	(3) Product manufacturer's manuals or product data sheet for newly installed major equipment, fixtures, and appliances <u>including product model numbers and serial numbers</u>. If product data sheet is in the building owners' manual, manufacturer's manual may be attached to the appliance in lieu of inclusion in the building owners' manual.	
Reason:	Important information for the homeowner	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P342	LogID 5103	11.1001.1 Building owner's manual is provided
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	<u>(23) Documentation and OEM manuals as required in QI-5 2010</u>	
Reason:	QI-5 2010 designates documentation and owner training based on the type of equipment installed. Relisting every combination in this standard would be duplicative. By adding the QI-5 requirement all HVAC system types would be covered.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The requirement for documentation already exists. QI-5 is not targeted to homeowners, and the TG is concerned that adding QI-5 as a requirement would add an excessive documentation burden. However, the TG will recommend an additional proposed change (separately) to expand line item 3 to include product model numbers and serial numbers of all HVAC equipment and other major equipment fixtures and appliances.	
TG Vote:	Unanimous	

Proposal ID P343	LogID 5182	11.1001.1 Building owner's manual is provided
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	**(5)** Information on local recycling and composting programs.	
Reason:	11.1001.1 states that information be included in the owner's manual as available and applicable. Information on composting programs should be referenced in part (5).	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Local green initiative, adds to list of complimentary green programs	
TG Vote:	Unanimous	

Proposal ID P344	LogID 5183	11.1002.1 Training of building owners (1- and 2-family dwellings)
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	(7) recycling and composting practices	
Reason:	Training on composting practices should be included in the training dealing with recycling and waste management.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Consistent with previous action (5182).	
TG Vote:	Unanimous	

Proposal ID P345	LogID 5104	11.1002.1 Training of building owners (1- and 2-family dwellings)
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	(10) Owner training requirements as required in QI-5 2010	
Reason:	QI-5 2010 designates information that is needed by owners with regards to maintenance. Relisting every combination in this standard would be duplicative. By adding the QI-5 requirement all HVAC system types would be covered.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The TG opinion is that the current owner education requirements are sufficient.	
TG Vote:	Unanimous	

Proposal ID P346	LogID 5184	11.1003.1 Building construction manual
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Add new as follows	
Proposed Change:	(9) A Disassembly Plan with as-built drawings and the chemical and mechanical inventory yielding information about the method of disassembly of building systems and the properties of major materials and components.	
Reason:	A disassembly plan should be provided to the owner to facilitate deconstruction and disassembly of the home to maximize reuse and salvaging of materials during renovation or at the end of the building's useful life.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	1. Already providing drawings and a photographic record of the renovation 2. Disassembly plan is beyond the scope of this section of the standard	
TG Vote:	Unanimous	

Proposal ID P347	LogID 5105	11.1003.3 Maintenance manual
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	(10) OEM Maintenance requirements as required in QI-5 2010	
Reason:	QI-5 2010 designates information that is needed by owners with regards to maintenance. Relisting every combination in this standard would be duplicative. By adding the QI-5 requirement all HVAC system types would be covered.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The TG opinion is that the current maintenance information requirements are sufficient.	
TG Vote:	Unanimous	

Proposal ID P348	LogID 5267	11.1004.1 Reserved - To Be Determined
Submitter:	Matt Belcher, Verdatek Solutions	
Requested Action:	Add new as follows	
Proposed Change:	**11.1004 Innovative Practices** **11.1004.1 Resilience** Dwelling incorporates one or more of the following resilience options, as applicable. Points for items 1 through 4 shall be granted only where such products are not required per the applicable building code. 1. High-wind resistant or impact resistant entry doors or garage doors are installed 2. Impact resistant glazing is installed. 3. High-wind resistant or impact resistant wall claddings are installed. 4. High-wind resistant or impact resistant roof coverings are installed. 5. The building is constructed in accordance with an approved above-code mitigation program (e.g. IBHS Fortified, Resilience Star or My Safe Florida Home). Lot incorporates one or more of the following resilience options, as applicable. 6. The entire building is constructed using flood damage-resistant materials. 7. The building is constructed with its lowest floor at least one foot above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. 8. The building is constructed with its lowest floor at least two feet above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. 9. The building is constructed with its lowest floor at least three feet above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. 10. The building is located in Zone A and constructed on an open foundation system (pile foundations or isolated piers). 11. The building is constructed in accordance with an approved above-code flood mitigation program (e.g. IBHS Fortified, etc.).	
Reason:	With the focus on future enhancement of the model codes to provide for enhanced "Resiliant" construction, It is an opportunity to include reference in this "above code" standard to incentivise innovative practices and process that will demonstrate best practices for eventual application into the model codes.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Resilience is an important concept and topic, and may be more important for new construction, but as stated the benefits are not clear and the text would require extensive review before implementation on the remodeling side.	
TG Vote:	Unanimous	

Proposal ID P349	LogID 5176	11.601.2 Material usage
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	**(1)** Minimum structural member or element sizes necessary for strength and stiffness in accordance with advanced framing techniques that are in conformance with local building codes or structural design standards are selected.	
Reason:	Even though advanced framing techniques have been proven effective, in some instances because of local conditions, such as wind or seismic potential, some of the techniques are not allowed by local codes. It would be vigilant to mention possible code restrictions and recommend consulting building codes for the selection of suitable advanced framing technique options.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	This standard assumes compliance with local codes.	
TG Vote:	Unanimous	

Proposal ID P350	LogID 5178	11.602.1.9 Flashing
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Make part (6), “Through-wall flashing is installed at transitions between wall cladding materials or wall construction types,” mandatory.	
Reason:	Transitions between materials are typically continuous and present a great opportunity to insert flashing to allow for water to drain out of the walls and prevent water damage. Providing through wall flashing at transitions between wall cladding materials is just good practice and should be mandatory.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Some wall systems will not accommodate through-wall flashing, therefore this should not be made mandatory.	
TG Vote:	Unanimous	

Proposal ID P351	LogID TG7-02	11.602.1.9 Flashing
Submitter:	Task Group 7,	
Requested Action:		
Proposed Change:	Add definition of “Through-wall flashing”	
Reason:	Clarification needed.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Need definition. Provide proposed definition to consider. Appropriate for Definitions TG.	
TG Vote:	Unanimous	

Proposal ID P352	LogID 5179	11.605.2 Construction waste management plan
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	A construction waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of construction waste, excluding land-clearing waste.	
Reason:	Land-clearing waste should be excluded from the 50 percent calculation. Soil, vegetation, and rocks are heavy, bulky materials. When included in the total weight used to calculate the recycling rate, it can reduce the amount of higher-value materials, such as wood, concrete, and drywall, that is ultimately recycled.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Good clarification.	
TG Vote:	Unanimous	

Proposal ID P353	LogID 5205	11.605.2 Construction waste management plan
Submitter:	Wes Sullens, StopWaste of Alameda County	
Requested Action:	Revise as follows	
Proposed Change:	A construction waste management plan is developed, posted at the jobsite, and implemented with a goal of recycling or salvaging a minimum of 50 percent (by weight) of construction waste. Land clearing debris and materials that are processed for recycling but are used as alternative daily cover at landfills shall be excluded from the 50 percent requirement.	
Reason:	Materials that result from land clearing activity are often heavy and can skew results for other types of higher-value recycling and salvaging. Additionally, these materials are typically not landfilled because they are expensive to tip and robust markets are available to accept and recycled those land clearing materials. "Alternative Daily Cover" (ADC) is cover material other than earthen material placed on the surface of the active face of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. The ADC materials that result from building are byproducts of construction and demolition waste processing facilities, yet they are not actually recycled (they do not re-enter the materials cycle) and are essentially deposited in landfills and stay there forever. Therefore, ADC should not be considered recycling in green building standards. ASHRAE 189.1, GreenPoint Rated, and LEEDv4 have all disallowed ADC to count as recycling, and so should this standard. Achieving 50% recycling by not including ADC and land clearing debris is widely available with jobsite best practices (source separation of materials on-site and sending those materials to specific recycling facilities), and by sending the remaining mixed-waste loads to facilities that sort offsite.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The TG agreed with the intent, but chose the alternative language of the previous proposed change (5179).	
TG Vote:	Unanimous	

Proposal ID P354	LogID 5180	11.605.4 Recycled construction materials
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Construction materials (e.g., wood, cardboard, metals, drywall, plastic, asphalt roofing shingles, or concrete) that cannot be salvaged and reused onsite are recycled offsite.	
Reason:	Onsite salvage and reuse is preferred to offsite recycling because of reduced hauling and transportation impacts; it should be emphasized that reuse is a higher priority.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The TG agrees with the intent, but is concerned that this is not verifiable.	
TG Vote:	Unanimous	

Proposal ID P355	LogID 5181	11.610.1.2.1 Product LCA
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Add two new impact categories: (e) Material Use and (f) Waste	
Reason:	Industry-wide efforts to promote the management of materials and products on a life-cycle basis are current. These life-cycle efforts ensure that materials are used more efficiently and effectively. To that end, the analyses need to provide us with adequate measures that capture material use and recovery. Using less material and recovering more is crucial to our economic and environmental future. Material use and waste are two additional impact categories that should be included.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	These variables are already considered in the LCA.	
TG Vote:	Unanimous	

Proposal ID P356	LogID 5074	11.611.2 Sustainable products
Submitter:	Josh Jacobs, UL	
Requested Action:	Revise as follows	
Proposed Change:	(5) 50% or more of the gypsum board installed (by square feet) is certified to UL 100 ~~ULE ISR 100~~. (6) 50% or more of the door leafs installed (by number of door leafs) is certified to UL 102 ~~ULE ISR 102~~.	
Reason:	This is an update to existing references. UL 100 and 102 were finalized and published shortly after final voting for the NAHB National Green Building Standard was completed.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	Unanimous	

Proposal ID P357	LogID TG7-05	11.611.3 Universal design elements
Submitter:	Ramesh Gulatee, Ryan Taylor,	
Requested Action:	Modify as follows:	
Proposed Change:	Add the following points to section 11.611.3 on page 109: (5) All interior and exterior door handles are levers rather than knobs. (6) All sink faucet controls are single-handle controls of both volume and temperature. [Faucet controls might also appear in section 11.903.1 Plumbing on page 121 though it makes more sense to group these requirements because they share the same purpose.] (7) Power receptacles, communication connections (for cable, phone, Ethernet, etc.) and switches required by the local building codes are placed between 15" and 48" above the finished floor. Additional switches to control devices and systems (such as alarms, home theaters and other equipment) not required by the local building code may be installed as desired. (8) All light switches are rocker-type switches or other similar switches that can be operated by pressing them (with assistive devices) – no toggle-type switches may be used. (9)Anyone of the following can be controlled with a (wireless) mobile device such as a smartphone, tablet or laptop computer: HVAC, lighting, alarm system or door locks.	
Reason:	These items complement the existing basic accessibility items already included in the standard. They're common in building because they're convenient to occupants regardless of their level of mobility. They're also easy and inexpensive to change if a future owner objects to the switches and faucets. Please consider adding these items because they'll serve as a guide for the true nature of basic accessibility. It's not just about getting around in a wheelchair. It's about living comfortably in a home. These items help remove barriers that highlight disabilities. They help create enabling spaces.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	Points to be achieved based on the number of Universal Design elements included. Maximum of 10 points already exists. Broaden Universal Design list as recommended above. For every 2 UD items you put into remodel you get 1 point. **Recommend similar consideration for new construction.**	
TG Reason:	Points should be awarded for numbers of universal design features that are incorporated in the home. Concern about including a specific list that could be larger than the standard itself. Certified Aging in Place Specialist (CAPS) could be encouraged to participate. Universal design should be added for new construction as well – not just for remodeling. **Perhaps get broader list or reference from CAPS group resources**.	
TG Vote:	Unanimous	

Proposal ID P358	LogID 5225	11.701.4.1.1 HVAC system sizing
Submitter:	Eric Lacey, RECA	
Requested Action:	Add new as follows	
Proposed Change:	**11.701.4.0 Minimum Energy Efficiency Requirements.** Additions, alterations, renovations, or repairs to an existing building, building system or portion thereof comply with the provisions of the International Energy Conservation Code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. An addition complies with the IECC if the addition complies or if the existing building and addition comply with the IECC as a single building.	**Mandatory**
Reason:	This proposal clarifies that additions, alterations, renovations, or repairs must meet the same requirements of the IECC that apply to new buildings, to the extent that the requirements are applicable. The language is based on Section R101.4.3 of the IECC so that there is consistency between the scope of the IECC and the scope of ICC-700 with respect to additions, alterations, renovations and repairs. Sections 11.701 and 12.701 both contain many of the IECC requirements as "mandatory" requirements for all projects, and seem to imply that these projects should meet the IECC, but there is no specific requirement that outlines the scope of the requirements. As with the IECC, portions of the building that are not altered by a renovation, addition, alteration, or repair will not be required to meet the IECC.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **11.701.4.0 Minimum Energy Efficiency Requirements.** Additions, alterations, or renovations, ~~or repairs~~ to an existing building, building system or portion thereof comply with the provisions of the International Energy Conservation Code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. An addition complies with the IECC if the addition complies or if the existing building and addition comply with the IECC as a single building. Exception: The following need not comply provided the energy use of the building is not increased: 1. Storm windows installed over existing fenestration. 2. Glass only replacements in an existing sash and frame. 3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation. 4. Construction where the existing roof, wall or floor cavity is not exposed. 5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing. 6. Replacement of existing doors that separate *conditioned space* from the exterior shall not require the installation of a vestibule or revolving door, provided, however, that an existing vestibule that separates a *conditioned space* from the exterior shall not be removed. 7. Alterations that replace less than 50 percent of the luminaries in a space, provided that such alterations do not increase the installed interior lighting power. 8. Alterations that replace only the bulb and ballast within the existing luminaries in a space provided that the *alteration* does not increase the installed interior lighting power.	
TG Reason:	Clarify intent. Acceptable per Eric Lacey.	
TG Vote:	Unanimous	

Proposal ID P359	LogID 5227	11.701.4.1.1 HVAC system sizing (Mandatory practices)
Submitter:	Eric Lacey, RECA	
Requested Action:	Add new as follows	
Proposed Change:	**11.701.4.X Fenestration Specifications.** The NFRC-certified (or equivalent) U-factor and SHGC of newly installed windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in Table 703.1.6.1.	**Mandatory**
	11.701.4.X Replacement Fenestration. Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the NFRC-certified (or equivalent) U-factor and SHGC of the replacement fenestration unit do not exceed the values in Table 703.1.6.1.	**Mandatory**
Reason:	This proposal improves the consistency of Chapter 11 by requiring fenestration to meet the same level of efficiency, whether it is installed as part of new construction, a renovation or repair, or a simple fenestration replacement. These new sections simply reference the baseline fenestration requirements that currently apply to the prescriptive compliance option. The language is modeled after existing language in ICC-700 and the IECC. In fact, the replacement fenestration requirement has been in the residential chapter of every edition of the IECC since 2000. Neither of these sections requires a code user to replace a window in a given project. However, if an addition, window replacement or a renovation is planned that will involve replacing an entire fenestration unit, these sections would simply require that window, door, or skylight to meet the prescriptive requirements specified in Chapter 7.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **11.701.4.X Fenestration Specifications.** The NFRC-certified ~~(or equivalent)~~ U-factor and SHGC of newly installed windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in Table 703.1.6.1. **11.701.4.X Replacement Fenestration.** Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the NFRC-certified ~~(or equivalent)~~ U-factor and SHGC of the replacement fenestration unit do not exceed the values in Table 703.1.6.1.	
TG Reason:	Consistency with the IECC and the IRC.	
TG Vote:	Unanimous	

Proposal ID P360	LogID 5106	11.701.4.1.1 HVAC system sizing (Mandatory practices)
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	701.4.1.X **HVAC systems installation, and documentation.** Space heating and cooling systems are to be installed documented in accordance with ACCA QI 5-2010	
Reason:	Add a new Mandatory Requirement: Other places in the document the same requirements are either awarded points or are mandatory.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	HVAC systems must already be installed in accordance with manufacturer specifications. The TG is concerned that documentation required by the QI-5 could be excessive.	
TG Vote:	Unanimous	

Proposal ID P361	LogID 5107	11.701.4.1.1 HVAC system sizing (Mandatory practices)
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Add wording: 11.701.4.1.X **Radiant and hydronic space heating.** Where installed as a primary heat source in the building, radiant or hydronic space heating system is designed, installed, and documented, using industry-approved guidelines and standards (e.g.., ACCA Manual j, AHRI I=B=R, ACCA 5 QI-2010, or an accredited design professional's and manufacturer's recommendation.	
Reason:	This section does not have hydronic systems listed. Other places in the document the same requirements are either awarded points or are mandatory.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The TG is concerned that this is redundant and concerned with the additional documentation requirements.	
TG Vote:	Unanimous	

Proposal ID P362	LogID 5099	11.701.4.1.1 HVAC system sizing (Mandatory practices)
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	11.701.4.1.X **HVAC systems installation, and documentation.** Space heating and cooling systems are to be installed and documented in accordance with ACCA QI 5-2010	
Reason:	Add a new Mandatory Requirement: Other places in the document the same requirements are either awarded points or are mandatory. ACCA recommends making them mandatory and awarding points for verification.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Already addressed in previous proposed change	
TG Vote:	Unanimous	

Proposal ID P363	LogID 5270	11.901.1.4 Gas fireplaces and direct heating equipment vented outdoors
Submitter:	Ted A. Williams, American Gas Association	
Requested Action:	Revise as follows	
Proposed Change:	**11.901.1.4** Newly installed gas fired fireplaces and direct heating equipment is listed and is installed in accordance with the NFPA 54, ICC IFGC, or the applicable local gas appliance installation code. ~~Gas-fired fireplaces and direct heating equipment are vented to the outdoors.~~ [a duplicative proposed change on **901.1.4** is submitted.]	
Reason:	Banning unvented or "vent-free" fireplaces and direct heating equipment, the net effect of this "mandatory" requirement, has never been justified in terms of environmental criteria consistent with a “green” standard. During deliberations on the 2012 Edition, air pollutant emissions associated with use of such products were not documented or referenced in terms of concentrations or specific effects on the indoor environment or human health. Likewise, the ban does not address positive environmental benefits associated with virtual 100% thermal efficiency of heating in the installed space and reduced need for central heating from spot heating afforded by unvented combustion heating appliances, in terms of environmental criteria consistent with a “green” standard. Air pollutant emissions associated with use of such products have not been documented or referenced in terms of concentrations or specific effects on the indoor environment or human health. Likewise, the ban does not address positive environmental benefits associated with virtual 100% thermal efficiency of heating in the installed space and reduced need for central heating from spot heating afforded by unvented combustion heating appliances, both of which reduce overall energy demand and externalities (including total air emissions) associated with less efficient heating approaches. These positive effects should be evaluated on balance with hypothesized negative effects associated with altered indoor air concentrations of the identified contaminants. No effort is made or documented to assess this balance. While points are proposed for use of these products, their banning from green building represents unbalanced and non-technical consideration of the net effects of their installation and use. The ban appears to appeal to simplistic views of environmental acceptability based on an “additive” impact on indoor air quality from operation of unvented combustion appliances. It ignores important design and product standardization considerations. For example, appliance sizing and, most directly, heat gain beyond tolerable limits in tight buildings impose a fundamental limit on the generation of combustion products. The tighter the installation location, the lower the firing rate and duration the appliance can be operated while avoiding intolerable temperatures. This principle has been applied to gas-fired residential cooking appliances since 1921 (ANSI Standard Z21.1), which associated combustion product loadings with the tightness of kitchens, emission factors from the appliances, and heat rise tolerances for occupants. A technical review in 1994, reviewed by U. S Consumer Product Safety Commission and considering modern air change rates, combustion product exposure criteria, and ASHRAE thermal comfort requirements confirmed the continued efficacy of this approach. Unvented fireplaces are design certified in the same manner. If unvented combustion appliances represent a public health or safety hazard, they should be prohibited from all occupancies (not just “green” buildings) because to do less would imply a toleration of unequal treatment of occupants with respect to health and safety. Standards development for “green” buildings would be better conducted on technically justified grounds and not focus on banning products based on heuristic arguments. It should be noted that proposed Addendum be to ASHRAE Standard 189.1, “Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings” would have imposed a similar ban of unvented fireplaces, but the Addendum has been returned to the 189.1 Standard Project Committee following public review and receipt of negative comments.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The TG is concerned with the safety and IEQ ramifications, and questions the value of the proposed change.	
TG Vote:	Unanimous	

Proposal ID P364	LogID TG7-06	11.902 Pollutant control
Submitter:	Ryan Taylor, Ryan Taylor Architects LLC	
Requested Action:	Modify as follows:	
Proposed Change:	Add the following to section 11.902 on page 120: 11.902.2.4 MERV 14 filters or greater are installed on central forced air systems and are accessible. Designer or installer is to verify that the HVAC equipment is able to accommodate the pressure drop of the filter used.	
Reason:	In his presentation at the 2014 RESNET Conference in Atlanta, Iain Walker of the Lawrence Berkeley National Lab stated MERV 14 and up (slide 48 of the presentation linked above) is needed to filter the ultrafine particles created from cooking in homes – a significant source of indoor air pollution. As part of his presentation, Walker noted that the lab has been testing the effectiveness of kitchen exhaust performance and found that the capture efficiency is not as high as many people believe. With a capture efficiency that may be less than 50% (slide 37 of the presentation linked above), we're contributing pollution we thought was being properly exhausted from the home. Please consider adding this section and adjusting the points of 11.902.2.3 and 11.902.2.4 to steer users to the higher MERV rating so we can enjoy healthier homes.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Recognize when remodeler provides even greater filtration for pollutant control	
TG Vote:	Unanimous	

Proposal ID P365	LogID 5101	11.902.2.1 Whole building ventilation system
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	(3) Heat-recovery ventilator *(HRV)* (4) Energy- recovery ventilator *(ERV)* (5) HRV or ERV is used as exhaust fan for one or more bathrooms or for a kitchen application	
Reason:	This should be provided as a 9 or 10 point option because it saves up to 45% on the energy losses caused by simple negative air pressure exhaust only outside air /make up air designs.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Defer action until the TG hears from the IEQ group on this proposed change. TG3 disapproved. 9/23 Bathrooms and kitchens already required to exhaust outdoors and have controls. Is this double dipping? Humidity control already required. Concerns over kitchen pollutants. Consistency with new construction codes. Would like additional data substantiating claims when this technology is used in these particular applications.	
TG Vote:	Unanimous	

Proposal ID P366	LogID 5102	11.904.2 Kitchen exhaust
Submitter:	Donald Prather, ACCA	
Requested Action:	Add new as follows	
Proposed Change:	11.904.2 **Kitchen Exhaust.** A kitchen exhaust unit(s) that equals or exceeds 400 cfm (189 l/s) is installed and makeup air is provided (1) ERV or HRV is installed to temper the outside air being brought in.	
Reason:	Recommend making the makeup air requirement mandatory and awarding the 2 points for making it economical.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Not clear on how the ERV/HRV would provide makeup air for this application. Concerned about unintended consequences (e.g., kitchen exhaust should not be introduced directly to ERV/HRV)	
TG Vote:	Unanimous	

Proposal ID P367	LogID 5155	Other for Chapter 11 (include section number and title below)
Submitter:	Stephen J Holzer, eM8s, LLC	
Requested Action:	Add new as follows	
Proposed Change:	**11.505.6 Building Information Modeling (BIM)**. Project Team uses BIM planning, design, remodeling and simulating operation in order reduce material waste and optimize performance.	
Reason:	Building Information Modeling (BIM) is a computer generated model based process that simulates planning, design, construction and operations for buildings. It is a single repository for both three-dimensional, two-dimensional, and material properties information that allows data interoperability of all stakeholders to better inform design and construction decisions with the goal of producing the best product possible. This information technology will increase design and construction efficiencies and decrease costs for builders and end users. BIM may also facilitate better communication, collaboration and coordination among building industry professionals and trades working on the same project. Credit should be given to Builders utilizing the open industry standards as defined in the National Building Information Modeling Standard.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	Text as is, but move to section 11.611.4 innovative practices	
TG Reason:	Good innovative practice	
TG Vote:	Unanimous	

Proposal ID P368	LogID 5177	Other for Chapter 11 (include section number and title below)
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Add new as follows	
Proposed Change:	**11.601.9 Design for Disassembly**. Incorporate in the design interior elements, such as non-load-bearing walls, partitions, lighting and electric systems, suspended ceilings, raised floors and interior air distribution systems that can be disassembled, re-configured, and reused. Utilize connections that allow disassembly, such as reversible connections (e.g. screws, bolts, nails, clips).	
Reason:	The intent of 11.601 is to utilize design and construction practices that minimize the environmental impact of the building materials and to incorporate environmentally efficient building systems and materials. Employing design elements that can be disassembled, re-configured and reused, and utilizing connections that are reversible are important green building practices to ensuring buildings systems are environmentally efficient.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	Text as is, but move to 11.611.5 innovative practices	
TG Reason:	Good innovative practice	
TG Vote:	Unanimous	

Chapter 12. Remodeling of Functional Areas

Proposal ID P369	LogID TG7-04	12 Remodeling of Functional Areas
Submitter:	Task Group 7,	
Requested Action:	Add new text as follows:	
Proposed Change:	*Add text and renumber as necessary:*	

12.4
BASEMENT REMODELS

12.4.0 Applicability. In addition to the practices listed in Section 12.1, the following practices are mandatory for all basement remodels.

12.4.1 Moisture inspection. Prior to any construction activity, the basement is inspected for evidence of moisture problems. Any identified moisture problems are corrected prior to covering any walls or floors.

12.4.2 Kitchen. When the basement remodel includes a kitchen, the remodel shall also comply with the practices in Section 12.2.

12.4.3 Bathroom. When the basement remodel includes a bathroom, the remodel shall also comply with the practices in Section 12.3.

12.4.902.3 Radon control. In Radon Zone 1, passive or active radon control system is installed in accordance with ICC IRC Appendix F.

12.5 Attic Remodels

12.5.0 Applicability. In addition to the practices listed in Section 12.1, the following practices are mandatory for all attic remodels.

12.5.1 Moisture inspection. Prior to any construction activity, the attic is inspected for evidence of moisture problems. Any identified moisture problems are corrected prior to covering any ceilings, walls, or floors.

12.5.2 Kitchen. When the attic includes a kitchen, the remodel shall also comply with the practices in Section 12.2.

12.5.3 Bathroom. When the attic includes a bathroom, the remodel shall also comply with the practices in Section 12.3.

12.5.4 Knee walls. When the attic includes a knee wall, the remodel shall also comply with.

12.~~5~~6

ADDITIONS

12.~~5~~.0 Applicability. In addition to the practices listed in Section 12.1, the following practices are mandatory for all addition remodels.

12.~~5~~.1 Kitchen. When the addition includes a kitchen, the remodel shall also comply with the practices in Section 12.2.

12.~~5~~.2 Bathroom. When the addition includes a bathroom, the remodel shall also comply with the practices in Section 12.3.

	12.6.3 Attic. When the addition includes an attic, the remodel shall also comply with the practices in Section 12.5 **12.5.503.5 Landscape plan.** Where the addition disturbs more than 1,000 square feet of the lot, a landscape plan for the lot is developed to limit water and energy use while preserving or enhancing the natural environment. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated. **12.5.602.1.1.1 Capillary break.** A capillary break and vapor retarder are installed at concrete slabs in the addition in accordance with IRC Sections R506.2.2 and R506.2.3 or IBC Sections 1910 and 1805.4.1. **12.5.602.1.3.1 Exterior drain tile.** Where required by the ICC IRC or IBC for habitable and usable spaces of the addition below grade, exterior drain tile is installed.
Reason:	Add attic as new functional area.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	This proposal does not provide the additional clarification needed to govern “additions”.
TG Vote:	Unanimous

Proposal ID P370	**LogID 5148**	**12.0 Intent (Remodeling of Functional Areas)**
Submitter:	Robert Hill, Home Innovation Research Labs	
Requested Action:	Revise as follows	
Proposed Change:	**12.0 Intent.** This chapter sets forth the mandatory green building practices for remodeling functional areas of buildings. The intent of Chapter 12 is to address the most common remodeling projects: complete kitchen, full bathroom, complete basement, or an addition u~~nder 400 square feet~~ less than 50% of the original conditioned floor area. An attic conversion may be considered an addition. Chapter 12 is not intended to be used for rating minor alterations.	
Reason:	The limitation of under 400 ft2 is too limiting. The limit should be established such that major additions force the building to use chapter 11 but only adding a 20' x 30' room would not likely be certifiable via chapter 11 but is outside the existing scope. Also, converting an unfinished attic is a very green thing to do but it is not obviously within the scope of the current practice.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **12.0 Intent.** This chapter sets forth the mandatory green building practices for remodeling functional areas of buildings. The intent of Chapter 12 is to address the most common remodeling projects: complete kitchen, full bathroom, complete basement, attic conversion to habitable space, or an addition u~~nder 400 square feet~~ less than 50% of the existing original conditioned floor area not to exceed 800 square feet. ~~An attic conversion may be considered an addition.~~ Chapter 12 is not intended to be used for rating minor alterations.	
TG Reason:	Expansion of intent to include attic spaces and expand size limit of functional area.	
TG Vote:	Unanimous	

Proposal ID P371	LogID TG7-09	12.00 Remodeling of Functional Areas
Submitter:	Task Group 7,	
Requested Action:	Add new text as follows:	
Proposed Change:	**12.5 Attic Remodels** **12.5.0 Applicability**. In addition to the practices listed in Section 12.1, the following practices are mandatory for all attic remodels. **12.5.1 Moisture inspection.** Prior to any construction activity, the attic is inspected for evidence of moisture problems. Any identified moisture problems are corrected prior to covering any ceilings, walls, or floors. **12.5.2 Kitchen**. When the attic includes a kitchen, the remodel shall also comply with the practices in Section 12.2. **12.5.3 Bathroom**. When the attic includes a bathroom, the remodel shall also comply with the practices in Section 12.3. **12.5.4 Knee walls**. When the attic includes a knee wall, the remodel shall also comply with 12.1.701.4.3.1.	
Reason:	Add attic as new functional area	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **12.5 ~~Attic Remodels~~Conversion of Previously Unconditioned Space to Conditioned Space** **12.5.0 Applicability**. In addition to the practices listed in Section 12.1, the following practices are mandatory for all ~~attic remodels~~conversions of previously unconditioned spaces into conditioned spaces such as, but not limited to attics, garages, etc. **12.5.1 Moisture inspection.** Prior to any construction activity, the ~~attic~~space to be converted shall be~~is~~ inspected for evidence of moisture problems. Any identified moisture problems are corrected prior to covering any ceilings, walls, or floors. **12.5.2 Kitchen**. When the ~~attic~~space to be converted includes a kitchen, the remodel shall also comply with the practices in Section 12.2. **12.5.3 Bathroom**. When the ~~attic~~space to be converted includes a bathroom, the remodel shall also comply with the practices in Section 12.3. **12.5.4 Knee walls**. When the ~~attic~~space to be converted includes a knee wall, the remodel shall also comply with 12.1.701.4.3.1.	
TG Reason:	We agree that attics needed to be identified as a separate functional area but also felt that this should be further expanded to encompass other similar remodels.	
TG Vote:	Unanimous	

Proposal ID P372	LogID 5185	12.1(A) Product or material selection
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Add new as follows	
Proposed Change:	**12.1 (A).605.1 Construction waste management plan**. A construction waste management plan that includes targets for diversion is developed, posted at the jobsite, and implemented.	
Reason:	Although renovation of functional areas may result in less waste generated, it is still prudent to develop a construction waste management plan that contains target rates for diversion of the waste from landfill.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Reasonable	
TG Vote:	Unanimous	

Proposal ID P373	LogID 5075	12.1(A).611.2 Sustainable products
Submitter:	Josh Jacobs, UL	
Requested Action:	Revise as follows	
Proposed Change:	(5) 50% or more of the gypsum board installed (by square feet) is certified to UL 100 ~~ULE ISR 100~~. (6) 50% or more of the door leafs installed (by number of door leafs) is certified to UL 102 ~~ULE ISR 102~~.	
Reason:	This is an update to existing references. UL 100 and 102 were finalized and published shortly after final voting for the NAHB National Green Building Standard was completed.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Current designation	
TG Vote:	Unanimous	

Proposal ID P374	LogID 5228	12.1.701.4.1.1 HVAC system sizing
Submitter:	Eric Lacey, RECA	
Requested Action:	Add new as follows	
Proposed Change:	**12.1.701.4.X Fenestration Specifications.** The NFRC-certified (or equivalent) U-factor and SHGC of newly installed windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in Table 703.1.6.1. **12.1.701.4.X Replacement Fenestration.** Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the NFRC-certified (or equivalent) U-factor and SHGC of the replacement fenestration unit do not exceed the values in Table 703.1.6.1.	
Reason:	This proposal improves the consistency of Chapter 12 by requiring fenestration to meet the same level of efficiency, whether it is installed as part of new construction, a renovation or repair, or a simple fenestration replacement. These new sections simply reference the baseline fenestration requirements that currently apply to the prescriptive compliance option. The language is modeled after existing language in ICC-700 and the IECC. In fact, the replacement fenestration requirement has been in the residential chapter of every edition of the IECC since 2000. Neither of these sections requires a code user to replace a window in a given project. However, if an addition, window replacement or a renovation is planned that will involve replacing an entire fenestration unit, these sections would simply require that window, door, or skylight to meet the prescriptive requirements specified in Chapter 7.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	Revise proposed change as follows (in red): **12.1.701.4.X Fenestration Specifications.** The NFRC-certified ~~(or equivalent)~~ U-factor and SHGC of newly installed windows, exterior doors, skylights, and tubular daylighting devices (TDDs) do not exceed the values in Table 703.1.6.1. **12.1.701.4.X Replacement Fenestration.** Where some or all of an existing fenestration unit is replaced with a new fenestration product, including sash and glazing, the NFRC-certified ~~(or equivalent)~~ U-factor and SHGC of the replacement fenestration unit do not exceed the values in Table 703.1.6.1.	
TG Reason:	Code consistency	
TG Vote:	Unanimous	

Proposal ID P375	LogID 5226	12.1.701.4.1.1 HVAC system sizing
Submitter:	Eric Lacey, RECA	
Requested Action:	Add new as follows	
Proposed Change:	**12.701.4.0 Minimum Energy Efficiency Requirements.** Additions, alterations, renovations, or repairs to an existing building, building system or portion thereof comply with the provisions of the International Energy Conservation Code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. An addition complies with the IECC if the addition complies or if the existing building and addition comply with the IECC as a single building.	
Reason:	This proposal clarifies that additions, alterations, renovations, or repairs must meet the same requirements of the IECC that apply to new buildings, to the extent that the requirements are applicable. The language is based on Section R101.4.3 of the IECC so that there is consistency between the scope of the IECC and the scope of ICC-700 with respect to additions, alterations, renovations and repairs. Sections 11.701 and 12.701 both contain many of the IECC requirements as "mandatory" requirements for all projects, and seem to imply that these projects should meet the IECC, but there is no specific requirement that outlines the scope of the requirements. As with the IECC, portions of the building that are not altered by a renovation, addition, alteration, or repair will not be required to meet the IECC.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	*Revise proposed change as follows (in red):* **12.701.4.0 Minimum Energy Efficiency Requirements.** Additions, alterations, or renovations~~, or repairs~~ to an existing building, building system or portion thereof comply with the provisions of the International Energy Conservation Code as they relate to new construction without requiring the unaltered portion(s) of the existing building or building system to comply with this code. An addition complies with the IECC if the addition complies or if the existing building and addition comply with the IECC as a single building. Exception: The following need not comply provided the energy use of the building is not increased: 1. Storm windows installed over existing fenestration. 2. Glass only replacements in an existing sash and frame. 3. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation. 4. Construction where the existing roof, wall or floor cavity is not exposed. 5. Reroofing for roofs where neither the sheathing nor the insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing. 6. Replacement of existing doors that separate c*onditioned space* from the exterior shall not require the installation of a vestibule or revolving door, provided, however, that an existing vestibule that separates a *conditioned space* from the exterior shall not be removed. 7. Alterations that replace less than 50 percent of the luminaries in a space, provided that such alterations do not increase the installed interior lighting power. 8. Alterations that replace only the bulb and ballast within the existing luminaries in a space provided that the *alteration* does not increase the installed interior lighting power.	
TG Reason:	Clarify intent.	
TG Vote:	Unanimous	

Proposal ID P376	LogID 5108	12.1.701.4.5 Boiler supply piping
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	12.1.701.4.5 **Boiler supply piping.** Insulate all Newly installed boiler supply piping in unconditioned space ~~that is accessible during the remodel is insulated~~	
Reason:	New pipe will be accessible.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	Revise standard as follows: 12.1.701.4.5 **Boiler supply piping.** Insulate all ~~N~~newly installed boiler supply piping in unconditioned space ~~that is accessible during the remodel is insulated~~ and insulate existing boiler supply piping in unconditioned space where accessible.	
TG Reason:	This proposed change represents a good practice, clarifies the intent, improves energy efficiency, and is practical to implement.	
TG Vote:	Unanimous	

Proposal ID P377	LogID 5186	12.2.607.1 Recycling
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	**12.2.607.1 Recycling and Composting**. Recycling and composting ~~is~~ are facilitated by one or more of the following methods:	
Reason:	Composting is not considered the same thing as recycling. Since the intent of the section is to facilitate composting as well as recycling, composting should be referenced by name in Section 12.2.607.1.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	Good practice and consistent with previous changes	
TG Vote:	Unanimous	

Proposal ID P378	LogID TG7-03	12.3 Kitchen remodels
Submitter:	Task Group 7,	
Requested Action:	Add new text as follows:	
Proposed Change:	Add Kitchen faucet maximum flow rate and WaterSense reference, contingent upon hearing from the water TG on this and a corresponding reference in Chapter 11 and Chapter 8.	
Reason:	TG7 believes that the REQUIREMENTS should be included (in addition to or rather than reference to a specific program). We believe that having the flow rates clearly stated will also help enable and prioritize further water savings.	
TG Recommendation:	Approved as Modified	
Modification of Proposed Change:	Renumber to 12.2. Add language from 12.3.801.5.1 to Kitchen Remodel section.	
TG Reason:	Consistency with Bathroom remodel requirements and to enable credit for similar kitchen remodels. Include requirements for flow rate, without WaterSense language. Topic should be considered for full committee discussion. Approve as Modified to include specific reference to the 2014 WaterSense requirements. Retain the performance requirements.	
TG Vote:	Unanimous	

Proposal ID P379	LogID 5187	12.3.801.5.1 Faucets
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	Newly installed lavatory faucets are WaterSense labeled and have a maximum…	
Reason:	We recommend referencing WaterSense labeled lavatory faucets.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The Water TG preferred to reference the requirements rather than the brand. TG7 Agrees with requirements being included. This provides protection against any performance “erosion” that could occur in any referenced third-party program.	
TG Vote:	Unanimous	

Proposal ID P380	LogID 5188	12.3.801.6 Water closets
Submitter:	Brett VanAkkeren, USEPA	
Requested Action:	Revise as follows	
Proposed Change:	All newly installed water closets have an effective flush volume of 1.28 gallons (4.85 L) or less when tested in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.18.14 as applicable, and is ~~in accordance with EPA~~ WaterSense labeled ~~Tank-Type Toilets~~.	
Reason:	Simplify language to ensure that products are certified as meeting the WaterSense specification. As currently drafted, it could suggest that a product that met the specification but had not been certified as doing so could earn the points.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Consistent with previous action preferring inclusion of requirements versus program brands.	
TG Vote:	Unanimous	

Proposal ID P381	LogID 5268	Other for Chapter 12 (include section number and title below)
Submitter:	Matt Belcher, Verdatek Solutions	
Requested Action:	Add new as follows	
Proposed Change:	**12.6 Innovative Practices** **12.6.1 Resilience** Functional areas incorporate one or more of the following resilience options, as applicable. Points for items 1 through 4 shall be granted only where such products are not required per the applicable building code. 1. High-wind resistant or impact resistant entry doors or garage doors are installed. 1. Impact resistant glazing is installed. 2. High-wind resistant or impact resistant wall claddings are installed. 3. High-wind resistant or impact resistant roof coverings are installed. 4. The addition is constructed in accordance with an approved above-code mitigation program (e.g. IBHS Fortified, Resilience Star or My Safe Florida Home). Addition incorporates one or more of the following resilience options, as applicable:. 5. The addition building is constructed using flood damage-resistant materials. 6. The addition is constructed with its lowest floor at least one foot above the elevation required by the building code or adopted by the jurisdiction, whichever is higher. 7. The addition is located in Zone A and constructed on an open foundation system (pile foundations or isolated piers).	
Reason:	An important component of sustainable building is mitigation of natural hazards. Integrating resilience into new construction or during remodeling of existing housing stock provides an extra layer of protection. However, building-in disaster resilience can be difficult and costly. Deciding how (and when) to improve a structure requires much thought, time and capital. With the focus on future enhancement of the model codes to provide for enhanced "Resiliant" construction, It is an opportunity to include reference in this "above code" standard to incentivise innovative practices and process that will demonstrate best practices for eventual application into the model codes.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	Resilience is an important concept and topic, and may be more important for new construction, but as stated the benefits are not clear and the text would require extensive review before implementation on the remodeling side.	
TG Vote:	Unanimous	

Chapter 13. Referenced Documents

Proposal ID P382	LogID 5109	1301 General (Referenced documents)
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Add sections as required based on accepted ACCA recommendations	
Reason:	New locations for QI -5 citations should be included	
TG Recommendation:	Withdrawn	
Modification of Proposed Change:		
TG Reason:		
TG Vote:		

Proposal ID P383	LogID 5110	1302 Referenced Documents
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Change Manual J to 2011 version	
Reason:	Latest update for code compliance	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	13-0-0	

Proposal ID P384	LogID 5111	1302 Referenced Documents
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Change Manual D to 2014 Version	
Reason:	Latest update for code compliance	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	13-0-0	

Proposal ID P385	LogID 5112	1302 Referenced Documents
Submitter:	Donald Prather, ACCA	
Requested Action:	Revise as follows	
Proposed Change:	Change Manual S to version 2014	
Reason:	Latest update for code compliance	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	13-0-0	

Proposal ID P386	LogID 5214	1302 Referenced Documents
Submitter:	Eric Lacey, RECA	
Requested Action:	Revise as follows	
Proposed Change:	IECC ~~2009~~ 2015 International Energy Conservation Code 701.1.1, 702.2.2	
Reason:	This proposal updates the references to the IECC in the Energy Efficiency Chapter with the latest edition of the IECC. The 2015 National Green Building Standard should support, and be completely integrated with, the complete family of 2015 International Codes. Although the 2012 IBC, IRC, and IECC are generally consistent in requirements and cross-references, the 2012 NGBS references the 2009 IECC. This inconsistency creates a host of problems, particularly for local building officials who must apply two different baselines to the IECC and ICC-700. It has been our experience that states, counties, and cities that support the use of “green” codes such as ICC-700 are more likely to be current in their mandatory energy conservation codes, so it makes sense to reference the 2015 IECC in the 2015 ICC-700. Although this proposal would effectively move the baseline IECC ahead two editions, the 2012 and 2015 IECC residential requirements are very close in terms of overall efficiency, so states, counties, or cities that have already adopted and are applying the 2012 IECC are most likely already meeting the 2015 IECC as well. The current inconsistency between ICC-700 and the IECC editions can be easily corrected in 2015 by updating all references to the International Codes to be internally consistent. If, for some reason, the Committee is reluctant to the update to the 2015 IECC, there is no reason to fail to update the NGBS, at a minimum, to the 2012 IECC.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	10-1-1	

Appendix B. Whole Building Ventilation System Specifications

Proposal ID P387	LogID 5113 B200 Whole-building ventilation
Submitter:	Donald Prather, ACCA
Requested Action:	Delete and substitute as follows
Proposed Change:	Update Information and Tables and equations to reflect 62.2 -2013 requirements
Reason:	Tables and formulas have changed dramatically and there are different values in the table for Multifamily and single family residences.
TG Recommendation:	See below
Modification of Proposed Change:	TG 6 - Approve as Modified Update Information and Tables and equations to reflect ~~62.2-2013~~ 62.2 -2010 requirements
TG Reason:	TG 3 - Disapprove Not enough specifics here. Proposal is insufficiently specific as to what language requires update. --- TG 6 - Approve as Modified The 2013 edition of ASHRAE Standard 62.2 includes significant new requirements and enhanced ventilation rates. These new provisions can negatively impact cost-effectiveness and raise technical questions concerning other building performance metrics (such as a possible energy penalty). Therefore, the task group recommends use of the 2010 edition of 62.2, which would update the current NGBS reference without unduly burdening new multifamily development.
TG Vote:	TG 3 5-2-6 TG 6 5-1-0

Appendix C. Climate Zones

Proposal ID P388	LogID TG1-17	Appendix C
Submitter:	Tim Pate , City and County of Broomfield Building Division	
Requested Action:	Revise as follows:	
Proposed Change:	Add new language to Colorado and delete asterisks (*) from certain Texas counties COLORADO 5B Boulder 5B Broomfield 6B Chaffee TEXAS (remove asterisks from all counties below) Bandera Dimmit Edwards Frio Kinney La Salle Maverick Medina Real Uvalde Val Verde Webb Zapata Zavala	
Reason:	There were two successful code changes for the recently published 2015 IECC which added Broomfield County to Colorado and removed asterisks from 14 Texas counties which effectively removed them from the warm-humid location designation. This proposed change would get the 2015 NGBS to match the 2015 IECC. I have attached copies of both of the code change proposals with their reason statements for documentation.	
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-0-0	

Proposal ID P389	LogID TG5-53	Appendix C Climate Zones
Submitter:	Howard Wiig, Craig Conner,	
Requested Action:	Add new text as follows:	
Proposed Change:	Revise Table C200 as follows: **TABLE C200** **CLIMATE ZONES,MOISTURE REGIMES, AND WARM-HUMID** **DESIGNATIONS BY STATE, COUNTY AND TERRITORY** Key: A – Moist, B – Dry, C – Marine~~,~~ T – Tropical (subset of Zone 1) Absence of moisture designation indicates moisture regime is irrelevant. Asterisk (*) indicates a warm-humid location. **COLORADO** 5B Broomfield **HAWAII** ~~1A~~ T (all)* **TEXAS:** 2B Bandera* 2B Dimmit* 2B Edwards* 2B Frio* 2B Kinney* 2B La Salle* 2B Maverick* 2B Medina* 2B Real* 2B Ulvalde* 2B Val Verde* 2B Webb* 2B Zapata* 2B Zavala* **US TERRITORIES** **AMERICAN SAMOA** ~~1A~~ T (all)* **GUAM** ~~1A~~ T (all)* **NORTHERNMARIANA ISLANDS** ~~1A~~ T (all)* **PUERTO RICO** ~~1A~~ T (all)* **VIRGIN ISLANDS** ~~1A~~ T (all)*	
Reason:	Add the new Tropical Zone, a subset of Zone 1, to the climate zone table. This is the same zone that was added in the 2015 IECC. Having a named “Tropical Zone” will make it easier to assign appropriate points to the tropical climate. This also updates ICC 700 climate zones for consistency with other climate zones changes in the 2015 IECC. The are a change in “warm humid” in Texas and a forgotten county in Colorado.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	To be consistent with IECC	
TG Vote:	9-0-0	

Appendix D. Examples of Third-Party Programs for Indoor Environmental Quality

Proposal ID P390	LogID TG3-04	Appendix D Table 200(2)
Submitter:	Josh Jacobs, UL	
Requested Action:	Revise as follows:	
Proposed Change:	UL GREENGUARD Gold ~~Environmental Institute Children & Schools Certification Program~~ ~~GREENGUARD Environmental Institute 2211 Newmarket Parkway, Suite 110 Marietta, GA 30067 http://www.greenguard.org(800) 427-9681~~ Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 www.ul.com(877) 854-3577 UL 2768 ~~EcoLogo CCD 047~~ ~~EcoLogo Program 171 Nepean Street, Suite 400 Ottawa, ON,K2P 0B4, CANADA http://www.ecologo.org/(800) 478-0399~~ Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 www.ul.com(877) 854-3577	
Reason:	This is a simple brand change to referenced programs and address' to reflect the purchase of these programs by Underwriters Laboratories. The requirements of the programs haven't changed since the committee put these in, it is simply a renaming and a new address to more align with organizational structure and marketplace.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	8-0-1	

New Appendix

Proposal ID P391	LogID 5314	E202 Conformance criteria
Submitter:	Craig Conner, Building Quality	
Requested Action:	Add new as follows	
Proposed Change:	Add a new appendix that specifies procedures and guidelines for approving alternative programs that may or may not look or be formatted like NGBS or IECC, but are verified to achieve their overall energy efficiency goals.	
Reason:	This new appendix specifies procedures and guideline for approving alternative programs that may or may not look or be formatted like NGBS or IECC, but are verified to achieve their overall energy efficiency goals. There are many good programs that have achieved local, state and national success. NGBS users, the NGBS support organization, or others should have the ability to recognize a variety of accomplished programs. Due to the size of the submittal, it is being sent in as a separate file.	
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.	
TG Recommendation:	Disapprove	
Modification of Proposed Change:		
TG Reason:	The TG believes that the NGBS already allows alternative approaches.	
TG Vote:	7-0-0	

Proposal ID P392	LogID 5315	E202 Conformance criteria
Submitter:	Craig Conner, Building Quality	
Requested Action:	Add new as follows	
Proposed Change:	Add appendix specifies prescriptive packages that comply with the energy efficiency goals of the 10%, 20%, 30% and 40% levels in the energy chapter.	
Reason:	This appendix specifies prescriptive packages that comply with the energy efficiency goals of the 10%, 20%, 30% and 40% levels in the energy chapter. The user can select any number of choices. This provides a simpler, mostly prescriptive option that allows freedom have wider variation of choices, but does not require a simulation. The “Trades and Adds” table specifies how much a change to a component affects the total. Some “Trades and Adds” will have a negative %. “Trades and Adds” also adds additional specific options. Any combination shall be permitted provided the “Trades and Adds” yields at least the “Extra” required.	
Substantiating Docs:	Click here to view supporting documentation, or go to www.HomeInnovation.com/NGBS.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:	The review of the calculations of these packages would be a good tool; simplified version of an energy model which would help the contractor/builder. Simplified, prescriptive approach would be helpful to builders.	
TG Vote:	6-0-1	

Proposal ID P393	LogID TG5-54 New Appendix
Submitter:	Craig Conner, Building Quality
Requested Action:	Add new text as follows:
Proposed Change:	Add a section or an appendix that is intended to translate values or level from efficiency programs into NGBS points. Include multiple programs. For HERS this would probably be a set of tables specific to the factors that give rise to the wide variation in HERS scores that don't seem to correlate with IECC compliance. These would probably include house size, HVAC type/efficiency, and perhaps one more variable. The tables would include other non-HERS programs as well. Some of the programs might translate into a specific number of points. For example the EFL (Engineered for Life) program by Masco has a specific set of requirements to all its homes. This would be a single NGBS number of points. Unlike HERS, EFL is not intended to apply to all homes.
Reason:	Multiple programs and organizations need to be able to easily use NGBS. With restrictions, HERS, other programs with several levels, and programs with a single set of requirements could be accommodated. It is very important not to restrict the NGBS to one proprietary source (RESNET) but allow any organization and programs to use NGBS. HERS represents one energy-based program. We need to accommodate other programs, including those that are broadly green programs. Analysis by EPA and recently PNNL, a DOE lab, show that there is wide variation in the correlation of HERS score and how they relate to the IECC. Simply put, the HERS score is not a good indicator of compliance with the IECC. This section would place limits on how the HERS score is used and allow it, with restrictions, to be used to get NGBS points. It would also allow other programs to do the same. The EPA analysis and the PNNL study will be forwarded as substantiating documents.
TG Recommendation:	Disapprove
Modification of Proposed Change:	
TG Reason:	Consistent with actions on other proposed changes on this section/subject. The proposal does not provide specific language for the standard.
TG Vote:	10-0-0

Index

Proposal ID P394	LogID TG1-14	Index
Submitter:	James M Williams, J.M. Williams and Assoc. Inc. / AE URBIA	
Requested Action:	Add new text as follows:	
Proposed Change:	Add an Index at the back of the document. Follow the same format as the other I Codes. See 2015 IECC index page C-107 or R-53 for an example.	
Reason:	To match the format of the other I Codes. To assist the end users in using the standard. An index will greatly assists the end user in actually using and applying the standard.	
TG Recommendation:	Approved	
Modification of Proposed Change:		
TG Reason:		
TG Vote:	6-0-0	