

Pre-Public Comments Report
on the
Development of the
2012 Edition of the
National Green Building Standard™

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FOREWORD

NOTICE

Release of Second Draft Standard. Those Comments that were Approved or Approved As Modified by the Consensus Committee have been incorporated in the Second Draft Standard (Legislative Version) posted at www.nahbrc.com/ngbs. The changes shown in the Second Draft Standard (Legislative Version) are now open for public comment. Public comments are accepted through **June 11, 2012** via a web-based form available at www.nahbrc.com/ngbs. Instructions for submitting public comments are included with the web-based form. Only those changes to the first Draft Standard (Public Comment Draft) that were approved by the Consensus Committee during its February 2012 meeting, shown in legislative format in the Second Draft Standard (Legislative Version), are open for public comment. The first Draft Standard (September 23, 2011) and other committee work on the development of the 2012 edition of the National Green Building Standard can be found at www.nahbrc.com/ngbs.

This is the Pre-Public Comments Report (Pre-PCR) on the development of the 2012 edition of the National Green Building Standard (NGBS - ICC 700). This report summarizes the steps of the Public Comments phase of development, the development of the Second Draft Standard for the purpose of receiving public comment on the changes made to the first Draft Standard, and the roster of the consensus committee at the time of acceptance of the public comments. This Pre-PCR is released as information to the consensus committee and public as to the preliminary Formal Action taken on the comments. After the consensus committee balloting on the comments closes, the Public Comments Report (PCR) will be released as the documentation on the Public Comments phase of development. Information on the Public Input Phase can be found in the Public Proposals Report (PPR) available at www.nahbrc.com/ngbs.

This Pre-PCR includes the following information to date on each comment considered by the Consensus Committee:

- (1) The name of the submitter of the *comment*;
- (2) The entity represented;
- (3) The text of the *comment*;
- (4) The tentative *Formal Action* taken by the *consensus committee*;
- (5) Any *consensus committee* statement on the *Formal Action*;
- (6) Number of *consensus committee* members eligible to vote;
- (7) Number voting in the affirmative;
- (8) Identification of negative voters and stated reasons for each negative vote;
- (9) Identification of those who have abstained, and reasons for each abstention;
- (10) Identification of those who have not returned ballots.

Held Comments. Except for *public comments* submitted on the first *Draft Standard* for a new standard, a *public comment* that proposes changes to a section or part of a first *Draft Standard* that was not changed during the development of the Second *Draft Standard* shall be reported as Held. The release of this Public Comments Report (PCR) is considered notification to a submitter of a Held Comment the determination by the *consensus committee*. At the discretion of the submitter, a Held *comment* can be retained and be processed as a *proposed change* during the next revision of the standard. The submitter must inform the NAHB Research Center Standards Coordinator of this request or the comment is considered discharged.

Non-Responsive. Those public comments that do not apply to the standard, and those that are general in nature and do not propose any action that can be taken by a consensus committee, can be classified as Non-Responsive. The Secretary shall report those public comments that appear to be Non-Responsive to the consensus committee for its consideration. No Formal Action is required by the consensus committee on those public comments determined to be Non-Responsive. The Secretary shall communicate to the submitter of the Non-Responsive public comment, either directly or published in the PPR, the determination of the consensus committee.

Notification of Committee Action. The release of this Pre-Public Comments Report (PCR) is considered notification to a submitter of a *public comment* or a *ballot comment* as to the tentative *committee action* on the *comment*. The submitter of a *public comment* or ballot comment may inform the NAHB Research Center Standards Coordinator that they remain *unresolved* by the action of a *consensus committee*. (Please see “Classification as an Unresolved Objection” below.)

Objections. The consideration of public comments in accordance with Section 4.4.5.7 and related ballot comments in accordance with Section 4.4.5.10 of the Procedures is considered an effort and attempt to resolve all expressed objections. The committee action and statement (reason) supporting the Formal Action reported in the PCR is notification to the submitter of a comment as to the reason for acceptance or rejection of the comment. Those comments that are not supported by an affirmative action on the part of the consensus committee are considered non-persuasive.

Classification as an Unresolved Objection. Unresolved objections as classified as follows:

- (a) **Public Comments:** For submitters of *public comments*, only an appeal filed on a specific *substantive change* or *committee action* is tentatively classified as an *unresolved objection*; or notification from the submitter of a *public comment* that they remain *unresolved* by the action of a *consensus committee* is classified as an *unresolved objection*.
- (b) **Ballot Comments:** For negative ballots cast by a *consensus committee* member, only those items on which the member indicates to the Standards Coordinator that his or her *objection* is *resolved* are classified as a *resolved objection*.

Appeals. Persons who have directly and materially affected interests and who have been or will be adversely affected by any procedural action or inaction by the Secretariat with regard to the development of a proposed standard or the revision, reaffirmation or withdrawal of an existing standard, have the right to appeal. Appeals shall be based on compliance with or interpretation of the NAHB Research Center Procedures. An appeal shall be submitted by registered mail to the Standards Coordinator no later than **July 28, 2012**. The appeal shall identify and address the original source of the objection. The appeal shall specify the cause of the appeal, the applicable section(s) of the procedures

related to the appeal, and a proposed corrective action. The appeal shall be accompanied by a filing fee of \$500.00. This fee may be waived or reduced upon sufficient evidence of hardship. Appeals will be considered by the Appeals Panel at a hearing on the premises of the NAHB Research Center on August 8010, 2012. Please see the NAHB Research Center's Procedures for further information.

NAHB Research Procedures. A copy of the NAHB Research Center "Procedures for Consensus Developed Standards" is available at www.nahbrc.com/ngbs.

The following were the members of the Consensus Committee on the National Green Building Standard at the time of voting on the Comments shown in this Public Comments Report.

Chair: Donald L. Pratt
Vice Chair: Ray Tonjes
Staff Liaison: Vladimir G. Kochkin

COMMITTEE MEMBER	REPRESENTATIVE
Air Barrier Association of America, Inc. (P)	Laverne Dalglish
Air-Conditioning, Heating and Refrigeration Institute (P)	Frank A. Stanonik
American Gas Association (P)	Ted Arthur Williams
	Paul Cabot (Alternate)
American Institute of Architects (U)	David S. Collins, FAIA
American Wood Council (P)	Kenneth Bland
	Sam W. Francis (Alternate)
Association of Home Appliance Manufacturers (P)	Matthew Brian Williams
BME Associates (U)	Bruce G. Boncke
BOMA International (U)	Ron Burton
C. F. Evans & Company (U)	Patrick Westbury
	Joel Freeman (Alternate)
CECS of MI, LLC (U)	Donald L. Pratt
City of Denton, TX (G)	Kurt Spence Hansen
City of Keene, NH (G)	Medard Kopczynski
City of Longmont, CO (G)	Chris Allison
City of Scottsdale, AZ (G)	Anthony C. Floyd
ConSol (U)	Michael G. Hodgson
Edison Electric Institute (P)	Steven Rosenstock
Environmental Solutions Group (U)	Steven Armstrong
Forest City Land Group (U)	William Sanderson
GREENGUARD Environmental Institute (P)	Josh Jacobs
Habitat for Humanity International (U)	Matt Clark
	Mike Mongeon (Alternate)
Memphis Land Bank, Inc. (G)	Molly A. Beard
National Multi Housing Council (U)	Paula Cino
	Ron Nickson (Alternate)
North American Insulation Manufacturers Association (P)	Charles C. Cottrell
	Darrell K. Winters (Alternate)
NVR Inc. (U)	Christine A. Phillips
	Dan Simon (Alternate)
Plastic Pipe and Fittings Association (P)	Michael William Cudahy
Portland Cement Association (P)	Donn C. Thompson, AIA, CGP, LEED AP
	Stephen V. Skalko, P.E. (Alternate)
Ray Tonjes Builder, Inc. (U)	Ray Tonjes
State of California - Department of Housing and Community Development (G)	Doug Hensel
State of New Jersey - Division of Codes and Standards (G)	Darren Molnar-Port

COMMITTEE MEMBER**REPRESENTATIVE**

Steel Framing Alliance (P)	Maribeth S. Rizzuto
	Mark Nowak (Alternate)
Steve Easley & Associates (U)	Steve Easley
The Sullivan Company, Inc. (U)	Paul L. Sullivan, CGR, CAPS
U.S. Army (G)	Deborah Reynolds
U.S. Department of Energy (G)	Jeremiah L. Williams
U.S. Department of Housing & Urban Development (G)	Dana Bres, P.E.
	Mike Blanford (Alternate)
U.S. Environmental Protection Agency (G)	Lee S. Sobel
U.S.D.A. Forest Service - Forest Products Laboratory (G)	Richard Bergman
	Michael A. Ritter (Alternate)
Verdatek Solutions LLC (U)	Matthew Belcher
Vinyl Siding Institute, Inc. (P)	Matthew Dobson
	Jery Y. Huntley (Alternate)
Winchester Homes, Inc. (U)	Randall K. Melvin
Window & Door Manufacturers Association (P)	Jeff Inks

Producer Interest (P): Individuals assigned to the Producer Interest Category are those who represent the interests of an entity, including an association of such entities, which produces, installs or maintains a product, assembly or system subject to the provisions within the scope of the *consensus committee*. These entities include Distributor, Labor, Manufacturer, Material Association, Standards Promulgator, Testing Laboratory, and Utility.

User Interest (U): Individuals assigned to the User Interest Category are those who represent the interests of an entity, including an association of such entities, which is subject to the provisions or voluntarily utilize the provisions within the scope of the *consensus committee*. These entities include Builder, Contractor, Consultant, Applied Research Laboratory, Building Owner, Design Professional, Insurance Company, Private Inspection Agency, and Product Certification/Evaluation Agency.

General Interest (G): Individuals assigned to the General Interest Category are those who represent the interests of an entity, including an association of such entities, representing the general public or entities which promulgate or enforce the provisions within the scope of the *consensus committee*. These entities include Academia, Consumers, and Government Agencies.

Any *objection* contained in a *comment* is considered *resolved* unless a *public comment* is submitted in accordance with Section 4.4.5 of the NAHB Research Center “Procedures for Consensus Developed Standards” (Procedures - available at www.nahbrc.com/ngbs), or an appeal is filed in accordance with Section 5 of the Procedures.

The PCR shall contain a notice of the right to appeal, the requirements for filing an appeal in accordance with Sections 4.4.10 and 5, and indicate the date by which an appeal shall be filed.

PC001 LogID 732 202 Definitions

Submitter: Howard Fortunato, LandmarkJCM

Public Comment: **CONSTRUCTED WETLAND.** An artificial wetland ~~system, (such as a marsh, or swamp)~~ created as a new and/or restored habitat for native wetland plant and migratory wildlife communities, as well as to provide and/or restore wetland functions to the area. Constructed wetlands are often created as compensatory mitigation for ecological disturbances that result in a loss of natural wetlands such as for anthropogenic discharge such as for wastewater, stormwater runoff, or sewage treatment; for land reclamation after mining; refineries; or ~~other ecological disturbances such as required mitigation for natural wetland~~ lost losses associated with to a development.

Reason: Our staff Wetlands Scientist reviewed the definition and had these suggestions. She has re-written the definition based on the following comments: 1) Marshes and swamps are a type of wetland so I would not say “wetlands, marsh, or swamp. 2) In general, “constructed wetlands” and “restored wetlands” mean 2 different things, but since there is not a separate definition for “restored wetland” in the document, it is probably fine if they are lumped together in this definition. 3) I revised the wording for the last sentence for it to flow better.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: Added language to highlight use as compensatory mitigation for ecological disturbances.

PC002 LogID 731 202 Definitions

Submitter: Howard Fortunato, LandmarkJCM

Public Comment: **ICF(INSULATING CONCRETE FORMS).** ~~A concrete forming system using stay-in-place forms of rigid foam plastic insulation, a hybrid of cement and foam insulation, a hybrid of cement and wood chips, or other insulating material for constructing cast-in-place concrete walls.~~

ICF: would define ICF as, “Insulating Concrete Form (ICF) is a system of formwork for concrete that stays in place as permanent building insulation for energy-efficient, cast-in-place, reinforced concrete walls, floors, and roofs. The forms are interlocking modular units that are dry-stacked (without mortar) and filled with concrete. The forms lock together somewhat like Lego bricks and serve to create a form for the structural walls or floors of a building. Concrete is pumped into the cavity to form the structural element of the walls. Usually reinforcing steel (rebar) is added before concrete placement to give the concrete flexural strength, similar to bridges and high-rise buildings made of concrete (see Reinforced concrete). After the concrete has cured, the forms are left in place permanently, for the following reasons: (1) Thermal and acoustic insulation ; (2) Space to run electrical conduit and plumbing. The form material on either side of the walls can easily accommodate electrical and plumbing installations. (3) Backing for gypsum boards on the interior and stucco, brick, or other siding on the exterior.”

Reason: a homebuilder client (that builds with ICF's) drew exception to the proposed definition with regard to the wood chips and has proposed this definition, below all of which is intended to replace the existing definition.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The level of detail in the proposed definition is more appropriate for commentary. The current definition is adequate.

PC003 LogID 759 202 Definitions

Submitter: Paul Sullivan (on behalf of Task Group 7), The Sullivan Company, Inc.

Public Comment: ~~MAJOR REMODEL.~~ A renovation and/or addition project with a scope that is broader than a single room or area of the building.

~~MINOR REMODEL.~~ A limited renovation or addition involving only a kitchen renovation, a bathroom renovation, a basement renovation, a one-room addition, or a one-room addition plus one bathroom or kitchen.

Reason: It was determined that two of the definitions would become obsolete as a result of PC016, PC193, and PC216.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC004	LogID 644	202 Definitions
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **ARCHITECTURAL COATINGS.** A material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, primers, paints, varnishes, sealers, and stains. An architectural coating is a material applied to stationary structures or their appurtenances at the site of installation. Coatings applied in shop applications, sealants and adhesives are not considered architectural coatings.

Reason: Primers should be explicitly included since VOC guidelines for primers are provided in Chapter 9.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Primers as well as paints are included in the Standard.
Reason:

PC005	LogID 645	202 Definitions
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **EXISTING SUBDIVISION.** An area of land defined as “Site” in this Chapter, that has received all development approvals and has been platted and all infrastructure (roads, sewer, and utilities) is completed between <<date>> and <<date>> at time of application to the NGBS.

Reason: Infrastructure needs to be defined. It is not clear what “application to the NGBS” means and why it is appropriate. It was discussed the “existing” developments be retained because there were some developments that were halted midway thru the process due to the economic downturn. The original wording of the definition would allow new developments not to begin the verification process until the infrastructure was completed. This would make verification of new developments more difficult for both the developer and the verifier. The dates can be chosen by the committee or task group such that it would encompass those developments that have been halted mid way.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The suggested dates are arbitrary and should not be used as part of the definition for Existing
Reason: Subdivision. The current language is adequate.

PC006	LogID 604	202 Definitions
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Submitter: Chris Allison, City of Longmont

Public Comment: Replace the definition for High Efficiency Lighting with the definition of High Efficacy Lamps from the

IECC or define both terms.

Reason: The definition from the IECC is for High Efficacy Lamps and P020 should be changed to reflect this definition or the term High Efficiency Lighting should be a new definition in the NGBS.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Definition and terminology from 2009 IECC is already included in the Standard.
Reason:

PC007	LogID 646	202 Definitions
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **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.), with the capacity to serve the development and the site boundaries are adjacent to existing development on at least one side. Lots within an infill site are considered infill lots.

Reason: If additional infrastructure capacity is required it defeats the benefits of using an infill site. The standard should make it explicit that lots within an infill site qualify as infill lots even if additional roads, sewer, etc are needed to get to the lot.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The proposed language is redundant. The existing language already states this adequately.
Reason:

PC008	LogID 647	202 Definitions
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **MINOR COMPONENT.** ~~Building materials or systems that are not considered major.~~ Building materials or systems that are typically applied as a part of at least 3% of the surface area of the foundation, wall, floor, ceiling, or roof assemblies.

Reason: Some minimum amount of material needs to be specified or else some builder will claim credit for using miniscule amounts of material. The 3% number seems appropriate as it would typically allow trim to be considered a minor material.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The introduction of the 3% in the definition will contradict the limits set in the body of the Standard such
Reason: as Section 606.2(1) that requires "all trim".

PC009	LogID TG3-3	202 Definitions
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Submitter: Maribeth Rizzuto, Steel Framing Alliance

Public Comment: *Add new as follows:*

Recycle. To recover and reprocess manufactured goods into new products.

Reuse. To recover a material or product for use again without reprocessing.

Reason: To clarify allocation of points under Sections 603, 604, and 605, Task Group 3 proposed two new definitions.

Committee Action **Accept**

from Meeting:
Modification of
Public Comment:
Committee Reason: Appropriate to clarify.

PC010	LogID 648	202 Definitions
	Submitter:	Robert Hill, NAHB Research Center
	Public Comment:	REGIONAL MATERIAL. Material that is originated, produced, grows naturally, or occurs naturally within 500 miles (804.7 km) of the construction site if transported by truck or 1500 miles (2414 km) of the construction site if transported for not less than 80% of the total transport distance by rail or water. <u>Products that are assembled or produced from multiple raw materials are considered regional materials if the weighted average of the raw materials and distance transported in the product meet the criteria.</u>
	Reason:	There is some confusion about how to deal with manufactured products produced from raw materials that are not necessarily local. If the practice is intended to only apply to materials (e.g. lumber, stone, etc) then this definition should be explicit. If the practice can apply to manufactured products (e.g. windows, carpet, tile, etc) then the definition needs to define how to account for the source of raw materials.
	Committee Action from Meeting:	Accept as Modified
	Modification of Public Comment:	<i>Revise public comment as follows (in red):</i>
	Public Comment:	REGIONAL MATERIAL. Material that is originated, produced, grows naturally, or occurs naturally within 500 miles (804.7 km) of the construction site if transported by truck or 1500 miles (2414 km) of the construction site if transported for not less than 80% of the total transport distance by rail or water. <u>Products that are assembled or produced from multiple raw materials are considered regional materials if the weighted average (by weight or volume) of the distance the raw materials have been and distance transported in the product meet the criteria for the product.</u>
	Committee Reason:	Certain products are made up of multiple components and the Standard did not specify how to deal with these materials. The proposed language with clarifying revisions addresses this gap.

PC011	LogID 649	304.1 Multi-unit buildings
	Submitter:	Robert Hill, NAHB Research Center
	Public Comment:	304.1 Multi-unit buildings. All residential portions of a building shall meet the requirements of this Standard and partial compliance shall not be allowed. Unless otherwise noted, a All units and residential common areas within a multi-unit building shall: 1) meet all mandatory requirements; and 2) achieve the threshold number of points required for the chosen environmental rating level in accordance with Table 303; and 3) achieve the same environmental rating level. <u>Mandatory practices and practices for which points are awarded for the dwelling units must also be implemented for common residential areas when applicable.</u> For multi-unit buildings, points for the green building practices that apply to multiple units shall be credited once for the entire building. Where points are credited, practices shall be implemented in all units, as applicable. <u>Unless noted that a weighted average is used,</u> 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.
	Reason:	It is not practical for the common areas of the building to be required to meet all the same thresholds for each chapter. For example, how does a garden apartment building with only common hallways meet the chapter 8 thresholds? Section 601.1 allows the use of a weighted average to determine the conditioned square footage to be applied to the practice. A similar approach should be allowed for practices such as 801.4, .5, and .6 where points available depend on the number of bathrooms. It does not seem logical that the entire building be penalized when there is a one bathroom unit in a building full of 3 bedroom units? Chapter 8 has been the chapter that the thresholds are typically toughest to meet. Allowing a weighted average for the plumbing fixtures will help in this area. Other practices should be examined to determine when a weighted average note is appropriate.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*

Public Comment: **304.1 Multi-unit buildings.** All residential portions of a building shall meet the requirements of this Standard and 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 threshold number of points required for the chosen environmental rating level in accordance with Table 303; and 3) achieve the same environmental rating level. For multi-unit buildings, 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.

Committee Reason: The existing Standard language should be maintained, as it clarifies the compliance requirements for multi-unit buildings, and explains that dwelling units and common areas must meet the same environmental performance requirements. This aligns the Standard with other well-established green building programs and standards (such as LEED, Green Communities and ASHRAE 189.1), which do not provide for separate treatment of residential common spaces.

The limited cases where different compliance methods are necessary for common space and dwellings are best dealt with through notation in individual provisions. TG 6 agrees with commenter that several provisions would benefit from the use of a weighted average to accommodate differences in the size and configuration of units in a multifamily building.

PC012	LogID 664	304.1 Multi-unit buildings
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Submitter: Jamie Hager, Southern Energy Management

Public Comment: **304.1 Multi-unit buildings.** All residential ~~portions~~ units of a building shall meet the requirements of this Standard and 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 threshold number of points required for the chosen environmental rating level in accordance with Table 303; and 3) achieve the same environmental rating level. For multi-unit buildings, points for the green building practices that apply to multiple units shall be credited once for the entire building. Where points are credited, 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.

Reason: Many points in Chapter 7 such as building envelope testing, duct system design and testing, and even performance path compliance are calculated differently in common areas of a multi-unit building (such as hallways or corridors or lounge or laundry or gym areas, etc). While whole buildings can be evaluated to include common areas in the test results, it is more complicated and difficult and time consuming (ie costly) and worthy of points but could be a barrier to participation if made to be a mandatory item for multi-unit projects. Recommend striking it as a mandatory item to keep things simple, or at least excluding Chapter 7 compliance as mandatory for the common areas.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The existing Standard language should be maintained, as it clarifies the compliance requirements for multi-unit buildings, and explains that dwelling units and common areas must meet the same environmental performance requirements. This aligns the Standard with other well-established green building programs and standards (such as LEED, Green Communities and ASHRAE 189.1), which do not provide for separate treatment of residential common spaces. The limited cases where different compliance methods are necessary for common space and dwellings are best dealt with through notation in individual provisions.

PC013	LogID 692	305 Green Remodeling
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Submitter: Robert Hill, NAHB Research Center

Public Comment: Task Group 7 is working on a revised version that I believe will address my concerns. That version should be substituted for the current section 305.

Reason: The requirement that each remodeling project receive a certain percentage of points from "applicable" practices will result in the need for much project specific interpretations by the adopting entity making the approach unworkable. There are too many qualifiers needed to clearly indicate if a particular practice is applicable to a particular project.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Addressed through Items PC016 and PC193.

Reason:

PC014	LogID 687	305 Green Remodeling
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Submitter: Jamie Hager, Southern Energy Management

Public Comment: Change Table 305.2.3 performance levels from Bronze, Silver, Gold and Emerald to One Star, Two Star, Three Star, and Four Star.

Reason: 305.2.3 performance levels should not be the same as new construction and instead could use the star system like the Green Subdivision Category. Having verified remodeling projects to the current NGBS, we have had projects achieve Emerald ratings by installing code compliant measures simply because the original structure performed so poorly. The % improvement in performance was high, but compared to a new construction home it was not even to the current building code (it was a historic remodel that could not replace windows). From a consumer perspective, one home (new construction) is Bronze and the other (remodel) is Emerald even though the actual "green-ness" of the homes are not apples to apples. I believe this creates confusion in the market and does not send a clear message to the consumer, realtor or appraisal community as to the value of "Bronze", "Silver", "Gold" or "Emerald".

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The rating levels should match those of the new construction portion of the NGBS in nomenclature.

Reason:

PC015	LogID 693	305 Green Remodeling
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Submitter: Jamie Hager, Southern Energy Management

Public Comment: Delete all of Section 305.2.4 as it stands right now and replace with the following:

305.2.4 Additional Green Practices

Additional green practices shall be selected from sections 11.5, 11.6 and 11.9 to achieve the point threshold levels listed in table 305.2.4. Projects can achieve One Star certification without additional points in these sections to allow for variability in scopes of work among remodel projects.

<u>Table 305.2.4</u>				
<u>Threshold Ratings for Green Remodels</u>				
<u>Green Remodel Practice</u> <u>from Section 11</u>	<u>Minimum Points Needed</u>			
	<u>One Star</u>	<u>Two Star</u>	<u>Three Star</u>	<u>Four Star</u>
<u>Site Work (11.5)</u>	<u>0</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>
<u>Materials (11.6)</u>	<u>0</u>	<u>TBD</u>	<u>TBD</u>	<u>TBD</u>

Indoor Air Quality (11.9)	0	TBD	TBD	TBD
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Reason: Section 305.2.4, although understandably an attempt to be fair in evaluating a remodel, adds and extra layer of complication by requiring projects to do a calculation to determine their point thresholds. It is not an easy calculation to grasp first time reading it and seems fairly subjective, which translates to lots of room for human error as well as a quagmire for Verification as Verifiers and the Administrating Certification Body will have to provide a lot of guidance and review just to be sure projects have followed the process correctly, adding time and cost to a process without direct value to the project. Most Builders and remodelers will not read through directions three times just to see if they can even play, they mostly want to know what it is they have to do. From a first impression standpoint, Section 305.2.4 will turn away many potential participants as they weigh the value of the certification vs just the time to figure it out how to participate. Table 305.2.4 could easily be redone with point minimums for each rating level and avoid the process of creating a % improvement threshold in terms of Site Work (11.5), Materials (11.6) and Indoor Air Quality measures (11.9). This would be much simpler to understand and eliminate the extra step of a point percentage calculation for these sections. By keeping the One Star level at zero additional green practice points, base level certification can be achieved for projects with limited scopes of work.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Consistent with response to PC014, the rating levels should match those for new construction in nomenclature. Also, rejected in favor of PC016 and PC193.

PC016	LogID 760	305 Green Remodeling
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Submitter: Paul Sullivan (on behalf of Task Group 7), The Sullivan Company, Inc.

Public Comment: *Delete Section 305 - Green Remodeling in its entirety and replace with the following:*

305 Remodeling of existing buildings

305.1 Compliance options. The existing building criteria shall be in accordance with Section 305.2 for whole-building ratings or Section 305.3 for compliance designations of building functional areas.

305.2 Whole-building rating criteria

305.2.1 Applicability. The provisions of Section 305.2 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 305.2.

305.2.1.1 Additions. For a remodeled building that includes an addition, the entire building including the additions shall comply with the criteria of Section 305.2. The total above-grade conditioned area added during a remodel shall not exceed 75% of the existing building's above-grade conditioned area. For multi-unit buildings, the above-grade conditioned area shall be based on the entire building including all dwelling units and common areas.

305.2.2 Rating scope. The building rating achieved under Section 305.2 and the associated compliance criteria apply to the entire building after the remodel including any additions.

305.2.3 Mandatory practices. The building, including any additions and common areas, shall satisfy all practices designated as mandatory in Chapter 11.

305.2.4 Rating level. A minimum rating level of Bronze shall be achieved in each of the following categories: Energy efficiency (Sections 305.2.5), Water efficiency (Section 305.2.6), and

Prescriptive practices (Section 305.2.7). The building rating level shall be the lowest rating level achieved in Sections 305.2.5, 305.2.6, and 305.2.7.

305.2.5 Energy efficiency. The energy efficiency rating level shall be based on the reduction in energy consumption resulting from the remodel in accordance with Table 305.2.3.

Table 305.2.3 Energy Rating Level Thresholds

	Rating Level			
	Bronze	Silver	Gold	Emerald
Reduction in energy consumption	20%	34%	43%	50%

305.2.5.1 Energy consumption reduction. The reduction in energy consumption resulting from the remodel shall be based on the estimated annual energy cost savings due to heating, cooling, and water heating as determined by a third-party energy audit and analysis. The reduction shall be the percentage difference between the consumption before and after the remodel calculated as follows:

$$\frac{[(\text{consumption before remodel} - \text{consumption after remodel}) / \text{consumption before remodel}] * 100\%}{}$$

The occupancy and life style assumed and the method of making the energy consumption estimates shall be the same for estimates before and after the remodel. The building configuration for the after-remodel estimate shall include any additions to the building or other changes to the configuration of the conditioned space. For multi-unit buildings, the energy consumption shall be based on the entire building including all dwelling units and common areas.

305.2.6 Water efficiency. The water efficiency rating level shall be based on the reduction in water consumption resulting from the remodel in accordance with Table 305.2.4.

Table 305.2.4 Energy Rating Level Thresholds

	Rating Level			
	Bronze	Silver	Gold	Emerald
Reduction in water consumption	20%	34%	43%	50%

305.2.6.1 Water consumption reduction. Water consumption shall be based on the estimated annual use as determined by audit or analysis. The reduction shall be the percentage difference between the consumption before and after the remodel calculated as follows:

$$\frac{[(\text{consumption before remodel} - \text{consumption after remodel}) / \text{consumption before remodel}] * 100\%}{}$$

The occupancy and life style assumed and the method of making the water consumption estimates shall be the same for estimates before and after the remodel. The building configuration for the after-remodel estimate shall include any changes to the configuration of the building such as additions or new points of water use. For multi-unit buildings, the water consumption shall be based on the entire building including all dwelling

units and common areas.

305.2.7 Prescriptive practices. The point thresholds for the environmental rating levels based on compliance with the Chapter 11 prescriptive practices shall be in accordance with Table 305.2.5. Any practice listed in Chapter 11 shall be eligible for contributing points to the prescriptive threshold ratings. The attributes of the existing building that were in compliance with the prescriptive practices of Chapter 11 prior to the remodel and remain in compliance after the remodel shall be eligible for contributing points to the prescriptive threshold ratings.

Table 305.2.5 Prescriptive Threshold Point Ratings

	Bronze	Silver	Gold	Emerald
Chapter 11 prescriptive practices	TBD	TBD	TBD	TBD

305.3 Criteria for remodeled functional areas of buildings

305.3.1 Applicability. The provisions of Section 305.3 shall apply to remodeling of one or more of the following functional areas of the existing building as follows:

1. Addition, kitchen, bathroom, or basement in buildings other than multi-unit buildings.
2. Kitchen or bathroom of an individual dwelling unit in a multi-unit building.

305.3.1.1 Additions. The total above-grade conditioned area added during a remodel shall not exceed 400 square feet.

305.3.2 Compliant. Small projects that meet all applicable requirements of Chapter 12 for that functional area shall be designated as *compliant*.

305.3.3 Designation. The designation achieved under Section 305.3 applies only to the specific functional area of the existing building. The existing building may have more than one *compliant* functional area.

305.3.4 Additions. A bathroom(s), kitchen, or finished basement included in an addition shall comply with all criteria specifically applicable to those functional areas in accordance with the provisions of Chapter 12.

305.3.5 Mandatory. Small projects shall satisfy all applicable practices designated as mandatory in Chapter 12.

305.3.6 Existing attributes. The attributes of the existing building that were in compliance with the applicable provisions of Chapter 12 prior to the remodel and remain in compliance after the remodel shall be eligible for contributing to demonstration compliance under Section 305.3.

Reason: Based on review of Draft Standard, Task Group 7 completely revised the Remodeling provisions.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

305 Remodeling of existing buildings

305.0 Compliance. Compliance with Section 305 shall be voluntary unless specifically adopted as mandatory by the Adopting Entity.

305.1 Compliance options. The existing building criteria shall be in accordance with Section 305.2 for whole-building ratings or Section 305.3 for compliance designations of building functional areas.

305.2 Whole-building rating criteria

305.2.1 Applicability. The provisions of Section 305.2 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 305.2.

305.2.1.1 Additions. For a remodeled building that includes an addition, the entire building including the addition shall comply with the criteria of Section 305.2. The total above-grade conditioned area added during a remodel shall not exceed 75% of the existing building's above-grade conditioned area. For multi-unit buildings, the above-grade conditioned area shall be based on the entire building including all dwelling units and common areas.

305.2.2 Rating scope. The building rating achieved under Section 305.2 and the associated compliance criteria apply to the entire building after the remodel including any additions.

305.2.3 Mandatory practices. The building, including any additions and common areas, shall satisfy all practices designated as mandatory in Chapter 11.

305.2.4 Rating level. A minimum rating level of Bronze shall be achieved in each of the following categories: Energy efficiency (Sections 305.2.5), Water efficiency (Section 305.2.6), and Prescriptive practices (Section 305.2.7). The building rating level shall be the lowest rating level achieved in Sections 305.2.5, 305.2.6, and 305.2.7.

305.2.5 Energy efficiency. The energy efficiency rating level shall be based on the reduction in energy consumption resulting from the remodel in accordance with Table 305.2.3.

Table 305.2.3 Energy Rating Level Thresholds

	Rating Level			
	Bronze	Silver	Gold	Emerald
Reduction in energy consumption	2015%	3425%	4335%	5045%

305.2.5.1 Energy consumption reduction. The reduction in energy consumption resulting from the remodel shall be based on the estimated annual energy cost savings ~~due to heating, cooling, and water heating~~ as determined by a third-party energy audit and analysis or utility consumption data. The reduction shall be the percentage difference between the consumption per square foot before and after the remodel calculated as follows:

$$\frac{[(\text{consumption per square foot before remodel} - \text{consumption per square foot after remodel}) / \text{consumption per square foot before remodel}] * 100\%}{}$$

The occupancy and life style assumed and the method of making the energy consumption estimates shall be the same for estimates before and after the remodel. The building configuration for the after-remodel estimate shall include any additions to the building or other changes to the configuration of the conditioned space. For multi-unit buildings, the

energy consumption shall be based on the entire building including all dwelling units and common areas.

305.2.6 Water efficiency. The water efficiency rating level shall be based on the reduction in water consumption resulting from the remodel in accordance with Table 305.2.4.

Table 305.2.4 EnergyWater Rating Level Thresholds

	Rating Level			
	Bronze	Silver	Gold	Emerald
Reduction in water consumption	20%	34 30%	43 40%	50%

305.2.6.1 Water consumption reduction. Water consumption shall be based on the estimated annual use as determined by audit ~~or~~ analysis or use of utility consumption data. The reduction shall be the percentage difference between the consumption before and after the remodel calculated as follows:

$$\frac{[(\text{consumption before remodel} - \text{consumption after remodel})/\text{consumption before remodel}] * 100\%}{}$$

The occupancy and life style assumed and the method of making the water consumption estimates shall be the same for estimates before and after the remodel. The building configuration for the after-remodel estimate shall include any changes to the configuration of the building such as additions or new points of water use. For multi-unit buildings, the water consumption shall be based on the entire building including all dwelling units and common areas.

305.2.7 Prescriptive practices. The point thresholds for the environmental rating levels based on compliance with the Chapter 11 prescriptive practices shall be in accordance with Table 305.2.5. Any practice listed in Chapter 11 shall be eligible for contributing points to the prescriptive threshold ratings. The attributes of the existing building that were in compliance with the prescriptive practices of Chapter 11 prior to the remodel and remain in compliance after the remodel shall be eligible for contributing points to the prescriptive threshold ratings.

Table 305.2.5 Prescriptive Threshold Point Ratings

	Bronze	Silver	Gold	Emerald
Chapter 11 prescriptive practices	IBD88	IBD125	IBD181	IBD225

305.3 Criteria for remodeled functional areas of buildings

305.3.1 Applicability. The provisions of Section 305.3 shall apply to remodeling of one or more of the following functional areas of the existing building as follows:

1. Addition, kitchen, bathroom, or basement in buildings other than multi-unit buildings.
2. Kitchen or bathroom of an individual dwelling unit in a multi-unit building.

305.3.1.1 Additions. The total above-grade conditioned area added during a remodel shall

not exceed 400 square feet.

305.3.2 Compliant. Small pPProjects that meet all applicable requirements of Chapter 12 for that functional area shall be designated as *compliant*.

305.3.3 Designation. The designation achieved under Section 305.3 applies only to the specific functional area of the existing building. The existing building may have more than one *compliant* functional area.

305.3.4 Additions. A bathroom(s), kitchen, or finished basement included in an addition shall comply with all criteria specifically applicable to those functional areas in accordance with the provisions of Chapter 12.

305.3.5 Mandatory. Small pPProjects shall satisfy all applicable practices designated as mandatory in Chapter 12.

305.3.6 Existing attributes. The attributes of the existing building that were in compliance with the applicable provisions of Chapter 12 prior to the remodel and remain in compliance after the remodel shall be eligible for contributing to demonstration compliance under Section 305.3.

Committee Reason: Section 305.0 is included to clarify that adoption of the Standard does not intend mandatory compliance with the remodeling provisions for the jurisdiction unless specifically adopted as such.

The energy efficiency threshold levels are revised because the calculation is changed to a whole-house basis as consistent with the provisions for new construction.

The use of utility consumption data is included as an added option.

The calculation is normalized to a 'per square foot' basis to improve parity for remodeling projects with additions.

Water thresholds are rounded down to provide equal increments between the levels.

Prescriptive threshold point ratings are included.

PC017	LogID 900	305 Green Remodeling
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Submitter: Robert Hill, NAHB Research Center

Public Comment: This public comment supplements public comment PC016 by Sullivan. It provides threshold levels for Table 305.2.5 in PC016.

Table 305.2.5 Prescriptive Threshold Point Ratings

	Bronze	Silver	Gold	Emerald
Chapter 11 prescriptive practices	TBD20%	TBD34%	TBD43%	TBD50%

Reason: This update is provided in support of the public comment submitted by Task Group 7 to revise the remodeling provisions (PC016).

Committee Action from Meeting: **Accept as Modified**

Modification of Public Comment: *Revise public comment as follows (in red):*

Table 305.2.5 Prescriptive Threshold Point Ratings

	Bronze	Silver	Gold	Emerald
Chapter 11 prescriptive thresholds practices	20% 88	34% 125	43% 181	50% 225

Committee Reason: The new thresholds are shown in terms of points as consistent with the format for threshold levels for new construction. The thresholds are established as follows:

- 1) The totals for thresholds for new construction provide the starting point.
- 2) The new construction thresholds for energy and water are subtracted because both categories are addressed separately in the remodeling provisions.
- 3) The remaining totals are taken at 50% recognizing that remodeling projects offer fewer opportunities to accumulate points than new construction.

PC018	LogID 781	305.2.2 Energy and water consumption
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: (1) **Energy consumption comparison:** Energy consumption must comply with the performance requirements for Energy Star Version e3.0 or achieve a HERS index at or below Energy Star Version 3.0 index target.~~shall be based on the estimated annual energy use due to heating, cooling, and water heating as determined by a third-party energy audit or analysis. The comparison is based on the percentage difference between the HERS index before and the HERS index after the remodeling calculated as follows: $(HERS_{before} - HERS_{after}) / HERS_{before} * 100$.~~

Reason: HERS comparisons before and after can be problematic without a benchmark, especially in projects involving change of occupancy. Energy star version 3.0 provides a well established, solid, and familiar benchmark to guarantee a basic minimum level of energy performance for the results of a retrofit. LEED suffered in early versions for the mistake of not employing a minimum energy standard and lost credibility in the marketplace accordingly. This system simplifies compliance with the use of familiar equipment.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: Rejected in favor of committee's action on PC019. HERS index is not accepted as a metric for the NGBS. Performance improvements relative to the existing building are used as a metric since the 2008 NGBS edition.

PC019	LogID 796	305.2.2 Energy and water consumption
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: Consumption for both energy and water consumption shall be compared ~~estimated for both~~ before and after the remodeling. The occupancy and life style assumed and the method of making the consumption comparison should be the same for both comparisons ~~estimates~~.

(1) **Energy consumption comparison:** Energy consumption shall be based on the ~~estimated~~ building's annual energy use ~~due to heating, cooling, and water heating~~ as determined by a third-party energy audit or analysis. The comparison is based on the percentage difference between the HERS index before and the HERS index after the remodeling calculated as follows:
 $(HERS_{before} - HERS_{after}) / HERS_{before} * 100$.

Reason: Every effort should be made to analyze the actual consumption. Estimating seems too loose a word. Also items such as lighting should also be included in the analysis and therefore the analysis should not be limited to heating cooling and water heating.

Committee Action from Meeting: **Accept as Modified**

Modification of *Revise Draft Standard as follows:*

Public Comment:

~~305.2.2 Consumption for both energy and water consumptions shall be estimated for both before and after the remodeling. The occupancy and life style assumed and the method of making the consumption comparison should be the same for both estimates.~~

305.2.5.1 Energy consumption reduction. The reduction in energy consumption resulting from the remodel shall be based on the estimated annual energy cost savings as determined by a third-party energy audit and analysis or utility consumption data. The reduction shall be the percentage difference between the consumption per square foot before and after the remodel calculated as follows:

$$[(\text{consumption per square foot before remodel} - \text{consumption per square foot after remodel}) / \text{consumption per square foot before remodel}] * 100\%$$

The occupancy and life style assumed and the method of making the energy consumption estimates shall be the same for estimates before and after the remodel. The building configuration for the after-remodel estimate shall include any additions to the building or other changes to the configuration of the conditioned space. For multi-unit buildings, the energy consumption shall be based on the entire building including all dwelling units and common areas.

Committee Reason: The new language provides additional guidance on compliance with the provisions.

PC020	LogID 810	401.4 Low-slope site
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: ~~401.4 Low-slope site. A site with an average slope calculation of less than 15% is selected. TBD~~

Reason: This is a difficult standard to verify and inspect. Furthermore, automatic points should not be awarded for lots located in an area with little naturally occurring slope (many lots). If anything, a requirement deducting points for building on steeper slopes would be appropriate.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Low-slope site is valid as a points item. Task Group on Land Development and the Consensus Committee discussed this extensively and maintain their opinion that selection of a site with beneficial attributes (e.g., low slope) is appropriate for attaining points within a rating system of the NGBS.

PC021	LogID 901	403.6(13) Landscape Plan
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Submitter: Ed Tombari, NAHB

Public Comment: (13) Cisterns, rain barrels, and similar tanks are structures designed to intercept and store runoff. These systems may be above or below ground, and they may drain by gravity or be pumped. Stored water may be slowly released to a pervious area, and used for irrigation of lawn, trees, and gardens located in common areas. ~~X percent of site area is to be irrigated by these means and demonstrated on the site plan.~~

Reason: A percentage figure was never included here(indicated by X). The task group then decided that they would rather eliminate the language altogether than determine a percentage. Because this is for Chapter 4 site development, this would be for common areas, therefore this would be a minor practice. Therefore, it was determined that determining a "Percentage" was not as critical in awarding points for this practice as it would be for a "lot."

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee

Reason:

PC022 LogID 627 403.10 Existing and Recycled Materials

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **403.10 Existing and recycled materials.** Existing or recycled materials are used as follows. (Points awarded for every 10 percent of total building construction and demolition materials that are reused, deconstructed, and/or salvaged. The percentage is consistently calculated on a weight, 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: Points acquired for this section rely more on the waste of existing and recycled materials on, or being removed, from the site; Therefore, "demolition" has been added to acknowledge materials acquired from structure removal.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: Demolition is a good addition to this practice.

PC023 LogID 666 403.3 Slope Disturbance

Submitter: Robert Hill, NAHB Research Center

Public Comment: **403.3 Slope disturbance.** Slope disturbance is minimized by one or more of the following:

(2) All or a percentage of roads are aligned with natural topography to reduce cut and fill.

(a) ~~less than 10% to~~ 25 percent

(b) 25 percent to 75 percent

(c) greater than 75 percent

Reason: 0 percent is less than 25% and points should not be given for not avoiding any slope disturbance.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: Committee agrees that 10% is a better minimum threshold for this practice.

PC024 LogID 667 403.5 Storm Water Management

Submitter: Robert Hill, NAHB Research Center

Public Comment: **403.5 Storm water management.** Storm water is managed using management design includes one or more of the following low-impact development techniques:

(3) Permeable materials are selected/specified for common area roads, driveways, parking areas, walkways, and patios.

(a) ~~less than 10% to~~ 25 percent

(b) 25 percent to 75 percent

(c) greater than 75 percent

Reason: 0 percent is less than 25% and points should not be given for not using any permeable materials.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: Committee agrees that 10% is a better minimum threshold for this practice.

Reason:

PC025 LogID 733 403.5 Storm Water Management

Submitter: Howard Fortunato, LandmarkJCM

Public Comment: see comments above.

Reason: 403.5 (4) as a verifier, the language of "volume of the 95th percentile storm event" would not be readily accessible or clear to verify. Stormwater plans will not necessarily refer to this and an stormwater engineer told me the verifier would need to look at engineering calculations to verify this. Perhaps there is some other reference which shows on stormwater plans that could be referenced.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee This is already a federal requirement. Therefore, it is necessary.
Reason:

PC026 LogID 790 403.5 Storm Water Management

Submitter: Shari Hendley, J.S. Hovnanian & Sons

Public Comment: Suggest another type of test or reference that may be more readily found on the site/stormwater plans.

Reason: "volume of the 95th percentile storm event" in 403.5(4) sounds excessive and difficult to prove or disprove.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee This is already a federal requirement. Therefore, it is necessary.
Reason:

PC027 LogID 668 403.6 Landscape Plan

Submitter: Robert Hill, NAHB Research Center

Public Comment: **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.

(13) Cisterns, rain barrels, and similar tanks are structures designed to intercept and store runoff. These systems may be above or below ground, and they may drain by gravity or be pumped. Stored water may be slowly released to a pervious area, and/or used for irrigation of lawn, trees, and/or gardens located in common areas. X percent of site area is to be irrigated by these means and demonstrated on the site plan.

Reason: Add the word "or" to clarify that both uses are not required.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC028 LogID 717 403.6 Landscape Plan

Submitter: Brent Mecham, Irrigation Association

Public Comment: Delete all of the following: 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 25 20 percent 3 (c) 25 20 percent to less than 50 40

percent 2 (d) 50 40 percent to 75 60 percent
Add: Use EPA WaterSense Water Budget Tool for New Homes 4 points

Reason: The limitation of turf seems to be arbitrary and does not consider the climate where the project is located. Often turfgrass is used in storm water management for its ability to stabilize the soil and to offer improved permeability and infiltration, evapotranspiration. Especially useful in climates with high natural precipitation

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

- (4) The percentage of all turf areas are limited as part of the landscaping.
(a) 0 percent or EPA WaterSense Water Budget Tool is used to determine the maximum percentage of turf areas
(b) greater than 0 percent to less than 20 percent
(c) 20 percent to less than 40 percent
(d) 40 percent to 60 percent

Committee Reason: This is not a mandatory item. The EPA tool is included to provide a more flexible option for compliance based on the specific climate. The prescriptive option is retained to provide an additional approach where the EPA tool is not used.

PC029	LogID 737	403.6 Landscape Plan
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Submitter: Greg Johnson, Greg Johnson Consulting

Public Comment: Award 0 points for limiting the percentage of all turf areas as part of the landscaping

Reason: The Outdoor Power Equipment Institute became aware of the NGBS standards activity after the first round of comments had closed; otherwise we would have commented to strike all of Sections 403.6. (4) and 503.5 (3). Instead, since points are still open for comment, we request that the points for turf limitations in Sections 403.6. (4) and 503.5 (3) be stricken and reallocated to other more appropriate sustainable practices within their respective sections. The proposed revisions to Sections 403.6 (4) and 503.5 (3) that expand disincentives for turfgrass areas 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. There is extensive scientific documentation of the valuable roles that turfgrass plays in stormwater management, for both erosion control and filtration; the control of wind erosion; carbon sequestration; and the mitigation of heat island effects. (end note 1.) 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 hardscaped (asphalt or concrete) areas. Reducing turfgrass only contributes to the 'heat island' effect which in turn increases demand for energy.(end note 2.) 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 (end note 3.). 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. The benefits of turfgrass in regard to soil erosion are also well documented. Research shows that a healthy, well-managed lawn with dense turfgrass has near zero storm water runoff and provides an effective infiltration mechanism. In his public comment to GG 243-11 of the International Green Construction Code, Dr. Brian Horgan, assistant professor of horticulture at the University of MN, wrote that "The thatch-forming capabilities of turfgrass in combination with a permanent and dense plant structure yields a less channelized pathway for water movement, which increases resistance, horizontal spread, and infiltration of surface runoff." For people who want to review the technical issues in depth, an extensive bibliography accompanies

Dr. Horgan's IGCC 243-11 comment. That comment can be found on page 404 of the IGCC Final Action Agenda at: www.iccsafe.org/cs/IGCC/Pages/2011FinalActionAgenda Dr. Horgan's bibliography is offered in contrast to the complete absence of scientific foundation that 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 this cycle of ICC-700, the EPA comment to create stronger disincentives for turfgrass installation was presented with 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 the October 21, 2011 WaterSense Notification of Intent in which the EPA announced its intent to remove the 40% turf limitation from the WaterSense Specification and 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 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. 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. 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. 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. Notes: 1. University of Minnesota. 2006. Environmental Benefits of a Healthy, Sustainable Lawn. Sustainable Urban Landscape Information Series. <http://www.sustland.umn.edu/maint/benefits.htm> 2. 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 3. Sahu, R. 2008. Technical Assessment of the Carbon Sequestration Potential of Managed Turfgrass in the United States. Outdoor Power Equipment Institute (OPEI). Alexandria, VA.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Based on the action taken on PC028.

PC030	LogID 752	405.9 Open Space
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Submitter: Derek Huetinck, BeaconCrest Homes

Public Comment: **Open Space.** A portion of the gross area of the community has been set aside as open space ~~beyond local code requirement.~~
(Points awarded for every 10% of the community set aside as open space ~~beyond local code requirement.~~)

Reason: While awarding points for open space is appropriate, the reason for the open space should not be a factor in the awarding of points as open space provides the same benefits irrespective of its reason. Moreover, by calibrating points for open space against local codes, projects in different jurisdictions will be held to different standards which will take away from the uniformity of the standard.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC031	LogID 650	501.1 Lot
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Submitter: Steve Hale, Build Green NM

Public Comment: **501.1 Lot.** The lot is selected to minimize environmental impact by one or more of the following:
(1) The builder selects a lot within an NGBS certified green community or equivalent on which to build.
4 20 for 4-star
3 15 for 3-star
2 10 for 2-star
1 5 for 1-star
green community

Reason: There are over 170 points available for certifying a subdivision in chapter 4 of the NGBS. A certified subdivision will be easier to build a sustainable home on but there is a disconnect between chapter 4 and chapter 5 of the NGBS.(use the simple example of how proper lot orientation helps with the heating and cooling needs of the home) With so many practices available that can help the builder get a head start on their certification there is a definite need to incentivise a developer to build a certified subdivision. The best incentive is to give more points in chapter 5 to a builder that chooses to build in a certified subdivision. I suggest changing the point structure of this practice.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee This change is not applicable because we are no longer proposing a point gradation for this practice.
Reason: The proposed points are out of proportion with our recommended points throughout this chapter. This practice is an addition to the chapter, recognizing the importance of giving some credit for the wisdom of starting with a lot in a pre-certified project. However, consensus committee finds the current point levels appropriate.

PC032	LogID 811	501.1 Lot
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: ~~501.1 (5) Low-slope site. A site with an average slope calculation of less than 15% is selected. TBD~~

Reason: This is a difficult standard to verify and inspect. Furthermore, automatic points should be awarded for lots located in an area with little naturally occurring slope(many lots). If anything, a requirement deducting points for building on steeper slopes would be appropriate.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Low-slope site practice should remain because it makes sense to select a site that does not need

Reason: significant development – you obtain the same benefit as creating a low slope site. In addition, determining the average slope is not a difficult calculation. The decision making should be awarded points. Task Group on Land Development and the Consensus Committee discussed this extensively and maintain their opinion that selection of a site with beneficial attributes (e.g., low slope) is appropriate for attaining points within a rating system of the NGBS.

PC033 LogID 669 503.2 Slope Disturbance

Submitter: Robert Hill, NAHB Research Center

Public Comment: **503.2 Slope disturbance.** Slope disturbance is minimized by the use of terrain adaptive architecture including terracing, retaining walls, landscaping, or other re-stabilization techniques.
(2) All or a percentage of driveways and parking are aligned with natural topography to reduce cut and fill.
(a) ~~less than 10%~~ to 25 percent
(b) 25 percent to 75 percent
(c) greater than 75 percent

Reason: 0 percent is less than 25% and points should not be given for not aligning any of the driveway. Is the intent of this practice to provide 5 points to any driveway on a flat lot? If not then the practice should be modified to reflect that.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee This change is consistent with Chapter 4 changes.
Reason:

PC034 LogID 902 503.2 Slope disturbance

Submitter: Ed Tombari, NAHB

Public Comment: **503.2 Slope disturbance.** Slope disturbance is minimized by: ~~the use of terrain adaptive architecture including terracing, retaining walls, landscaping, or other re-stabilization techniques.~~
(1) The use of terrain adaptive architecture including terracing, retaining walls, landscaping, or other re-stabilization techniques.
(Note: the remaining practices will be renumbered accordingly)

Reason: This was merely an organizational error of the structure of the language. Please revise the structure so that these are listed as 5 practices rather than as four as indicated in the Draft Standard.

Committee Action **Accept as Modified**
from Meeting:

Modification of The minimum threshold percentage for driveways and parking (Item (3) in Draft #2) is changed to 10
Public Comment: percent in accordance with PC33.

Committee
Reason:

PC035 LogID 797 503.4 Storm Water Management

Submitter: Shari Hendley, J.S. Hovnanian & Sons

Public Comment: Suggest another type of test or reference that may be more readily found on the site/stormwater plans.

Reason: 503.4(5) "volume of the 95th percentile storm event" sounds excessive and difficult to prove or disprove.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee This is already a federal requirement. Therefore, it is necessary.
Reason:

Submitter: Greg Johnson, Greg Johnson Consulting

Public Comment: Award 0 points for the elimination or restriction of turfgrass areas

Reason: The Outdoor Power Equipment Institute became aware of the NGBS standards activity after the first round of comments had closed; otherwise we would have commented to strike all of Sections 403.6. (4) and 503.5 (3). Instead, since points are still open for comment, we request that the points for turf limitations in Sections 403.6. (4) and 503.5 (3) be stricken and reallocated to other more appropriate sustainable practices within their respective sections. The proposed revisions to Sections 403.6 (4) and 503.5 (3) that expand disincentives for turfgrass areas 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. There is extensive scientific documentation of the valuable roles that turfgrass plays in stormwater management, for both erosion control and filtration; the control of wind erosion; carbon sequestration; and the mitigation of heat island effects. (end note 1.) 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 hardscaped (asphalt or concrete) areas. Reducing turfgrass only contributes to the 'heat island' effect which in turn increases demand for energy.(end note 2.) 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 (end note 3.). 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. The benefits of turfgrass in regard to soil erosion are also well documented. Research shows that a healthy, well-managed lawn with dense turfgrass has near zero storm water runoff and provides an effective infiltration mechanism. In his public comment to GG 243-11 of the International Green Construction Code, Dr. Brian Horgan, assistant professor of horticulture at the University of MN, wrote that "The thatch-forming capabilities of turfgrass in combination with a permanent and dense plant structure yields a less channelized pathway for water movement, which increases resistance, horizontal spread, and infiltration of surface runoff." For people who want to review the technical issues in depth, an extensive bibliography accompanies Dr. Horgan's IGCC 243-11 comment. That comment can be found on page 404 of the IGCC Final Action Agenda at: www.iccsafe.org/cs/IGCC/Pages/2011FinalActionAgenda Dr. Horgan's bibliography is offered in contrast to the complete absence of scientific foundation that 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 this cycle of ICC-700, the EPA comment to create stronger disincentives for turfgrass installation was presented with 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 the October 21, 2011 WaterSense Notification of Intent in which the EPA announced its intent to remove the 40% turf limitation from the WaterSense Specification and 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 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. 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, omnidirectional movement. Where public safety is a concern, it is an inviting feature because it doesn't permit undesirable lurking. 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. 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. Notes: 1. University of Minnesota. 2006. Environmental Benefits of a Healthy, Sustainable Lawn. Sustainable Urban Landscape Information Series. <http://www.sustland.umn.edu/maint/benefits.htm> 2. 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 3. Sahu, R. 2008. Technical Assessment of the Carbon Sequestration Potential of Managed Turfgrass in the United States. Outdoor Power Equipment Institute (OPEI). Alexandria, VA.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*

Public Comment: (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 or EPA WaterSense Water Budget Tool is used to determine the maximum percentage of turf areas

- (b) greater than 0 percent to less than 20 percent
- (c) 20 percent to less than 40 percent
- (d) 40 percent to 60 percent

Committee Reason: This is not a mandatory item. The EPA tool is included to provide a more flexible option for compliance based on the specific climate. The prescriptive option is retained to provide an additional approach where the EPA tool is not used.

PC037	LogID 753	503.5 Landscape Plan
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Submitter: Derek Huetinck, BeaconCrest Homes

Public Comment: Species and locations for trees or tree planting of at least 3 trees are identified on the lot plan that will provide summer shading of streets, parking areas, and buildings to moderate temperatures within 5 years of completion of the building.

Reason: The new language creates unnecessarily complicated calculations that will add unneeded costs to the certification process. The original language is better than the proposed new language.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The current language provides the necessary level of detail for implementation of the practice.

The language has been extensively vetted and wordsmithed by the committee.

PC038 LogID 748 504.3 Soil disturbance and erosion implementation

Submitter: Jamie Hager, Southern Energy Management

Public Comment: Delete 504.3(8) because it is the same item as 503.3(2) (utility installation strategy points).

Reason: 504.3(8) is the exact same item as 503.3(2). Recommend deleting one of the items or if the intent is to award 10 total pts, just award the points and list the item once.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

503.3(2) At least 75% of total length of the ~~installed~~ utilities on the lot are ~~installed~~ designed to useing one or more alternative means:

Committee This Chapter is organized such that points are awarded for design and construction separately to
Reason: emphasize the importance of the design process. The modification is intended to clarify the difference between the two practices.

PC039 LogID 639 505.2 Heat Island Mitigation

Submitter: John Gant, Glen Raven Inc

Public Comment: Reject (3) as proposed.

Reason: The proposed "(3) Permeable Hardscaping" is a consideration of storm water management and does not belong in this section. Delete from here, as they are absolutely not directly related and certainly not substitutable as alternatives for this credit.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Because permeable hardscape is less dense, it reduces heat island effect and therefore it
Reason: is appropriate for this credit.

PC040 LogID 640 505.2 Heat Island Mitigation

Submitter: John Gant, Glen Raven Inc

Public Comment: Substitute "July 20th at 4 pm" for "summer solstice at noon".

Reason: The moment of evaluation is given as "summer solstice at noon" which is one month earlier than the peak cooling moment, and which is a high sun angle that does not optimize performance of shading which should be designed to work for the insolation endured for the hours from 10 am to 4 pm. A change should be made so that south-side shading is more valued than north-side shading (over a parking lot for instance), which is very true.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee "Summer Solstice" is a widely accepted industry term for measuring solar reflectivity. July 20th is an
Reason: arbitrary date.

PC041 LogID 641 505.2 Heat Island Mitigation

Submitter: John Gant, Glen Raven Inc

Public Comment: Add "(c) Areas immediately occupied by solar thermal or solar electric systems."

Reason: Item (4) should recognize roof areas that are specifically dedicated to solar electric or solar thermal

equipment.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

505.2(4) Roofs: Not less than 75 percent of the exposed surface of the roof meets one or a combination of the following methods.

Committee Reason: The modification incorporates the intent of the proposed change.

PC042	LogID 670	505.2 Heat Island Mitigation
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **505.2 Heat island mitigation.** Heat island mitigation. Any combination One or more of the following strategies are provided for a minimum of 50 percent of the total horizontal surface area of the hardscape and roofs on the lot:

Reason: There is now a sub practice related to roof surfaces. Since roofs do not meet the definition of hardscape, roofs should explicitly be included in the areas targets to meet the 50% threshold.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

505.2 Heat island mitigation. ~~One or more of the following strategies are provided for a minimum of 50 percent of the horizontal surface area of the hardscape on the lot: Heat island effect is mitigated by the following. 4 points~~

(1) Hardscape: Not less than 50 percent of the surface area of the hardscape on the lot meets one or a combination of the following methods. 5 points

~~(1)(a)~~ Shading of hardscaping: Shade is provided from existing or new vegetation (within five years) or from trellises. Shade of hardscaping is to be measured on the summer solstice at noon.

~~(2)(b)~~ Light-colored hardscaping: Horizontal hardscaping materials are installed with a solar reflectance index (SRI) of 29 or greater. The SRI shall be calculated in accordance with ASTM E1980. A default SRI value of 35 for new concrete without added color pigment is allowed to be used instead of measurements.

~~(3)(c)~~ Permeable hardscaping: Permeable hardscaping materials are installed.

~~(4)(2)~~ Roofs: Not less than 75 percent of the exposed surface of the roof meets one or a combination of the following methods. 5 points

(a) Minimum initial ~~Solar Reflectance Index~~SRI of 78 for a low-sloped roof (a slope less than or equal to 2:12) and a minimum initial ~~Solar Reflectance Index~~SRI of 29 for a steep-sloped roof (a slope of more than 2:12). The SRI shall be calculated in accordance with ASTM E1980. Roof products shall be labeled and certified.

(b) Roof is vegetated using technology capable of withstanding the climate conditions of the jurisdiction and the microclimate conditions of the building site. Invasive plant species are not permitted.

Committee Reason: The percentages should be set separately for hardscape and roofs.

PC043	LogID 704	505.2 Heat Island Mitigation
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: 505.2(2) – Heat island mitigation via materials with solar reflectance of 29.

Reason: No guidance as to whose numbers we can use to determine solar reflectance.

Committee Action **Accept as Modified**
from Meeting:

Modification of See modification to PC042.
Public Comment:

Committee Addressed in modification to PC042 by specifying ASTM E1980.
Reason:

PC044	LogID 835	505.2 Heat Island Mitigation
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Submitter: Craig Conner, Building Quality

Public Comment: 602.2 Roof surfaces. Delete and replace with

Roof solar reflectance and thermal emittance. In climate zones 1, 2, and 3 roof coverings shall comply with this section. Roof requirements in Section C402.2.1.1 of the *International Energy Conservation Code* shall apply, including the exceptions. Where not exempted, high sloped roofs, with a slope less than of 2 units vertical in 12 horizontal or more shall comply with IECC Section 502.2.1.1. Roofs with other slopes shall comply with at least one of the four options in Table.

MINIMUM REFLECTANCE AND EMITTANCE FOR OTHER THAN LOW HIGH-SLOPED ROOFS

a. The use of area-weighted averages to meet these requirements shall be permitted. Materials lacking initial tested values for either *solar reflectance* or *thermal emittance*, shall be assigned both an initial *solar reflectance* of 0.10 and an initial *thermal emittance* of 0.90. Materials lacking three-year aged tested values for either *solar reflectance* or *thermal emittance* shall be assigned both a three-year aged *solar reflectance* of 0.10 and a three-year aged *thermal emittance* of 0.90.

b. Tested solar reflectance and thermal emittance shall be in accordance with CRRC-1 Standard.

c. Solar reflectance index (SRI) shall be determined in accordance with ASTM E1980 using a convection coefficient of 2.1 BTU/h-ft²-F (12W/m².K). Calculation of aged SRI shall be based on aged tested values of solar reflectance and thermal emittance. Calculation of initial SRI shall be based on initial tested values of solar reflectance and thermal emittance.

Reason: Use more appropriate cool roof requirements. Cover both high and low slope roofs.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The comment is not applicable to this practice - the topic is covered in Chapter 6 Section 602.2. The
Reason: table noted in the comment was not included with the comment. The proponent was present at the Consensus Committee meeting in Washington, DC in February of 2012 and recommended disapproval of his public comment.

PC045	LogID 749	505.4 Mixed-use development
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Submitter: Jamie Hager, Southern Energy Management

Public Comment: Recommend making it applicable to single family lots by awarding points for the lot being within X distance (to be determined by task group) of a mixed use building or within a mixed use community and providing examples/definition of "mixed-use".

Reason: 505.4 is not clear how this may apply to typical single family lots, is this just a multi-family item? Also not clear what would be an acceptable mixed-use building on the lot, provide examples. Recommend making it applicable to single family lots by awarding points for the lot being within X distance (to be determined by task group) of a mixed use building or within a mixed use community.

Committee Action **Reject**
from Meeting:

Modification of

Public Comment:

Committee Reason: This comment addresses Mixed-Use Environment, not Mixed-Use development. The proposed recommendation is not appropriate for this chapter or section. Points should be awarded only for onsite actions.

PC046 LogID 751 505.5 Community Garden(s)

Submitter: Jamie Hager, Southern Energy Management

Public Comment: Revise to include a way for this item to be applicable to single family lots, such as pts awarded for lot being within X distance of a community garden or located in a community that provides access to a community garden plot.

Reason: While this makes sense for multi-family lots, this is also not clear how it might apply to a typical single family lot. Seems worthy of pts if could revise to allow single family lots within X distance of a community garden to receive the points or be located in a community that provides a garden plot.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: Similarly to PC045, a building should not get credit for an off-site activity that the verifier cannot verify whether it will be incorporated.

PC047 LogID 799 601.1 Conditioned Floor Area

Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: **601.1 Conditioned floor area.** ~~Conditioned Finished floor area, as defined by ICC IRC and calculated in accordance with NAHBRC Z765, of a dwelling unit is limited. Dwelling unit size Finished floor area is calculated in accordance with NAHBRC Z765. Only the conditioned finished floor area for stories above grade plane is included in the calculation.~~

Reason: Materials in the building that are not part of the finished floor area still have an impact on the building.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: This change in the Draft Standard was implemented in response to Proposed Changes submitted to address the issue of houses that do not have conditioning equipment such as in Hawaii. The current language in the Draft Standard provides more flexibility to meet the intent of the practice over various geographical and climatic regions.

PC048 LogID 734 601.2 Material Usage

Submitter: Howard Fortunato, LandmarkJCM

Public Comment: see above.

Reason: 601.2 (1) (2) (3) these seem to be non-specific requirements, is sizes necessary for "strength and stiffness". As a verifier I am not clear how a builder would determine how to comply with this requirement and how as a verifier I would verify it.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: See reason on PC049.

PC049 LogID 813 601.2 Material Usage

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: ~~601.2 Material usage. Building code compliant Structural systems are designed or advanced framing construction techniques are implemented that reduce and optimize material usage. (Points awarded for each system or framing technique implemented.)~~

~~(1) Minimum structural member or element sizes necessary for strength and stiffness in accordance with advanced framing techniques or structural design standards are selected.~~

~~(2) Higher grade or higher strength of the same materials than commonly specified for structural elements and components in the building are used and element or component sizes are reduced accordingly.~~

~~(3) Performance based structural design is used to optimize lateral force resisting systems~~

Reason: Inadequate language to reliably ensure intent.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The practice requires the use of engineering and therefore necessitates an inherent degree of flexibility.

PC050

LogID 903

601.7 Site-applied finishing materials

Submitter: Eric DeVito, Brickfield, Burchette, Ritts & Stone, P.C.

Public Comment: **601.7 Site-applied finishing materials.** Building materials or assemblies listed below that do not require additional site-applied material for finishing are incorporated in the building.

(1) 90 percent or more of the installed building materials or assemblies listed below:
(Points awarded for each type (a-g) of material or assembly.)

(2) 50 percent to less than 90 percent of the installed building material or assembly listed below:
(Points awarded for each type (a-g) of material or assembly.)

(3) 35 percent to less than 50 percent of the installed building material or assembly listed below:
(Points awarded for each type (a-g) of material or assembly.)

(a) pigmented, stamped, decorative, or final finish concrete or masonry

(b) interior trim not requiring paint or stain

(c) exterior trim not requiring paint or stain

(d) window, skylight, and door assemblies not requiring paint or stain on one of the following surfaces:

1. exterior surfaces or

2. interior surfaces

(e) interior wall coverings or systems not requiring paint or stain or other type of finishing application

(f) exterior wall coverings or systems not requiring paint or stain or other type of finishing application

(g) pre-finished hardwood flooring

Reason: This proposal clarifies the intent of Section 601.7 to award credit for window, doors, and skylight assemblies that do not require site-applied finishes on at least one surface (interior or exterior). The 2008 NGBS recognizes the value of popular fenestration products that may be pre-finished or metal-clad on the exterior side, while still preserving the design flexibility offered by an unfinished interior surface. Fenestration is distinct from other categories in the list of materials because each component actually has two surfaces – interior and exterior – which could require site-applied finishes. The latest NGBS public review draft revises the language in an attempt to clarify the application of this credit, but we believe code enforcers would benefit from some additional clarification on the subject. The

modification below clarifies that credit is available for products that do not require site-applied finish on one of the two surfaces – interior or exterior.

Committee Action **Accept**
from Meeting:
Modification of
Public Comment:
Committee
Reason:

PC051	LogID 740	602.1 Moisture Management - Building Envelope
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Submitter: Matthew Dobson, Vinyl Siding Institute

Public Comment: *Add new to Draft Standard as follows:*

602.1.9 (5)

OR (c) Utilize a vented cladding system as defined by Section R702.7 of the International Residential Code.

Reason: This additional provision will allow for recognized options of rainscreening techniques from the 2012 International Residential Code.

Committee Action **Reject**
from Meeting:
Modification of
Public Comment:
Committee
Reason:

The proposed solution does not offer additional level of protection beyond the base code. Systems can be qualified under (a) or (b) that are in the document already.

PC052	LogID 671	602.1.1 Capillary breaks
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **602.1.1.1** A capillary break and vapor retarder are installed at all concrete slabs adjoining living habitable and usable space in accordance with Sections 602.1.1.1(1) or 602.1.1.1(2), as modified by Section 602.1.1.1(3):

Reason: The original text is not clear regarding basements. An unfinished basement might not qualify as living space but it could be finished later and then it would be too late to install a capillary break. If the intent is to exempt unfinished basements then the original text is OK.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

~~602.1.1.1 A capillary break and vapor retarder are installed at all concrete slabs adjoining living space in accordance with IRC Sections R506.2.2 and R506.2.3 or IBC Sections 1910 and 1805.4.1. Sections 602.1.1.1(1) or 602.1.1.1(2), as modified by Section 602.1.1.1(3):~~

~~(1) A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting in direct contact with the concrete slab, with the sheeting joints lapped in accordance with Section 602.1.4.~~

~~(2) A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, with the sheeting joints lapped in accordance with Section 602.1.4.~~

~~(3) Modification: In areas with free-draining soils, identified as Group 1 in the ICC-IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.~~

Committee Reason: The public comment raises a good question but the best solution for this mandatory item is to refer to the building code where all these questions are adequately addressed.

PC053	LogID 696	602.1.1 Capillary breaks
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Submitter: Donn Thompson, Portland Cement Association

Public Comment: 602.1.1.1 A capillary break and vapor retarder are installed at all concrete slabs adjoining living space in accordance with Sections 602.1.1.1(1) or 602.1.1.1(2), as modified by Section 602.1.1.1(3):

Mandatory

(1) A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting, minimum thickness 10 mil (25mm), in direct contact with the concrete slab, with the sheeting joints lapped in accordance with Section 602.1.4.

(2) A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, minimum thickness 10 mil (25mm), with the sheeting joints lapped in accordance with Section 602.1.4.

(3) Modification: In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.

Reason: Based on the recommendations of the American Concrete Institute, the minimum thickness of a vapor retarder should be at least 10 mils (25mm) to enable the retarder to maintain its integrity under construction loads.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: The Standard does not preclude the use of 10 mil material. This is a mandatory item related to code without awarding points. The use of 10 mil in cold climate may not be appropriate. The benefit of changing from 6 to 10 mil does not justify mandatory status or points. Minor punctures from construction would not have a significant impact on performance.

PC054	LogID 674	602.1.13 Drip Edge
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Submitter: Robert Hill, NAHB Research Center

Public Comment: ~~602.1.13 Drip edge. Drip edge is installed at eaves and gable roof edges.~~

Reason: This practice should be deleted since it is already mandated in 602.1.9(1)(h).

Committee Action from Meeting: **Accept**

Modification of Public Comment:

Committee Reason:

PC055	LogID 605	602.1.14 Ice barrier
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Submitter: Chris Allison, City of Longmont

Public Comment: Add or refer to the IRC Figure R301.2(1) to indicate areas required to have ice barriers.

Reason: Refer to IRC Figure R301.2(1) for the areas required to have ice barriers by this standard to avoid confusion.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: The current language is adequate. ICC 700 covers IBC in addition to IRC. IBC does not have a similar figure or table.

PC056	LogID 672	602.1.4 Crawspaces
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Submitter: Robert Hill, NAHB Research Center

Public Comment: 602.1.4.1 Crawspace vapor retarder is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.
(1) Floors. Minimum 6 mil vapor retarder installed on the crawspace floor and extended up the wall ~~sufficient to allow and~~ the material ~~to be~~ is affixed with glue and furring strips.

Reason: Is the intent here just to leave enough material available that the vapor barrier could be attached with furring strips or is the intent that the vapor barrier is actually attached with glue and furring strips?

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

602.1.4.1 Crawspace vapor retarder is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.
(1) Floors. Minimum 6 mil vapor retarder installed on the crawspace floor and extended at least 6 inches up the wall and is attached and sealed to the wall~~sufficient to allow the material to be affixed with glue and furring strips.~~

Committee The public comment was unclear on whether the practice was specifying the material or the
Reason: method of attachment. The modification clarifies this practice.

PC057	LogID TG3-1	602.1.4.1 Crawspaces
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Submitter: Randy Melvin (on behalf of Task Group 3), Winchester Homes

Public Comment: 602.1.4.1 ~~Crawspace~~ vapor retarder in unconditioned crawspace is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.

Reason: This change is proposed by TG-3 as a result of the review of point assignments for Section 602.1.4 Crawspaces. This public comment clarifies that Section 602.1.4.1 is intended to award points only for unconditioned crawspaces.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

602.1.4.1 ~~Crawspace~~ vapor retarder in unconditioned **vented** crawspace is in accordance with the following, as applicable. Joints of vapor retarder overlap a minimum of 6 inches (152 mm) and are taped.

Committee Further clarification of intent.
Reason:

PC058	LogID 697	602.1.4 Crawspaces
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Submitter: Donn Thompson, Portland Cement Association

Public Comment: 602.1.4.2 Crawspace 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 lapped 6 10 mil (25mm) polyethylene or polystyrene sheeting, lapped a minimum of 6 inches (152mm) and taped at the seams.

Reason: Based on the recommendations of the American Concrete Institute, the minimum thickness of membranes placed below concrete slabs should be at least 10 mils (25mm) to enable the retarder to maintain its integrity under construction loads. ACI also provides recommendations for the minimum lapping and tapping of seams.

Committee Action **Accept as Modified**

from Meeting:

Modification of Public Comment: *Revise public comment as follows (in red):*

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 ~~lapped 610 mil~~ (25mm) polyethylene or polystyrene ~~sheeting~~; lapped a minimum of 6 inches (152 mm) and taped or sealed at the seams.

Committee Reason: The proposed thickness of 10 mil is not accepted. The Standard does not preclude the use of 10 mil material. The benefit of changing from 6 to 10 mil does not justify awarding of points. The use of 10 mil in cold climate may not be appropriate. Minor punctures from construction would not have a significant impact on performance.

"or sealed" is added as another compliance option.

PC059 LogID 798 602.1.5 Termite barrier

Submitter: Ray Tonjes , Ray Tonjes Builder, Inc.

Public Comment: **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). Material and installation methods to be validated by the State's pest control authority or ICC-ES Evaluation Report.

Reason: As there is no current definition of what constitutes a "continuous physical foundation termite barrier" there needs to be validation of the products and methods used to provide the termite infestation protection intended.

Committee Action **Reject**
from Meeting:

Modification of Public Comment:

Committee Reason: The proposed language is unnecessary and the definition and validations are adequately covered by the building code. It is not recommended to list specific evaluation agencies in the body of the Standard.

PC060 LogID 673 602.1.9 Flashing

Submitter: Robert Hill, NAHB Research Center

Public Comment: **602.1.9 Flashing.** Flashing is provided to minimize water entry into wall and roof assemblies and to direct water to exterior surfaces or exterior water-resistive barriers for drainage. Flashing details are provided in the construction documents and are in accordance with the fenestration manufacturer's instructions, the flashing manufacturer's instructions, or as detailed by a registered design professional.

(1) Flashing are installed at all of the following locations, as applicable: **Mandatory**
(a) around exterior fenestrations, skylights and doors

.....
~~**(6)** A drip cap is provided above windows and doors that are not flashed or protected by covering in accordance with Section 602.4~~

Reason: Since (1)(a) is a mandatory requirement for flashing at all exteriors fenestrations it seems inconsistent to allow an exception to this mandatory requirement in (6) and also award 2 points for it.

Committee Action **Accept**
from Meeting:

Modification of Public Comment:

Committee Reason:

PC061	LogID 706	602.1.13 Drip Edge
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: 602.1.13 – Points for a drip edge are superfluous; that is all code now.

Reason: Builders should not be rewarded for building to code.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee See PC054.

Reason:

PC062	LogID 633	603.1 Reuse of Existing Building
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **603.1 Reuse of existing building.** Major elements or components of existing buildings and structures are reused, modified, or deconstructed for later use ~~in lieu of demolition.~~

Reason: Demolition is an act of nonsystematic structure removal; it does not address what happens to a material after the structure has been removed, so its inclusion in this section adds confusion to the intent. Demolition may yield fewer recycled or salvaged materials than a structure that has been deconstructed; it does not guarantee that there isn't some success, so this term has been removed.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee

Reason:

PC063	LogID 675	603.1 Reuse of Existing Building
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **603.1 Reuse of existing building.** Major elements or components of existing buildings and structures on the lot are reused, modified, or deconstructed for later use in lieu of demolition.

Reason: 603.1 and 603.2 can easily be confused. If the intent is this practice be limited to that existing buildings on the lot then the additional text will make it clear.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee It is not the intent of this section to limit this practice to the same lot. However, a change has been implemented to 603.2 as part of the points revision to clarify that 603.2 and 603.1 should not award points to the same material as follows:

Reason: Materials, elements, or components awarded points under Section 603.1 shall not be awarded points under Section 603.2.

PC064	LogID 676	603.2 Salvaged Materials
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **603.2 Salvaged materials.** Reclaimed and/or salvaged materials and components obtained off site are used. The total material value and labor cost of salvaged materials is equal to or exceeds 1 percent of the total construction cost.

Reason: 603.1 and 603.2 are often confused. Unless these practices are clarified a builder might try to claim points for both of these practices when an on-site building is deconstructed.

Committee Action Reject
from Meeting:

Modification of
Public Comment:

Committee Reason: It is not the intent of this section to limit this practice to offsite applications. However, a change has been implemented to 603.2 as part of the points revision to clarify that 603.2 and 603.1 should not award points to the same material as follows:
Materials, elements, or components awarded points under Section 603.1 shall not be awarded points under Section 603.2.

PC065	LogID 707	604.1 Recycled Content
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: 604.1 - A list format would be better.

Reason: Better definitions as to what are 'minor and major' building components are needed.

Committee Action Reject
from Meeting:

Modification of
Public Comment:

Committee Reason: Draft standard includes definitions for major and minor components. The list is provided in the commentary document published in 2009.

PC066	LogID 632	605.2 On-site Recycling
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: ~~605.2 On-site recycling. On-site recycling measures following applicable regulations and codes are implemented, such as the following:~~

- ~~(a) Materials are ground or otherwise safely applied on-site as soil amendment or fill. A minimum of 50 percent (by weight) of construction and nonhazardous land-clearing waste is diverted from landfill.~~
- ~~(b) Alternative compliance methods approved by the Adopting Entity.~~
- ~~(c) Compatible untreated biomass material (lumber, posts, beams etc.) are set aside for combustion if a Solid Fuel Burning Appliance as per Section 901.2.1(2) will be available for on-site renewable energy.~~

Reason: The intent of this section is unclear. Section 605.1 already addresses 50% construction waste diversion, and because the make-up of waste is so different, construction and land-clearing debris should not be included in the same diversion calculation; therefore, construction has been removed from this section. The encouragement of incineration does not meet the environmental intent of this standard.

Committee Action Reject
from Meeting:

Modification of
Public Comment:

Committee Reason: The intent of the inclusion of Item c is to substitute available bio-fuel energy for other fuels. It is not incineration. It is bio-mass renewable energy. The practice requires compliance with Section 901.2.1(2).

Section 605.1 is a plan, while Section 605.2 is a method of implementation. They are not the same. Section 605.2 encourages recycling on site, while Section 605.1 allows recycling and salvaging off site.

PC067	LogID TG3-2	611.4 Food waste disposers
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Submitter: Randy Melvin (on behalf of Task Group 3), Winchester Homes

Public Comment: ~~611.4 Food waste disposers. A minimum of one food waste disposer is installed at the primary kitchen sink. 1~~

607.2 Food waste disposers. A minimum of one food waste disposer is installed at the primary kitchen sink. 1

Reason: The Task Group relocated food waste disposers to Section 607 from Section 611. Section 607 is a better fit for this practice.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC068	LogID 677	609.1 Regional materials
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **609.1 Regional materials.** Regional materials are used for major ~~elements~~ or components of the building construction.

Reason: A major element is not defined. The current definiton of a major componet is limited to the building itself. Is the intent for regional materials only to get points for use in the building or should points also be appropriate for major use on site (e.g. driveway construction)?

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The intent of this practice is to limit this credit to the building only, not to the construction.
Reason:

PC069	LogID 834	609.1 Regional materials
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Submitter: Craig Conner, Building Quality

Public Comment: Delete all sections concerning "regional materials". Including:

~~REGIONAL MATERIAL. Material that is originated, produced, grows naturally, or occurs naturally within 500 miles (804.7 km) of the construction site if transported by truck or 1500 miles (2414 km) of the construction site if transported for not less than 80% of the total transport distance by rail or water.~~

Reason: This is "free be" for concrete, since ready mix will always be very much closer than 500 miles, using local rocks and sand. Concrete always gets it. Will any use of local rock and sand get this? At 1500 miles I can take sand off the beach of very southern California and maybe northern Mexico and ship it to my city in inland Washington, almost Idaho, and call it indigenous. Ridiculous. Delete the whole item.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The intent is to encourage the use of regional products that provide environmental benefit. The fact
Reason: that there are readily-available materials that provide this benefit does not support elimination of this credit. The practice is self-limiting due to economical factors.

Also the intent of the public comment is outside of the scope of the proposed change.

PC070	LogID 698	610.1 Life Cycle Analysis
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Submitter: Donn Thompson, Portland Cement Association

Public Comment: ~~610.1 Whole-building Life cycle analysis. A whole building life cycle analysis (LCA) tool is used to select environmentally preferable products or assemblies, or an LCA using a life cycle assessment process and data compliant with ISO 14044 or other equivalent standards is conducted on the entire building. Points are awarded in accordance with 6010.1.1, 610.1.2(1), or 610.1.2(2). Only one method of analysis may be utilized. A reference service life for the building is to be of 60 years shall be used for any life cycle analysis tool. Results of the LCA are reported in the manual required in Section 1003.1(1) of this standard in terms of the environmental impacts listed in this practice. and it states if operating energy was included in its preparation.~~ 610.1.1 Whole-building life cycle analysis. A whole-building LCA is performed using a life cycle assessment and data compliant with ISO 14044 or other recognized standards.

~~609.1~~ 610.1.2 Life cycle analysis for a product or assembly. A more An environmentally preferable product or assembly is selected for an application based upon the use of an Life Cycle Assessment (LCA) tool that incorporates data methods compliant with ISO 14044 or other recognized standards that compare the environmental impact of building materials, products or assemblies, or the whole building.

(1) per product/system comparison

(2) whole building LCA analysis

(1) Two products with the same intended use are compared based on LCA and the product with a 15% improvement in fossil fuel consumption and global warming potential is used.

(Points awarded per product/system comparison.)

(2) An assembly is selected for the project that has environmental impact measures that are better than a functionally comparable assembly. The full life cycle, from resource extraction to demolition and disposal (including but not limited to on-site construction, maintenance and replacement, material and product embodied acquisition, and process and transportation energy), is assessed. The assemblies considered include all structural elements, insulation, and wall coverings:

(a) exterior walls

(b) roof/ceiling

(c) interior walls or ceilings

(d) intermediate floors

~~Exception: Electrical and mechanical equipment and controls, plumbing products, fire detection and alarm systems, elevators, and conveying systems are not included in the assessment.~~

~~At a minimum, the following The environmental impacts shall be assessed: measures to be considered are chosen from the following:~~

(a) Fossil fuel consumption

(b a) Global warming potential

(e b) Acidification potential

(d c) Eutrophication potential

(e d) Ozone depletion potential

(f e) Human health respiratory effects potential from particulates

(f) Human toxicity

(g) Photochemical smog

(h) ecotoxicity of water

(i) ecotoxicity of soil

(j) bulk waste

(k) hazardous waste

(l) radioactive waste

(m) land use

(Points are awarded based on the number of assemblies that improve upon environmental impact measures by 15%.)

Table 610.1.2(2)

Assembly LCA

Reason: 1) Delete individual product or assembly based comparative Life cycle assessment (LCA). LCA is intended to offer a comprehensive approach to evaluating and improving the environmental impacts of buildings. A project's environmental life cycle performance is dependent upon the whole project design with its individual components acting together as a system. A project's environmental life cycle performance should not be separated into the assessment of the individual components and assemblies. Conducting such a limited assessment will lead to conclusions and actions that are poorly informed. For example, looking at a comparison of wall assemblies, the differences in embodied energy, the energy associated with the extraction, manufacturing, and delivery of a product to the construction site, will likely be the primary consideration for selection. There would be no means of accurate assessment of in-place performance within the overall project. Only rough estimates of operational energy performance would be possible. A recent LCA study by MIT has demonstrated that the environmental impacts of the operational phase of a buildings life cycle is responsible for at least 88% of total emissions. Operational impacts can only be accurately assessed through a whole building LCA. Using component based LCA to superficially compare individual impacts is simplistic, inaccurate, and will often lead to decisions that result in greater environmental impacts over the full service life of the project. 2) Broaden the scope of the environmental impacts to be assessed: A complete cradle to grave LCA carried out according to the guidelines in "International Standard ISO 14044, Environmental Management – Life Cycle Assessment – Requirements and Guidelines" should not be limited to only a few impacts. At a minimum, the following life cycle impacts should be assessed: Human toxicity, Global warming potential, ozone depletion, acidification, eutrophication, photochemical smog, ecotoxicity of water, ecotoxicity of soil, bulk waste, hazardous waste, radioactive waste, human health respiratory effects potential from particulates and land use. The impact of fossil fuel consumption is addressed through analysis of global warming potential and need not be listed separately. 3) Suggest 15 points awarded for conducting a whole building life cycle analysis

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The consensus committee repeatedly approved the use of LCA for components/systems. The proponent does not provide sufficient evidence to make this change.

The new proposed items have not been agreed upon by the LCA community.

With regard to the study by MIT which asserts that as much as 88% of the energy consumption due to a product when viewed over its life may be building operating energy, another study by Canada Mortgage and Housing Corp. Equilibrium Project shows the number for all residential to be less than 50%. Both Studies fail to account for the fact that any product used in a building under this standard will be included in a building which must meet the current energy code, obviating the need for further consideration of the operational energy.

The proposed inclusion of new items in the group now called environmental measures and the use of the term environmental impacts to describe that column is incorrect. The new items: Human toxicity, Photochemical smog, ecotoxicity of water, ecotoxicity of soil, bulk waste, hazardous waste, radioactive waste, and land use are not, of themselves, "environmental impacts". Moreover, no metric exists for these items and none are currently included in TRACI and other recognized sources.

PC071	LogID 750	610.1 Life Cycle Analysis
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Submitter: Matthew Dobson, Vinyl Siding Institute

Public Comment: **610.1.2 Life cycle analysis for a product or assembly.**

.....

(1) Two products with the same intended use are compared based on LCA and the product with a 15% improvement in overall average in the following areas ~~fossil fuel consumption and global warming potential~~ is used.

- (a) Fossil fuel consumption
- (b) Global warming potential
- (c) Acidification potential
- (d) Eutrophication potential
- (e) Ozone depletion potential
- (f) Human health respiratory effects potential from particulates

Reason: 610.1.2 (1) The focus on global warming impact and fossil fuels use (which are usually very closely related) is far too narrow a focus for an LCA credit. It also seems very strange that only those two impacts are considered here while acidification, eutrophication, ozone depletion, and human health respiratory effects are also considered in 609.2.2. It makes far more sense to be consistent across all these credits. For both 609.2.1 and 609.2.2 something such as the list below should be provided:
 •Global Warming Potential - measured in kg of CO2 equivalents •Acidification Potential – measured in H+ moles equivalents •Eutrophication Potential – measured in kg N equivalents •Ozone Depletion Potential – measured in kg CFC-11 equivalents • Smog Potential – measured in g of NOX equivalents

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

610.1 Life cycle analysis. A life cycle analysis (LCA) tool is used to select environmentally preferable products or assemblies, or an LCA is conducted on the entire building. Points are awarded in accordance with ~~610.1.1, or 610.1.2(1), or 610.1.2(2)~~. Only one method of analysis or tool may be utilized. A reference service life for the building is to be 60 years for any life cycle analysis tool. Results of the LCA are reported in the manual required in Section 1003.1(1) of this standard in terms of the environmental impacts listed in this practice and it states if operating energy was included in its preparation. 15 points max

610.1.1 Whole-building life cycle analysis. A whole-building LCA is performed using a life cycle assessment and data compliant with ISO 14044 or other recognized standards. 15 points

610.1.2 Life cycle analysis for a product or assembly. An environmentally preferable product or assembly is selected for an application based upon the use of an LCA tool that incorporates data methods compliant with ISO 14044 or other recognized standards that compare the environmental impact of products or assemblies. 10 points max

(1) ~~Two or more products with the same intended use are compared based on LCA and the product with at least a 15% average improvement is selected in fossil fuel consumption and global warming potential is used. Number of points awarded is based on the number of environmental impact measures compared. 2-point~~ Points per Table 610.1.2(1) 10 points Max
 (Points awarded per product/system comparison.)

The environmental impact measures to be considered are chosen from the following:

- (a) Fossil fuel consumption
- (b) Global warming potential
- (c) Acidification potential
- (d) Eutrophication potential
- (e) Ozone depletion potential

<u>Table 610.1.2(1)</u> <u>Product LCA</u>	
<u>4 Impact Measures</u>	<u>5 Impact Measures</u>
POINTS	
<u>2</u>	<u>3</u>

(2) An assembly is selected for the project that has environmental impact measures that are better than a functionally comparable assembly. The full life cycle, from resource extraction to demolition and disposal (including but not limited to on-site construction, maintenance and replacement, material and product embodied acquisition, and process and transportation energy), is assessed. The assemblies considered include all structural elements, insulation, and wall coverings:

Points per Table 610.1.2(2) 10 Points Max

- (a) exterior walls
- (b) roof/ceiling
- (c) interior walls or ceilings
- (d) intermediate floors

Exception: Electrical and mechanical equipment and controls, plumbing products, fire detection and alarm systems, elevators, and conveying systems are not included in the assessment.

The environmental impact measures to be considered are chosen from the following:

- (a) Fossil fuel consumption
- (b) Global warming potential
- (c) Acidification potential
- (d) Eutrophication potential
- (e) Ozone depletion potential
- ~~(f) Human health respiratory effects potential from particulates~~

(Points are awarded based on the number of assemblies that improve upon environmental impact measures by an average of 15%.)

**Table 610.1.2(2)
Assembly LCA**

	<u>4 Impact Measures</u>	<u>6 Impact Measures</u>
	POINTS	
2 Assemblies	3	6
3 Assemblies	4	8
4 Assemblies	5	10

Committee Reason: Based on the public comment, the change is expanded to make the format of Section 610.1.2(1) for product analysis consistent with that of Section 610.1.2(2) for assembly analysis.

The impact measure (f) on human health respiratory effects is deleted because BEES includes that measure only for cancer.

PC072	LogID 833	610.1 Life Cycle Analysis
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Submitter: Craig Conner, Building Quality

Public Comment: ~~610.1.2 Life cycle analysis for a product or assembly. An environmentally preferable product or assembly is selected for an application based upon the use of an Life Cycle Assessment (LCA) tool that incorporates data methods compliant with ISO 14044 or other recognized standards that compare the environmental impact of building materials, products or assemblies, or the whole building.~~

~~10 Points Max~~

~~15 Points Max~~

~~(1) per product/system comparison 3~~

~~(2) whole building LCA analysis 15~~

~~(1) Two products with the same intended use are compared based on LCA and the product with a~~

~~15% improvement in fossil fuel consumption and global warming potential is used. 210 Points Max (Points awarded per product/system comparison.)~~

Reason: Delete this item until it is made more usable. LCA is poorly defined. 15% of the whole building's energy used? Very few things can do that. 15% of the energy use from the product? Can I save 15% of the heat that flows through the door knob? It is trivial. To compare two products I just copy the manufacturer's analysis of their impacts and call it completed? What is the base case, what is the minimum? A politically correct concept, but not a criteria tht is defined enough to used in the green standard. Energy savings is already covered in the energy chapter. Save considerable energy, as specified in the energy chapter, and the greenhouse gases will take car of themselves.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The practice is adequately defined for implementation. The consensus committee repeatedly supported LCA in the NGBS. Life cycle analysis based on ISO 14000,14044. LCA is the most scientifically-based approach for determining environmental impact of materials. Also ICC Evaluation Service is developing a more detailed process for performing LCAs of construction materials that will further facilitate implementation of this practice.

PC073
Concepts

LogID 730

611.1 Manufacturer's Environmental Management System

Submitter: Josh Jacobs, GREENGUARD Environmental Institute

Public Comment: **610.1 Manufacturer's environmental management system concepts.**

(a) Product manufacturer's operations and business practices include environmental management system concepts, and the production facility is ISO 14001 certified or equivalent. The aggregate value of building products from ISO 14001 certified or equivalent production facilities is 1 percent or more of the estimated total building materials cost. (1 point awarded per percent.)

(b) The aggregate value of building products used in the building that is from UL 880 certified manufacturers is 1 percent or more of the estimated total building materials cost. (1 point awarded per percent)

Reason: The proposed standard is aligned with the overall tenants of the existing 610.1. The standard touches on the following areas of sustainability for a product manufacturer: •Sustainability Governance: including sustainability strategic planning, board oversight, internal stakeholder engagement, ethics policies, and creating the infrastructure and fostering the behaviors that create a culture of sustainability •Environment: including product stewardship, sustainable resource use, environmental management systems, energy efficiency and carbon management, materials optimization, facilities and land use, habitat restoration, and waste prevention •Work Force: including professional development, workplace integrity, employee satisfaction and retention, workplace safety, and employee health and well-being •Customers and Suppliers: including fair marketing practices, product safety, customer support and complaint resolution, and sustainable supply chain management, monitoring and improvement •Community Engagement and Human Rights: including community impact assessment, community investment, and human rights issues Each domain includes prerequisites, core indicators, and leadership indicators, for a total of 1,003 possible points across all domains. The standard was put out for public comment and changed due to that public comment. It can be found here: www.comm-2000.com

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Some of the criteria (e.g., human rights) included in the UL standard proposed in this public comment are beyond the scope of the NGBS. The term 'value' used in the public comment is undefined.

PC074**LogID 724****611.2 Sustainable Products****Submitter:** Josh Jacobs, GREENGUARD Environmental Institute**Public Comment:** **611.2 Sustainable Products.** One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit, as applicable. Certification third-party agency is ISO Guide 65 accredited. **4 10 Points Max****(1)** 50% or more of carpet installed (by square feet) is third-party certified to NSF/ANSI 140. **45****(2)** 50% or more of resilient flooring installed (by square feet) is third-party certified to NSF/ANSI 332. **45****(3)** 50% or more of the insulation installed (by square feet) is third-party certified to EcoLogo CCD-016. **45****(4)** 50% or more of interior wall coverings installed (by square feet) is third-party certified to NSF/ANSI 342 **45****Reason:** The standards named in this section focus on the sustainability of a product the same way that this document looks at the sustainability of a building – in total. To give individual attributes, such as biobased, recycled content, or certified wood more than triple the amount of points (at the minimum) is misunderstanding the focus of sustainability in building. Should sustainable buildings not also be built with the most sustainable products? Looking at the sustainable aspects of a product, in total, as these standards do, is a much better way of ensuring sustainable products are being used to build these homes, than attributes done on a case by case basis.**Committee Action** **Withdrawn**
from Meeting:**Modification of**
Public Comment:**Committee Reason:** Withdrawn by proponent on Conference call of Task Group 3 on January 17, 2012.**PC075****LogID 725****611.2 Sustainable Products****Submitter:** Josh Jacobs, GREENGUARD Environmental Institute**Public Comment:** **611.2 Sustainable Products.** One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit, as applicable. Certification third-party agency is ISO Guide 65 accredited. **4 Points Max****(1)** 50% or more of carpet installed (by square feet) is third-party certified to NSF/ANSI 140. **1****(2)** 50% or more of resilient flooring installed (by square feet) is third-party certified to NSF/ANSI 332. **1****(3)** 50% or more of the insulation installed (by square feet) is third-party certified to EcoLogo CCD-016. **1****(4)** 50% or more of interior wall coverings installed (by square feet) is third-party certified to NSF/ANSI 342 **1****(5)** 50% or more of the gypsum board installed (by square feet) is third-party certified to ULE ISR 100 **1****(6)** 50% or more of the door leafs installed (by number of door leafs) is third-party certified to ULE ISR 102 **1****Reason:** Single attribute traits allow us to see valuable snapshots of a products impact on certain areas of the environment and they bring value to a building standard such as this one, but many product manufacturers and sustainability purchasers/experts are looking to multi-attribute standards as a way to show that a product, in total, addresses the triple bottom line of sustainability. Referencing these standards and awarding points would allow the homes built to this standard to show that some of the products chosen to build the building have been looked at in terms of their overall sustainable impact. As the document is written now, we only have standards for carpet, flooring, insulation, and wall

coverings. I am proposing that we include references for standards that are being utilized and certified to in the marketplace for gypsum/wall board and door leafs. This would allow us to give more options to home builders/developers when trying to build these sustainable homes with more sustainable products.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

611.2 Sustainable Products. One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit, as applicable. Certification third-party agency is ISO Guide 65 accredited. **4 Points Max**

- (1) 50% or more of carpet installed (by square feet) is third-party certified to NSF/ANSI 140. 1
- (2) 50% or more of resilient flooring installed (by square feet) is third-party certified to NSF/ANSI 332. 1
- (3) 50% or more of the insulation installed (by square feet) is third-party certified to EcoLogo CCD-016. 1
- (4) 50% or more of interior wall coverings installed (by square feet) is third-party certified to NSF/ANSI 342 1
- (5) 50% or more of the gypsum board installed (by square feet) is third-party certified to ULE ISR 100 1
- (6) 50% or more of the door leafs installed (by number of door leafs) is third-party certified to ULE ISR 102 1
- (7) 50% or more of the tile installed (by square feet) is third-party certified to ANSI A138.1 Specifications for Sustainable Ceramic Tiles, Glass Tiles and Tile Installation Materials. 1

Committee Reason: The modification adds item (7) to provide another compliance choice for the practice.

PC076	LogID 805	611.2 Sustainable Products
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: **611.2 Sustainable Products.** One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit, as applicable. Certification third-party agency is ISO Guide 65 accredited. **4 Points Max**

- (1) 50% or more of carpet installed (by square feet) is third-party certified to NSF/ANSI 140. 1
- (2) 50% or more of resilient flooring installed (by square feet) is third-party certified to NSF/ANSI 332. 1
- (3) 50% or more of the insulation installed (by square feet) is third-party certified to ~~EcoLogo CCD-016.~~ 1
- (4) 50% or more of interior wall coverings installed (by square feet) is third-party certified to NSF/ANSI 342 1

Reason: I believe EcoLogo would be considered a proprietary program. We should not be picking winners and losers.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: At this time, this is the only standard available for insulation. This is an optional item in the Standard.
Reason: Also, EcoLogo removed any exclusionary language from its program.

PC077	LogID 950	611.3 Universal Design Elements
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Submitter: Curtis L Biggar, Biggar Dev Ltd

Public Comment:

Reason: I WOULD RECOMMEND THAT IN ADDITION TO THE RECOGNITION GIVEN TO

AGING-IN -PLACE A POINT SHOULD BE GIVEN FOR EACH EXTERIOR ACCESSIBLE EXTERIOR THRESHOLD; AND EACH ACCESSIBLE ROOM. THAT WOULD AMOUNT TO LESS THAN 10 POINTS & ENSURE LONGEVITY; SUSTAINABILITY & HIGH FUTURE RESALE WITHOUT REMODELING. IT WOULD ALSO REDUCE THE HIGH COST OF PREMATURELY LEAVING ONES HOME FOR COSTLY PRIVATE OR GOVERNMENT CARE.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The current language adequately allocates points for no-step entrances under Item (1).

PC078	LogID 809	611.4 Food waste disposers
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: ~~611.4 Food waste disposers. A minimum of one food waste disposer is installed at the primary kitchen sink. (1 point)~~

Reason: Food waste disposers do are not the clear green option for food waste disposal. Although they can sometimes reduce landfill waste, they add Biological Oxygen Demand to sewer systems, requiring additional treatment.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The committee repeatedly supported retaining this practice for the reasons previously documented the Public Proposals Report (October 7, 2011, available at www.nahbrc.com/ngbs) under Item P236. No new information is provided. The practice is awarded only one point.

PC079	LogID 832	611.4 Food waste disposers
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Submitter: Craig Conner, Building Quality

Public Comment: ~~611.4 Food waste disposers. A minimum of one food waste disposer is installed at the primary kitchen sink. 4~~

Reason: This is green washing. A garbage disposal is not as good as composting. I thought the committee had voted this out of the document.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The committee repeatedly supported retaining this practice for the reasons previously documented the Public Proposals Report (October 7, 2011, available at www.nahbrc.com/ngbs) under Item P236. No new information is provided. The practice is awarded only one point. The previous action was to move the practice from Chapter 8 to Chapter 6, not to remove it from the Standard. Also, composting is not always available as an option, e.g., it is not allowed by some local jurisdictions in urban developments.

PC080	LogID 712	701.1 Mandatory Requirements
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: Requiring floor insulation over unconditioned crawl space would actually be counter-productive in a passively cooled home. A good post and pier design actually encourages air infiltration from the cooler underside of the home into the living space for cooling purposes.

Reason: ACCA Manual J is not equipped to take into account the cooling effects of breezes through the

structure in calculating cooling loads.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: ACCA Manual J is a requirement in the 2009 IRC and the infiltration rate can be adjusted in Manual J to model high infiltration homes. Insulation requirements are based on the building code and can also be adjusted in Manual J.

PC081	LogID 710	701.1.1 Minimum Performance Path Requirements
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: Performance path is difficult to use with passive cooled homes.

Reason: These requirements are geared to everywhere else, except Hawaii, where all new construction must have some type of mechanical system--either heating/cooling, or both. The Standard as it is now, actually encourages putting in a mechanical system where none is needed because more points can be gained. Many of the mandatory air sealing practices are less needed for a home without mechanical cooling. Here in Hawaii, most of our homes are passively cooled.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: These provisions are consistent with 2009 IECC for that climate zone. 2009 IECC is the new baseline for the NGBS.

PC082	LogID 711	701.1.2 Minimum Prescriptive Path Requirements
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: Prescriptive path has so many points dedicated to mechanical systems, that it is hard to find points to meet minimums for passively cooled homes.

Reason: These requirements are geared to everywhere else, except Hawaii, where all new construction must have some type of mechanical system--either heating/cooling, or both. The Standard as it is now, actually encourages putting in a mechanical system where none is needed because more points can be gained. Many of the mandatory air sealing practices are less needed for a home without mechanical cooling. Here in Hawaii, most of our homes are passively cooled.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: NGBS baseline provisions are consistent with the 2009 IECC. As an alternative to the prescriptive path, the NGBS performance path provides added flexibility for various methods of increasing energy efficiency in specific climate conditions. The new performance path methodology is whole-house based and includes all uses of energy in a dwelling.

PC083	LogID 678	701.1.3 Alternative Bronze Level Compliance
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **701.1.3 Alternative bronze level compliance.** As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Qualified Home or equivalent demonstrates compliance with the 2012 IECC or Chapter 11 of the 2012 IRC achieves the bronze level for Chapter 7 but may not achieve a higher level without complying with either 702 or 703. When this path is used no points may be awarded for sections 702 or 703. This path provides automatic compliance with all the mandatory requirements of chapter 7.

Reason: The standard should clarify that if the alternate path is used what limitations and benefits are involved.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*

Public Comment: **701.1.3 Alternative bronze level compliance.** As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Qualified Home or demonstrates compliance with the 2012 IECC or Chapter 11 of the 2012 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.

Committee Reason: In the existing version of the Standard, you qualified for Bronze, updating this for the next version to include Energy Star Version 3 as well as the 2012 IECC. For either of these alternative bronze compliance paths, it is required to meet the mandatory items as well.

PC084	LogID 789	701.1.3 Alternative Bronze Level Compliance
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **701.1.3 Alternative bronze level compliance.** As an alternative, any building that qualifies as an Energy Star Version 3.0 Qualified Home ~~or equivalent demonstrates compliance with the 2012 IECC or Chapter 11 of the 2012 IRC~~ achieves the bronze level for Chapter 7.

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC is the baseline for the Standard and the energy chapter requires savings of 15% above the baseline on a whole-house basis for the Bronze rating level. Because 2012 IECC is about 15% better than 2009 IECC, this is an appropriate method of achieving the Bronze rating level.

PC085	LogID 709	701.4 Mandatory Practices
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: Mandatory requirements specify both HVAC system checklists. What about passively cooled homes with no mechanical cooling?

Reason: Homes in Hawaii are mostly passively cooled by our tradewinds with no mechanical cooling.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: These mandatory practices are based on 2009 IECC which is the baseline for this Standard. ACCA Manual J, D, & S are required per the 2009 IECC, however, a cooling system is not required.

PC086	LogID 735	701.4.1.1 HVAC system sizing
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Submitter: Howard Fortunato, LandmarkJCM

Public Comment: see above

Reason: Making mandatory for ACCA Manual S for selecting equipment will be problematic with hvac contractors that have never heard of Manual S; and it removes point opportunity for builders that presently use it and receive points in 704.5.1.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Manual S is required as part of the 2009 IECC and should be followed as part of this Standard. The 2009 IECC has been set as the baseline for this Standard.

PC087	LogID 800	701.4.1.1 HVAC system sizing
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Submitter: Shari Hendley, J.S. Hovnanian & Sons

Public Comment: Equipment is selected using ACCA Manual S or equivalent.

Reason: "Equipment is selected using ACCA Manual S or equivalent" - Many hvac contractors do not use this program for selecting equipment. Making this mandatory not only decreases point possibilities (from previous item 704.5.1) for builders, but may require them to switch from otherwise high quality and reliable hvac contractors.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: Manual S is required as part of the 2009 IECC and should be followed as part of this Standard. The 2009 IECC has been set as the baseline for this Standard.

PC088	LogID 736	701.4.2.3 Duct system sizing
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Submitter: Howard Fortunato, LandmarkJCM

Public Comment: see above

Reason: Making mandatory for ACCA Manual D for size and design of duct system will be problematic with hvac contractors that have never heard of Manual D; and it removes point opportunity for builders that presently use it and receive points in 704.4.1.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: Manual D is required as part of the 2009 IECC which has been set as the baseline for this Standard. ACCA training is available to HVAC contractors to learn how to size ductwork per Manual D.

PC089	LogID 801	701.4.2.3 Duct system sizing
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Submitter: Shari Hendley, J.S. Hovnanian & Sons

Public Comment: **Mandatory 5 points**

Reason: Many hvac contractors do not use Manual D for sizing duct systems. Making this mandatory not only decreases point possibilities (5 points from previous item 704.4.1) for builders, but may require them to switch from otherwise high quality and reliable hvac contractors

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: Manual D is required as part of the 2009 IECC which has been set as the baseline for this Standard. ACCA training is available to HVAC contractors to learn how to size ductwork per Manual D.

PC090	LogID 657	701.4.3.2 Air sealing and insulation
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Submitter: Jamie Hager, Southern Energy Management

Public Comment: ~~701.4.3.2 Air sealing and insulation~~ **Insulation and Air Sealing.** Building envelope insulation must be installed to meet Grade 2 installation criteria as defined in 703.1.2.3. 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 tested air leakage is less than seven 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 the requirements of 701.4.3.1 Building Thermal Envelope have been met.~~ (keep a - g the same under this section)

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

Reason: Delete "and insulation" from all language in 701.4.3.2. Based on what is currently written, a Grade 3 insulation job could be installed and still meet all the criteria. Recommend separating air sealing and insulation installation into separate mandatory items. Recommend Grade 2 insulation installation become mandatory, but 3rd party inspection is not mandatory (keep points in 703.1.2 for having it graded by a 3rd party).

Committee Action from Meeting: **Accept as Modified**

Modification of Public Comment: *Revise Draft Standard as follows:*

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).

Committee Reason: Section has been re-written to restrict Grade 3 insulation from being used. In addition, the format of this section is modeled after the 2009 IECC, which is the baseline for the Standard.

PC091	LogID 777	701.4.3.2 Air sealing and insulation
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Submitter: Amanda Evans, Santa Fe

Public Comment: Remove ~~seven~~ and add five.

Reason: Change seven AHC 50 to five ACH 50 or lower. A green building standard should be above and beyond code and the 2012 IECC code requires 3ACH50 in some climate zones. Seven is just too leaky these days.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: 2009 IECC sets 7 ACH 50 as the minimum and the 2009 IECC is the baseline set for this Standard. The minimum level of performance under the NGBS is 15 percent above the 2009 IECC.

PC092	LogID 802	701.4.3.2 Air sealing and insulation
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **701.4.3.2 Air sealing and insulation:** 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).~~

~~(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.~~

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

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

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC is the baseline code for the NGBS. 2009 IECC has the visual inspection option available to meet the air sealing requirement and should be an option for the NGBS as a baseline mandatory item.

PC093 LogID 803 701.4.3.2 Air sealing and insulation

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: ~~(1) Testing option.~~ Building envelope tightness and insulation installation is considered acceptable when tested air leakage is less than ~~three~~^{seven} 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.

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC requires 7 ACH50. 2009 IECC is the baseline code for this version of Standard.

PC094 LogID 659 701.4.4 High-efficacy lighting

Submitter: Jamie Hager, Southern Energy Management

Public Comment: **701.4.4 High-efficacy lighting.**

A minimum of 50 percent of the total hard-wired lighting fixtures, or the bulbs in those fixtures, qualify as high efficacy or equivalent. ICC defines high efficacy as: 60 lumens/W for lamps over 40W; 50 lumens/W for lamps over 15W to 40W; 40 lumens/W for lamps 15W or less.

<u>Lamp</u>	<u>Efficiency</u>
<u>≤15W</u>	<u>40 lumens/W</u>
<u>>15W-40W</u>	<u>50 lumens/W</u>
<u>>40W</u>	<u>60 lumens/W</u>

High-Efficacy Lamps

Reason: Need more definition for reference of high-efficacy lighting. Recommend including language from the ICC for reference on lamps that qualify, otherwise builders will have no idea what you mean in areas that have not adopted the 2009 IECC or where it is not enforced well.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: High Efficacy lighting is defined in Section 2 of the Draft Standard using the 2009 IECC definition.

PC095 LogID 804 701.4.4 High-efficacy lighting

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **701.4.4 High-efficacy lighting.** A minimum of 7550 percent of the total hard-wired lighting fixtures, or the bulbs in those fixtures, qualify as high efficacy or equivalent.

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC is the baseline code for this standard which sets the minimum at 50%.

PC096	LogID 792	702.1 Point Allocation (Performance Path)
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **702.2.1 ICC IECC analysis.** Energy efficiency features are implemented to achieve energy cost performance that meets the 2012 ICCIECC. A documented analysis using software in accordance with 2012 ICCIECC, Section R405, or 2012 ICC IECC Section C407.2 506.2 through C407.5 506.5, applied as defined in the 2012 ICC IECC, is required.

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC has been set as the baseline for the Standard. The minimum level of compliance for energy efficiency is set at 15% above the 2009 IECC on a whole-house basis.

PC097	LogID 793	702.2 Energy Cost Performance Levels
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **702.2.2 Energy cost performance analysis.** Savings levels above the 2012 ICCIECC 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, and lighting, ~~and appliances~~.

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC has been set as the baseline for the Standard. The minimum level of compliance for energy efficiency is set at 15% above the 2009 IECC on a whole-house basis.

Appliances are part of the whole-house energy use. In the public comment, points for appliances would only be awarded in the prescriptive path. Points are currently awarded for appliances in either the performance or prescriptive path. This allows for an equivalent analysis in the performance method.

PC098	LogID 795	702.2 Energy Cost Performance Levels
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **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, and lighting, ~~and appliances~~

Reason: Appliances are not included in the referenced analysis and should be left out of this method as there is no standard reference design baseline. Furthermore, there are point awards elsewhere in the document for high efficiency appliances.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The rating levels in the new Standard are established based on whole-house performance including appliances. In the public comment, points for appliances would only be awarded in the prescriptive path. Points are currently awarded for appliances in either the performance or prescriptive path. This allows for an equivalent analysis in the performance method.

PC099	LogID 836	702.2 Energy Cost Performance Levels
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Submitter: Craig Conner, Building Quality

Public Comment: **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 405, or ~~ICC~~ IECC Section 506.2 through 506.5, applied as defined in the ~~ICC~~ IECC, is required.

Reason: Comment: All occurrences of "ICC IECC" should be just "IECC".

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: Agree with this editorial item.

PC100	LogID 602	703.1.1 UA improvement (building envelope)
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Submitter: Nils Petermann, Alliance to Save Energy

Public Comment: Table 703.1.1: bottom row of the "Climate Zone" column: 7 and 9~~8~~

Reason: Table 703.1.1: in the "Climate Zone" column, the bottom row states "7 and 9". This is a typo, as no climate zone 9 exists in the IECC.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: This was a typo. Agree with the correction.

PC101	LogID 819	703.1.1 UA improvement (building envelope)
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: ~~**703.1.1 UA improvement.** Where the total building thermal envelope UA is less than required by ICC IECC, Section 402.1.4, the total building thermal envelope UA is in accordance with Table 703.1.1. The total building thermal envelope UA is in accordance with Table 703.1.2 and is less than or equal to the total UA resulting from the U-factors provided in Table 703.1.1. Where insulation is used to achieve these percentages UA improvements, a third-party grading of the installation as achieving Grade 1 is required. A documented analysis is performed using RESCheck version 4.0.1 or later, or equivalent, based on a comparison to the ICC IECC, IRC, or IBC. Total UA is documented using RESCheck or equivalent report and supplied to verify the baseline and the UA improvement.~~

Table 703.1.1: Equivalent U-Factors

Climate Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Frame Wall U-Factor	Mass Wall U-Factor	Floor U-Factor	Basement Wall U-Factor	Crawl Space Wall U-Factor
1	1.2 <u>0.50</u>	.75	.035	.082	.197	.064	.36	.477
2	.65 <u>0.40</u>	.75 <u>0.65</u>	.035 <u>0.030</u>	.082	.165	.064	.36	.477
3	.5 <u>0.35</u>	.65 <u>0.55</u>	.035 <u>0.030</u>	.082 <u>0.057</u>	.141 <u>0.098</u>	.047	.91 <u>0.091</u>	.136
4 except Marine	.35	.6 <u>0.55</u>	.03 <u>0.026</u>	.082 <u>0.057</u>	.141 <u>0.098</u>	.047	.059	.065
5 and Marine	.35 <u>0.32</u>	.6 <u>0.55</u>	.03 <u>0.026</u>	.057	.082	.033	.059	.065 <u>0.055</u>
4	.35 <u>0.32</u>	.6 <u>0.55</u>	.026	.057 <u>0.048</u>	.06	.033	.05	.065 <u>0.055</u>
6	.35 <u>0.32</u>	.6 <u>0.55</u>	.026	.057 <u>0.048</u>	.057	.028	.05	.065 <u>0.055</u>
7 and 8	.35 <u>0.32</u>	.6 <u>0.55</u>	.026	.057 <u>0.048</u>	.057	.028	.05	.065 <u>0.055</u>

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC has been set as the baseline for the Standard. The U-factors listed are from the 2009 IECC.

PC102 LogID 679 703.1.2 Insulation installation

Submitter: Robert Hill, NAHB Research Center

Public Comment: **701.4.3.3 Insulation installation.** The insulation installation is graded by a third party and is in accordance with Sections 703.1.2.1, 703.1.2.2, and/or 703.1.2.3, and/or 703.1.2.4, as applicable. Grade 3 insulation installation is not permitted. Grade 2 installation is permitted only for bronze level buildings. Mandatory

Reason: 703.1.2 should be moved to the 701 mandatory section. It seems that the committee intended to require at least grade 2 installation in order to be certified. But as written the practice is optional for the prescriptive path. There is no way to tell if the insulation is grade two or 3 unless it becomes a mandatory practice. Since installation quality impacts the home's performance regardless of the prescriptive or performance path, it is reasonable to require this inspection for both paths. (Note: if this becomes 701.4.3.3 then the remaining 701.4.3 practices need to be renumbered.)

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Rejected in favor of PC090 that added “Grade 3 insulation installation is not permitted” to Section
Reason: 701.4.3.2.

PC103 LogID 807 703.1.2 Insulation installation

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: Delete section 703.1.2 in it's entirety

Reason: Green standards are universally understood and expected to be above code programs. The building code does not allow for substandard insulation installation. Level 1 should be mandatory. No options than less than proper insulation installation should be allowed.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Grade 2 insulation installation has been set the minimum within this Standard. Grade 2 is allowed only
Reason: for the Bronze rating level. Grade 1 is required for the higher rating levels.

PC104 LogID 838 703.1.2 Insulation installation

Submitter: Craig Conner, Building Quality

Public Comment:

Table 703.1.2
Insulation Installation Grades

Grade	POINTS
1	15
2	100
3	0

Reason: Remove Grade 3 insulation (it is not allowed) and delete points (zero points) for Grade 2 insulaiton. Grade 2 insulation is not point worthy in a green program.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee *Staff note: This section was further modified by the consensus committee as part of the discussion on*
Reason: *points for the entire chapter as shown in Draft 2 and PC225.*

PC105 LogID 680 703.1.4 Radiant Barrier

Submitter: Robert Hill, NAHB Research Center

Public Comment: **703.1.4** A radiant barrier with an emittance of 0.05 or less is used in the attic. The product is tested in accordance with ASTM C-1371-98 or ASTM E408-71 (2002) and is installed in accordance with the manufacturer's installation specifications.

Reason: Limit the use of radiant barrier to attic applications where it is most beneficial.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC106 LogID 808 703.1.4 Radiant Barrier

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **703.1.4.** A radiant barrier with an emittance of 0.05 or less is used. The product is tested in accordance with ASTM C-1371-98 or ASTM E408-71 (2002), ~~and~~ is installed in accordance with the manufacturer's installation specifications, and is permanently protected against the accumulation of dust or risk of corrosion for the life of the products.

Reason: Radiant Barriers only work as long as their lowE surface is protected.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: It is difficult to enforce "permanently protected against the accumulation of dust or risk of corrosion" without additional guidelines. Following manufacturer's installation specifications should be sufficient to protect the radiant barrier.

PC107	LogID TG5-1	703.1.4 Radiant Barrier
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Submitter: Michael Hodgson (on behalf of Task Group 5), Consol

Public Comment: **703.1.4** A radiant barrier with an emittance of 0.05 or less is used. The product is tested in accordance with ASTM C-1371-98 ~~or ASTM E408-71 (2002)~~ and is installed in accordance with the manufacturer's installation specifications.

Reason: ASTM E408 is out of date. ASTM C1371 is the current radiant barrier standard.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason:

PC108	LogID 662	703.1.5 Building envelope leakage
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Submitter: Jamie Hager, Southern Energy Management

Public Comment: **703.1.5 Building envelope leakage**

. The maximum leakage rate is tested by a 3rd party to be found to be in accordance with the following:

Reason: Add "3rd party" to language. These test results should be provided by a 3rd party with so many points available for specific envelope leakage test results. Item 704.5.2.1 could then be deleted to avoid double dipping with points.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: This is already included in Section 704.5.2.1 and available to either the performance or the prescriptive path. Putting this language in 703, the points would be awarded for the prescriptive path only. However, this practice should apply to both prescriptive and performance paths. Therefore, it is in the correct place in Section 704.5.2.1.

PC109	LogID 681	703.1.5 Building envelope leakage
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **703.1.5 Building envelope leakage.** Whole building ventilation is provided in accordance with section 902.2 and the ~~The~~ maximum leakage rate is in accordance with the following:
(a) 5 ACH50

- (b) 4 ACH50
- (c) 3 ACH50
- (d) 2 ACH50
- (e) 1 ACH50

Reason: The prerequisite for appropriate ventilation for very tight buildings apparently was dropped during the revision. Proper ventilation is appropriate for tight houses.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

703.1.5 Building envelope leakage. The maximum leakage rate is in accordance with the following.

- (a) 5 ACH50
- (b) 4 ACH50
- (c) 3 ACH50
- (d) 2 ACH50
- (e) 1 ACH50

Whole building ventilation is provided in accordance with section 902.2.1 if building envelope leakage rate is 5 ACH50 or less.

Committee Accept the concept that whole-building ventilation should be provided. For clarification, the sentence is
Reason: moved to the end of this practice and a qualifier for 5ACH50 or less is added.

PC110	LogID 812	703.1.5 Building envelope leakage
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **703.1.5 Building envelope leakage.** The maximum leakage rate is in accordance with the following:

- (a) ~~5 ACH50~~ 3
- (b) ~~4 ACH50~~ 6
- (c) 3 ACH50 ~~90~~
- (d) 2 ACH50 12
- (e) 1 ACH50 15

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable. No points should be awarded for meeting the minimum code.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee The air tightness provisions in the Draft Standard are based on the 2009 IECC not the 2012 IECC. The
Reason: public comment is aligned with the 2012 IECC.

PC111	LogID 765	703.1.6.1 Fenestration Specifications
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Submitter: Eric Lacey, RECA

Public Comment: **701.4.4.1** NFRC-certified U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis are in accordance with Table 701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

Table 701.4.4.1
Fenestration Specifications

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

Mandatory

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

[Option 2: 2009 IECC]

**Table 701.4.4.1
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	1.20	0.30
2	0.65	0.30
3	0.50	0.30
4 to 8	0.35	Any
	Skylights and TDDs	
1	0.75	0.30
2	0.75	0.30
3	0.65	0.30
4 to 8	0.55	Any

Mandatory

Reason: The 2008 edition of the National Green Building Standard recognized the critical role of efficient windows, doors, and skylights in sustainable building practice. The 2008 NGBS required windows in any green-certified home to meet or exceed the Energy Star requirements then effective (version 4.0). For some reason, the latest Public Comment Draft has removed fenestration from the list of mandatory provisions. We believe that efficient windows, doors, and skylights are crucial elements in any sustainable project, and propose restoring this section to the mandatory provisions. Since the publication of the 2008 NGBS, the IECC window requirements have been updated and improved. Consistent with RECA's previous submissions to the Committee, we believe that the 2012 IECC requirements are the logical foundation for the energy requirements of the NGBS, and we have incorporated those requirements into the proposal below. However, if the Committee decides to use the 2009 IECC as its baseline, we have included the 2009 values as a second option. At a minimum, we recommend maintaining the mandatory Energy Star requirements that are currently in the 2008 NGBS to ensure that there is no backsliding in the latest edition of the NGBS. Recognizing that any of the recommended standards represent an improvement in energy efficiency, we have also added the flexibility of an area-weighted average – something not available in the 2008 NGBS fenestration requirements.

**Committee Action Reject
from Meeting:**

**Modification of
Public Comment:**

Committee Reason: 2009 IECC is the baseline code for the Standard. The consensus committee wanted to preserve the flexibility under the performance path.

Option 1:

The 2009 IECC is the base. Therefore, the 2012 code is not appropriate for the mandatory minimum requirement.

Option 2:

The consensus committee wanted options for the performance path and moving this to the mandatory section would limit the options for the performance path. As long as the house achieves the energy savings, the committee recommends that the Standard should not limit the options.

PC112 LogID 766 703.1.6.1 Fenestration Specifications

Submitter: Eric Lacey, RECA

Public Comment: 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 are in accordance with Table 703.1.6.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC mandatory, with one enhanced fenestration option]

**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	0.35-0.35	Any-0.40
5 to 8	0.32	Any
	Skylights and TDDs	
1 and 2	0.75	0.30-0.25
2	0.65	0.25
3	0.65-0.55	Any-0.25
4	0.55	0.40
45 to 8	0.60-0.55	Any

Mandatory

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

Delete Table 703.1.6.2(a) and replace with the following:

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

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	0.45	0.25
2	0.35	0.25
3	0.32	0.25
4	0.30	0.40
5 to 8	0.30	Any
Skylights and TDDs		
1 and 2	0.60	0.25
3	0.50	0.25
4	0.50	0.35
5 to 8	0.50	Any

Points TBD

Delete Table 703.1.6.2(b) in its entirety

[Option 2: 2009 IECC mandatory, with two enhanced fenestration options]

Delete Table 703.1.6.2(a) and replace with the following:

Table 703.1.6.2(a)
Fenestration Specifications

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

Points TBD

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

Delete Table 703.1.6.2(b) and replace with the following:

Table 703.1.6.2(b)
Enhanced Fenestration Specifications

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	0.45	0.25
2	0.35	0.25

Points TBD

3	0.32	0.25
4	0.30	0.40
5 to 8	0.30	Any
<u>Skylights and TDDs</u>		
1 and 2	0.60	0.25
3	0.50	0.25
4	0.50	0.35
5 to 8	0.50	Any

Reason: The 2008 edition of the National Green Building Standard recognized the critical role of efficient windows, doors, and skylights in sustainable building practice. Since the publication of the 2008 NGBS, the IECC window requirements have been updated and improved. Consistent with RECA's previous submissions to the Committee, we believe that the 2012 IECC requirements are the logical foundation for the energy requirements of the NGBS, for both prescriptive and performance paths, and RECA has submitted another proposal that would restore these requirements to the "mandatory" section of the NGBS. However, if the Committee decides not to adopt RECA's first proposal, we propose requiring at least that homes built to the prescriptive option meet the 2012 IECC fenestration requirements. The proposal also clarifies that all windows installed must be NFRC-certified, again consistent with the previous edition of the NGBS. There is no "equivalent" to NFRC certification. NFRC is the standard-setting organization designated by Congress to rate residential and commercial fenestration, and NFRC labels are well-understood and widely used by all major manufacturers. A single, consistent standard that applies to all fenestration will simplify compliance and promote quality building. Recognizing that any of the recommended standards represent an improvement in energy efficiency, we have also added the flexibility of an area-weighted average – something not available in the 2008 NGBS fenestration requirements. The proposal also provides one additional table of "enhanced fenestration values" for additional points. Given the improvement in the 2012 IECC, it would not make sense to propose two additional "for points" tables in the NGBS. The values in the enhanced table represent roughly a 10% improvement in efficiency requirements – a moderate improvement consistent with the 10% improvement in fenestration efficiency required by the International Green Construction Code for commercial construction. If the Committee decides that the 2009 IECC should be the baseline for the prescriptive compliance path, then we recommend adopting the 2012 IECC table as the first set of enhanced requirements for points, followed by an additional enhanced fenestration table. This scenario is outlined in "Option 2" below.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

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 are in accordance with Table 703.1.6.1. Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

Committee Reason: Options 1 and 2 are rejected as follows:

Option 1: The baseline is the 2009 IECC.

Option 2: This makes the first tier of points above ENERGY STAR and the intent is that these align with the ENERGY STAR.

Staff Note: The term "equivalent" is preserved because NFRC is a proprietary certification program. It is inappropriate to reference sole-source services in the Standard as the only compliance option.

PC113	LogID 824	703.1.6.1 Fenestration Specifications
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **703.1.6.1** NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and

tubular day lighting devices (TDDs) are in accordance with Table 703.1.6.1. Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m2) or 10percent of the total glazing area, whichever is less, are not required to comply with this practice.

Table 703.1.6.1:Fenestration Specifications

Climate Zones	U-Factor	SHGC
1	0.65	0.25 -0.30
2	0.40 0.65-	0.25 -0.30-
3	0.35 0.40	0.25 0.30-
4-8	0.32 -0.35	Any
Skylights and TDDs		
1 and 2	0.65 0.75-	0.30
3	0.55 0.65-	0.30
4-8	0.55 -0.60-	0.40 Any
5-8	0.55	Any

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC is the base code of the Standard. The current minimum fenestration specifications in Table 703.1.6.1 are consistent with the 2009 IECC.

PC114 LogID 837 703.1.6.1 Fenestration Specifications

Submitter: Craig Conner, Building Quality

Public Comment: Add new text after existing text in 703.1.6.1 as follows:

There is no SHGC minimum where simulation analysis of the proposed design shows that a higher SHGC would reduce energy use. There is no SHGC requirement for any glazing which changes SHGC and which is controlled by automated controls.

Reason: There are designs where a higher SHGC saves energy, or where a higher SHGC on a specific orientation saves energy. Dynamic glazing that can adapt to use the higher and lower SHGC as appropriate could save more energy than either high or low SHGC.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The first sentence is withdrawn by proponent (at the Consensus Committee meeting in Washington, DC in February of 2012).

Public comment does not specify a metric for SHGC for dynamic glazing.

PC115 LogID 601 703.1.6.2 Enhanced Fenestration Specifications

Submitter: Nils Petermann, Alliance to Save Energy

Public Comment: **Table 703.1.6.2(b)**
Enhanced Fenestration Specifications
Skylights and TDDs (maximum certified ratings):

Climate Zone 3: U-factor 0.50; SHGC ~~0.35~~0.30

Reason: The maximum SHGC for skylights in climate zone 3 as proposed in Table 703.1.6.2(b) exceeds the mandatory maximum SHGC for skylights in this climate zone as shown in Table 703.1.6.1. The enhanced SHGC specifications should be at least as stringent as the mandatory specifications.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: *Staff note: As part of the points update, Table 703.1.6.2(b) was simplified by combining windows and exterior doors with skylights and TDDs into a single fenestration group. The resulting specification for Climate Zone 3 is U-factor of 0.30 and SHGC of 0.25 for all fenestration types.*

PC116 LogID 642 703.1.6.2 Enhanced Fenestration Specifications

Submitter: John Gant, Glen Raven Inc

Public Comment: In proposed Table 703.1.6.2.a, the Zone 4 SHGC value should be "Any", in two places, and the footnote should be "4-8" rather than "5-8".

Reason: It is incorrect to assume that a reduced SHGC in Zone 4 is an improvement. Heating is more expensive than cooling in these areas, and so solar gain is good. Shading can be provided to provide control as needed beyond what any static window could ever provide.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The intent of Table 703.1.6.2(a) Enhanced Fenestration is to be equivalent with ENERGY STAR. Updating one number in the table would be inconsistent with the intent of the table.

PC117 LogID 822 703.1.6.2 Enhanced Fenestration Specifications

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: Delete tables 703.1.6.2 (a) and (b) and substitute one table as follows:

Table 703.1.6.2: Enhanced Fenestration Specifications

Climate Zones	U-Factor	SHGC
	<u>Windows and Exterior Doors</u> (maximum certified ratings)	
<u>1</u>	<u>0.65</u>	<u>0.25</u>
<u>2</u>	<u>0.35</u>	<u>0.25</u>
<u>3</u>	<u>0.32</u>	<u>0.25</u>
<u>4</u>	<u>0.32</u>	<u>0.30</u>
<u>5-8</u>	<u>0.32</u>	<u>N/R</u>
	<u>Skylights and TDDs</u> (Maximum certified ratings)	
<u>1-4</u>	<u>0.50</u>	<u>0.30</u>
<u>5-8</u>	<u>0.50</u>	<u>N/R</u>

Reason: To maintain validity as an above code program these values need to be adjusted to be consistent with an above-code option compared with values in the latest national mode code, the 2012 IECC.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC is the base code for the Standard. The two tables for points are based on ENERGY STAR (enhanced table a) and DOE window program specifications (enhanced table b), respectively.

PC118

LogID 619

703.2.6 Ground Source Heat Pump

Submitter: Robert Brown, WaterFurnace Int'l

Public Comment:

W-A = Water to Air ISO/AHRI 13256-1 GLHP
W-W= Water to Water ISO/AHRI 13256-2 GLHP

(1) W-A Open loop: = 16.2 EER / = 3.6 COP 20
W-W Open loop: = 16.0 EER / = 3.4 COP 20

(2) W-A Closed loop: = 14.1 EER / = 3.3 COP 20
W-W Closed loop: = 14.0 EER / = 2.8 COP 20

(3) Direct expansion: = 15.0 EER / = 3.5 COP 20

(4) W-A Any type (open, closed, direct expansion): = 24.18 EER / = 4.3 3.7 COP 30
W-W Any type (open, closed, direct expansion): = 15.7 EER / = 3.1 COP 30

(5) W-A Any type (open, closed, direct expansion): = 28.20 EER / = 4.8 4.0 COP 35
W-W Any type (open, closed, direct expansion): = 17.5 EER / = 3.2 COP 35

Reason: 1) Energy Efficiency levels are so high that certain sizes of equipment will be precluded from installation. For instance only a 3 ton geothermal unit can pass the criteria if the home requires a 5 ton what is the resolution? 2)EER/COP should be the average of Part Load and Full Load for capacity modulated equipment. 3)Efficiencies are too high to represent any cross section of product. Below I have detailed out that (4) represents essentially the top tier of single speed units with ECM fan motors in the full range of 1 thru 6 ton. (5) represents the top tier of dual or variable speed capacity units with ECM fan motors and is averaging the part load and full load efficiencies of the full line from 1-6 ton. 4) AHRI 13256-1 should be referenced for all water to air product, 13256-2 should be referenced for all water to water product. AHRI 870 should be referenced for all direct exchange product. 5) Significant differences between Water to Air and Water to Water product efficiencies and conditions. Each should be detailed out.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee There are GSHP with lower efficiency levels that qualify for points. The higher point allocations are
Reason: intended for GSHP with more stringent efficiency ratings.

PC119

LogID 817

703.3 Duct Systems

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **703.3.1** All space heating is provided by a system(s) that does not include air ducts. Electric resistance heating does not comply with this section.

Reason: Electric resistance heating does not meet the intention of this section.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee There are some good designs with small loads that can use the electric resistance heating. The
Reason: committee wants to preserve this flexibility.

PC120	LogID 658	703.3.4 Duct Leakage
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Submitter: Jamie Hager, Southern Energy Management

Public Comment: **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). The maximum leakage as a percent of the system design flow rate is in accordance with the following:

Reason: Clarification needed if duct leakage is measured as total leakage of the system or leakage outside of conditioned space?

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason: This is a good clarification.

PC121	LogID 826	703.3.4 Duct Leakage
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Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: **703.3.4 Duct Leakage.** The entire central HVAC duct system, including air handlers and register boots, is tested by a third party for leakage at a pressure differential of 0.1 inches w.g. (25 Pa). The maximum leakage as a cfm per 100 square feet ~~percent of the system design flow rate~~ is in accordance with the following:

(1) ~~6 percent~~ 2 cfm for ductwork entirely outside the building's thermal envelope

(2) ~~6 percent~~ 3 cfm for ductwork entirely inside the building's thermal envelope

(3) ~~6 percent~~ 2 cfm for ductwork both inside and outside the building's thermal envelope

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable. Testing needs to be mandatory and points shall be given for above code performance.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 2009 IECC is the base code for the Standard. Also, the committee prefers the current method for measuring duct leakage as it is commonly used by raters and is more recognized.

PC122	LogID 741	703.5.3 Appliances
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Submitter: Susan Gitlin, US Environmental Protection Agency

Public Comment:

Reason: This section awards points for the installation of ENERGY STAR® or equivalent refrigerators, dishwashers, and washing machines. For refrigerators, proper disposal of old units should also be a factor. Taking old, inefficient refrigerators, freezers, window air conditioners and dehumidifiers off the grid contributes measurable energy savings. Replacing an older appliance with a new ENERGY STAR® unit can save more than 700 kilowatt-hours (kWh) per year. By saving energy, residents also save money: removing an energy-inefficient appliance translates to savings of more than \$140 per year per household. Reduced electricity generation brings down the emissions of some criteria air pollutants, resulting in improved air quality and increased environmental and health benefits for communities.

Committee Action **Reject**

from Meeting:
Modification of
Public Comment:

Committee Reason: There are points for the efficiency of the refrigerator in Chapter 7. However, the disposal of appliances is not an energy efficiency related issue and it does not apply to the energy chapter for new construction. Chapter 10 addresses building owner's manual which can include information on local recycling programs.

PC123 LogID 611 703.6 Passive solar design

Submitter: Curtis L Biggar, Biggar Dev Ltd

Public Comment:

Reason: I have over 50 years experience in passive design including the AIA passive studio in 1980. Many of my work employees octagonal floor plans allowing the sun to enter the interior space in the morning & in the afternoon. This increases the solar gain substantially. I also use transoms above the south glass from 2'high up to complete 2 story spaces. This is done with in-floor heat coils. I also use natural lighting & ventilation with vertical glass on the sides of cupolas or clerestory windows above halls ways electrically or pole operated. This eliminates air conditioning in Wisconsin. & should be considered natural whole house ventilation. I believe the remodeling chapter should also address passive solar additions & the other features above. I am pleased with the quality of the original standard & the changes being proposed. These additions could be under special points initiatives because of the lack of passive information available. Please check out my website @ WWW.CURTISLBIGGARARCHITECT.COM & check out my green page. Curtis L Biggar Architect/CGP
(Staff note: Due to its size, additional information provided with this public comment is posted at www.nahbrc.com/ngbs in a separate file titled Attachments.)

Committee Action from Meeting: **Reject**
Modification of
Public Comment:

Committee Reason: Passive design is covered in the Standard prescriptively (Section 703.6) or it can be modeled in greater detail using the performance path (Section 702).

PC124 LogID 608 704.2 Lighting

Submitter: Chris Allison, City of Longmont

Public Comment: Should points only be awarded if they exceed the code minimum of 50%?

Reason: Change this section to reflect that more than 50% of the hard-wired lighting fixtures or bulbs in those fixtures qualify as high efficacy to gain compliance with this section.

Committee Action from Meeting: **Reject**
Modification of
Public Comment:

Committee Reason: Section 704.2 awards points for occupancy sensors for lighting. Section 701.4.4 High Efficacy Lighting under Mandatory Practices includes the 50% hardwired lighting requirement. The revised Section 703.5.1 awards points for hardwired lighting above the 50% threshold. Points for high efficacy lighting above the 50% performance can also be obtained in the performance path.

PC125 LogID 663 704.5.2.1 Building envelope leakage testing

Submitter: Jamie Hager, Southern Energy Management

Public Comment: Delete this item entirely

Reason: Revise Item 703.1.5 to include 3rd Party testing and then 704.5.2.1 Building envelope leakage could just be deleted as it adds confusion and seems like double dipping with points. Points are not lost to Performance Pathway projects as infiltration testing to determine the savings levels above the IECC is

usually performed by a 3rd party.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The intent is to award points for testing and encourage third-party testing. The Standard differentiates between installation (Section 703.1.5) and testing/verification (Section 704.5.2). In Section 704, points are awarded to encourage testing.

PC126	LogID 762	704.5.3 Insulating hot water pipes
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Submitter: Gary Klein, Affiliated International Management, LLC

Public Comment: Move to be a section within Section 703.4 Water Heating

Reason: The content of the section is fine. However, since it is about water heating it would make sense for the pipe insulation to be in the water heating section.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The intent of the current location is to award points for insulating hot water pipes either under the performance or the prescriptive path. This practice must be located in Section 704 to enable use with the performance path.

PC127	LogID 764	704.5.3 Insulating hot water pipes
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Submitter: Gary Klein, Affiliated International Management, LLC

Public Comment: Revise the footnote to Table 704.5.3

Table 704.5.3
Maximum Pipe Run Length

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 the recirculation loop) to a point of use.

Reason: It seems useful to more clearly describe where the lengths in the table are to be measured from.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason:

PC128	LogID 814	705.1 Energy Consumption Control
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: **705.2 Renewable energy service plan.** Renewable energy service plan is provided as follows:
(1) Builder selects a renewable energy service plan provided by the local electrical utility for interim (temporary) electric service. The builder's local administrative office has renewable energy service. **2**
(2) The buyer of the building selects a renewable energy service plan provided by the utility prior to occupancy of the building with a minimum ~~two~~twenty year commitment. **5**

Reason: A two year commitment is extremely small in comparison to other energy savings measures. Either the time commitment should be altered or points altered.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: 20 years is too long of a commitment and two years is appropriate for achieving the intent of this practice.

PC129 LogID 816 705.5.1 Photovoltaic

Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: 705.5 Additional renewable energy options

705.5.1 Renewable Energy System is Photovoltaic panels are installed on the property (e.g., solar photovoltaic panels, building integrated photovoltaics, wind energy, on-site micro-hydro power, active solar space heating systems, solar thermal hydronic heating system, photovoltaic hybrid heating system). 1

(Points awarded per 100 W of system rating per 2,000 square feet of total conditioned floor area of the building.)

~~705.5.2 Other on-site renewable energy source is installed (e.g., wind energy, on-site micro-hydro power, active solar space heating systems solar thermal hydronic heating system, photovoltaic hybrid heating system). One-half (Points awarded per 100 W of system rating per 2,000 square feet of total conditioned floor area of the building.)~~

Reason: As long as renewable energy systems are producing the required 100W per sq/ft they should get the same amount of points. BIPV systems should be included in the list of systems.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC130 LogID 603 801.1 Indoor Hot Water Usage

Submitter: Dale Stroud, Uponor, Inc.

Public Comment: Allot points as follows:

3.a = 8 points

3.b = 1 point if a 1" line supplies the manifold; 2 points if a 3/4" line supplies the manifold. If the manifold supply line is less than 8 feet, double the points.

3.c = 6 points

Reason: The points awarded in this section are NOT proportional to the amount of water that is potentially wasted. For example, 3.a results in a theoretical waste of 4 cups and receives 6 points; 3.b could waste up to 17 cups (due to the 15 feet of supply to the manifold and the volume within the manifold body itself*) and receives 6 points; and 3.c could waste up to 6 cups and receives 8 points. *If the manifold is supplied with 1-inch PEX pipe that is 15 feet in length, approximately 7.3 cups is contained in the supply line. In addition, a typical manifold may contain 1.5 cups within its body. If a 3/4 inch line is used to supply the manifold (15 feet), that line contains about 4.4 cups.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Agree in principle. Rejected in favor of a modified version of PC131.

PC131 LogID 776 801.1 Indoor Hot Water Usage

Submitter: Gary Klein, Affiliated International Management, LLC

Public Comment: Please strike the entire section 801.1 Indoor hot water usage and Replace with the following:

Comment:

(1) Minimum Requirements

Piping must be sized in accordance with local plumbing code
Maximum length to fixture furthest from water heater is 80 feet
All hot waterlines must be insulated to at least R-4
More than one water heater is allowed
More than one hot water distribution zone is allowed

(2) The maximum volume from the water heater to the furthest fixture is 1 gallon
Points awarded 1

(3) The maximum volume from the water heater to the furthest fixture is 0.5 gallons
Points awarded 2

(4) The maximum volume from the water heater to the furthest fixture is 0.25 gallons
Points awarded 4

(5) A demand controlled hot water priming pump is installed on the trunk line and the maximum volume from the trunk line to the furthest fixture is 0.125 gallons (0.19 gallons for island, peninsula and under-window kitchen sinks when foundation is slab-on-grade)
Points awarded 8

When the volume in the trunk line to the branch for the furthest fixture is no more than 1 gallon
Additional points 1

(6) Add to each hot water distribution system credit when a water heater with at least 0.5 gallon of storage is installed. The storage may be internal or external to a tankless water heater. Tankless water heaters that ramp up to at least 110F within 5 seconds do not need storage.
Points awarded 1

Reason: The existing language is imprecise and the points awarded are internally inconsistent. In particular, the points should be awarded relative to the amount of water wasted while waiting for the hot water to arrive for each "cold start" event and for subsequent "hot start" events where the trunk or the branch to the fixture is already hot. (3) (a) allows 4 cups from the source to the use. (3) (b) allows 15 feet from the water heater to the manifold and an additional 8 cups from the manifold to the use. The 15 feet can be either 3/4 or 1 inch so the volume is between 5 and 8 cups, including the volume in the manifold. Total for this method is 13-16 cups. Both 3a and 3b are awarded the same number of points in the existing language. (3) (c) allows a maximum of 6 cups and is awarded 8 points. (3) (d) allows a maximum of 8 cups from the manifold to the uses. Points are currently TBD (4) (a) the language for the location of a tankless water heater does not take into account that the unit needs to be closer to the fixtures it serves than the water is wastes while ramping up to temperature. (4) (b) has language on demand pumps that more properly belongs in the Energy chapter under water heating, as the content is about energy, not water. This proposal awards points based on reducing the volume of water in the piping from the source of hot water to the uses. The system that reduces the waste the most gets the most points. Additional points have been proposed when the volume in the trunk line is reduced for demand circulation systems and when the water heater starts out with hot water or can ramp up to full temperature within 5 seconds. This recognizes that tankless water heaters run cold water through them as they ramp up to temperature. This water runs down the drain and is additional to the water in the hot water piping that must also run down the drain before the hot water can arrive a fixture. It is important to correlate this section with the section in Energy on insulating hot water pipes. I am willing to assist with this.
(Staff note: Due to its size, additional information provided with this public comment is posted at www.nahbrc.com/ngbs in a separate file titled Attachments.)

Committee Accept as Modified

Action from Meeting:

Modification of Public

Comment: Delete section 801.1 in its entirety and replace with the following:

<p>801.1 Indoor hot water usage</p> <p>801.1.1 Indoor hot water supply system is in accordance with one of the practices listed in items (1) through (5). The maximum length from the source of hot water to the termination of the fixture supply is determined in accordance with Tables 801.1(1) or 801.1(2), or 50 feet whichever is less.</p> <p><u>(Where more than one water heater is used or where more than one type of hot water supply system, including multiple circulation loops, is used, points are awarded based on the system that qualifies for the minimum number of points.)</u></p> <p><u>(Systems with circulation loops are eligible for points only if pumps are demand controlled. Circulation systems with timers or aquastats and constant-on circulation systems are not eligible to receive points.)</u></p> <p><u>(Points for multiple systems are not additive.)</u></p> <p><u>(The points are awarded only if the pipes are insulated in accordance with Section 704.5.3.)</u></p>	
(1) The maximum volume from the water heater to the termination of the fixture supply at furthest fixture is 128 ounces (1 gallon or 3.78 liters)	11
(2) The maximum volume from the water heater to the termination of the fixture supply at furthest fixture is 64 ounces (0.5 gallon or 1.89 liters)	17
(3) The maximum volume from the water heater to the termination of the fixture supply at furthest fixture is 32 ounces (0.25 gallon or 0.945 liters)	29
(4) A demand controlled hot water priming pump is installed on the main supply pipe of the circulation loop and the maximum volume from this supply pipe to the furthest fixture is 24 ounces (0.19 gallons or 0.71 liters)	35
(a) The volume in the circulation loop (supply) from the water heater or boiler to the branch for the furthest fixture is no more than 128 ounces (1 gallon or 3.78 liters).	4 Additional Points
(5) A central hot water recirculation system is implemented in multi-unit buildings in which the hot water line distance from the recirculating loop to the engineered parallel piping system (i.e., manifold system) is less than 30 feet (9144 mm) and the parallel piping to the fixture fittings contains a maximum of 64 ounces (1.89 liters) (115.50 cubic inches) (0.50 gallons).	9
(6) Tankless water heater(s) with at least 0.5 gallon (1.89 liters) of storage are installed or a tankless water heater that ramps up to at least 110F within 5 seconds is installed. The storage may be internal or external to the tankless water heater.	4 Additional Points

**Table 801.1(1)
Maximum Pipe Length (ft.)**

		<u>Main, Branch and Fixture Supply Systems</u>	<u>Branch and Fixture Supply from Circulation Loop</u>
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<u>Nominal Pipe Size (inch)</u>	<u>Liquid Ounces per Foot of Length</u>	<u>128 ounces (1 gallons)</u>	<u>64 ounces (0.5 gallon)</u>	<u>32 ounces (0.25 gallon)</u>	<u>24 ounces (0.19 gallon)</u>
<u>1/4^b</u>	<u>0.33</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>50</u>
<u>5/16^b</u>	<u>0.5</u>	<u>50</u>	<u>50</u>	<u>50</u>	<u>48</u>
<u>3/8^b</u>	<u>0.75</u>	<u>50</u>	<u>50</u>	<u>43</u>	<u>32</u>
<u>1/2</u>	<u>1.5</u>	<u>50</u>	<u>43</u>	<u>21</u>	<u>16</u>
<u>5/8</u>	<u>2</u>	<u>50</u>	<u>32</u>	<u>16</u>	<u>12</u>
<u>3/4</u>	<u>3</u>	<u>43</u>	<u>21</u>	<u>11</u>	<u>8</u>
<u>7/8</u>	<u>4</u>	<u>32</u>	<u>16</u>	<u>8</u>	<u>6</u>
<u>1</u>	<u>5</u>	<u>26</u>	<u>13</u>	<u>6</u>	<u>5</u>
<u>1 1/4</u>	<u>8</u>	<u>16</u>	<u>8</u>	<u>4</u>	<u>3</u>
<u>1 1/2</u>	<u>11</u>	<u>12</u>	<u>6</u>	<u>3</u>	<u>2</u>
<u>2</u>	<u>18</u>	<u>7</u>	<u>4</u>	<u>2</u>	<u>1</u>

a. Maximum pipe length figures apply when the entire pipe run is one nominal diameter only. Where multiple pipe diameters are used, the combined volume shall not exceed the volume limitation in Section 801.1

b. The maximum flow rate through 1/4 inch nominal piping shall not exceed 0.5 gpm. The maximum flow rate through 5/16 inch nominal piping shall not exceed 1 gpm. The maximum flow rate through 3/8 inch nominal piping shall not exceed 1.5 gpm.

Table 801.1(2)
Common Hot Water Tubing Internal Volumes

OUNCES OF WATER PER FOOT OF TUBE									
<u>Size Nominal, Inch</u>	<u>Copper Type M</u>	<u>Copper Type L</u>	<u>Copper Type K</u>	<u>CPVC CTS SDR 11</u>	<u>CPVC SCH 40</u>	<u>CPVC SCH 80</u>	<u>PE-RT SDR 9</u>	<u>Composite ASTM F 1281</u>	<u>PEX CTS SDR 9</u>
<u>3/8"</u>	<u>1.06</u>	<u>0.97</u>	<u>0.84</u>	<u>N/A</u>	<u>1.17</u>	<u>N/A</u>	<u>0.64</u>	<u>0.63</u>	<u>0.64</u>
<u>1/2"</u>	<u>1.69</u>	<u>1.55</u>	<u>1.45</u>	<u>1.25</u>	<u>1.89</u>	<u>1.46</u>	<u>1.18</u>	<u>1.31</u>	<u>1.18</u>
<u>3/4"</u>	<u>3.43</u>	<u>3.22</u>	<u>2.9</u>	<u>2.67</u>	<u>3.38</u>	<u>2.74</u>	<u>2.35</u>	<u>3.39</u>	<u>2.35</u>
<u>1"</u>	<u>5.81</u>	<u>5.49</u>	<u>5.17</u>	<u>4.43</u>	<u>5.53</u>	<u>4.57</u>	<u>3.91</u>	<u>5.56</u>	<u>3.91</u>
<u>1 1/4"</u>	<u>8.7</u>	<u>8.36</u>	<u>8.09</u>	<u>6.61</u>	<u>9.66</u>	<u>8.24</u>	<u>5.81</u>	<u>8.49</u>	<u>5.81</u>
<u>1 1/2"</u>	<u>12.18</u>	<u>11.83</u>	<u>11.45</u>	<u>9.22</u>	<u>13.2</u>	<u>11.38</u>	<u>8.09</u>	<u>13.88</u>	<u>8.09</u>
<u>2"</u>	<u>21.08</u>	<u>20.58</u>	<u>20.04</u>	<u>15.79</u>	<u>21.88</u>	<u>19.11</u>	<u>13.86</u>	<u>21.48</u>	<u>13.86</u>

Committee The modification further develops and clarifies the public comment and reallocates point assignments
Reason: based on additional analysis approved by the committee.

PC132 LogID 682 801.4 Showerheads

Submitter: Robert Hill, NAHB Research Center

Public Comment: **801.4 Showerheads.** Showerheads are in accordance with the following:

(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 2.5 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.

(Points awarded per shower compartment. In multi-unit buildings, a weighted average of bathrooms is used to calculate the number of points available for this practice (rounded down to a whole number.))

~~(2) All showerheads-shower compartments in the dwelling unit and common areas meet the requirements of 801.4(1).~~

~~(Points awarded per shower compartment based on 801.4(2)(a) or 801.4(2)(b).)~~

Reason: The NGBS already recognizes that multi-unit buildings should not be limited in the ability to earn points because the building contains units of various sizes. Practice 601.1 allows the use of a weighted average for determining the conditioned area. It is reasonable to extend that approach to water saving fixtures. Awarding additional points for on a per shower compartemnt basis seems unusual since the vast majority of shower compartments have only one showerhead. It is more important to make all shower compartments in the building comply.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Agree with intent. Reject in favor of PC133.
Reason:

PC133	LogID 682'	801.4 Showerheads
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **801.4 Showerheads.** Showerheads are in accordance with the following:

(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 2.5 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.

(Points awarded per shower compartment. In multi-unit buildings, a weighted average of bathrooms is used to calculate the number of points available for this practice (rounded down to a whole number.))

~~(2) All showerheads-shower compartments in the dwelling unit and common areas meet the requirements of 801.4(1).~~

~~(Points awarded per shower compartment based on 801.4(2)(a) or 801.4(2)(b).)~~

Reason: The NGBS already recognizes that multi-unit buildings should not be limited in the ability to earn points because the building contains units of various sizes. Practice 601.1 allows the use of a weighted average for determining the conditioned area. It is reasonable to extend that approach to water saving fixtures. Awarding additional points for on a per shower compartemnt basis seems unusual since the vast majority of shower compartments have only one showerhead. It is more important to make all shower compartments in the building comply.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

801.4 Showerheads. Showerheads are in accordance with the following:

(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 2.5 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.

(Points awarded per shower compartment. In multi-unit buildings, a weighted the average of points assigned to bathrooms is individual dwelling units may be used asto calculate the number of points available for this practice (rounded down to athe nearest whole number).)

(2) All showerheads-shower compartments in the dwelling units and common areas meet the requirements of 801.4(1).

(Points awarded per shower compartment based on 801.4(2)(a) or 801.4(2)(b).)

Committee Reason: Clarification of rounding method. Editorial revision of the averaging method language.

PC134	LogID 830	801.4 Showerheads
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Submitter: Mark Dyer, DCI Homes Inc

Public Comment: See above

Reason: This question came about because of the loss of a high scoring emerald opportunity because a mandatory item that should not apply to the house that I am building based on the fact that it is a well and septic home. I am not sure where this is in this section and am out of time to look this up. please forgive the non direct request for change on the subject. Somewhere in the sections shower heads and water closets one is forced to use low flow toilets and faucets manditorally or they can not receive an emerald level of certification. I think this should only be mandatory for houses that are located in and using city water and sewer. The intent is to reduce the amount of energy used in providing water and cleaning sewage. This is not the case in houses on property using soley well and septic. In the case of well and septic usage. The water comes from the ground and goes directly back into the ground. Maybe if there is no mandatory change for other reasons not listed than maybe there could be other points listed for well and septic usage because of the energy saved by not using city water and sewage. I however, would love to receive an emerld level on this home but can not because a mandatory item that should not apply in this houses case.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: The intent is to reduce the amount of water (and the energy involved in hot water) used regardless of the source. Water conserving fixtures and other measures, regardless of the source, should get the points.

PC135	LogID 683	801.5 Faucets
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **801.5.1** Water-efficient lavatory faucets with 1.5 gpm (5.68 L/m) or less maximum flow rate when tested at 60 psi (414 kPa) in accordance with ASME A112.18.1 are installed:

(1) a bathroom (all faucets in a bathroom are in compliance)

(Points awarded for each bathroom. In multi-unit buildings, a weighted average of bathrooms is used to calculate the number of points available for this practice (rounded down to a whole number).)

(2) all lavatory faucets in the dwelling unit and common areas

Reason: The NGBS already recognizes that multi-unit buildings should not be limited in the ability to earn points because the building contains units of various sizes. Practice 601.1 allows the use of a weighted average for determining the conditioned area. It is reasonable to extend that approach to water saving fixtures.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: Agree with intent. Reject in favor of PC136.

PC136	LogID 683'	801.5 Faucets
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **801.5.1** Water-efficient lavatory faucets with 1.5 gpm (5.68 L/m) or less maximum flow rate when tested at 60 psi (414 kPa) in accordance with ASME A112.18.1 are installed:
(1) a bathroom (all faucets in a bathroom are in compliance)
(Points awarded for each bathroom. In multi-unit buildings, a weighted average of bathrooms is used to calculate the number of points available for this practice (rounded down to a whole number).)
(2) all lavatory faucets in the dwelling unit and common areas

Reason: The NGBS already recognizes that multi-unit buildings should not be limited in the ability to earn points because the building contains units of various sizes. Practice 601.1 allows the use of a weighted average for determining the conditioned area. It is reasonable to extend that approach to water saving fixtures.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

801.5.1 Water-efficient lavatory faucets with 1.5 gpm (5.68 L/m) or less maximum flow rate when tested at 60 psi (414 kPa) in accordance with ASME A112.18.1 are installed:
(1) a bathroom (all faucets in a bathroom are in compliance)
(Points awarded for each bathroom. In multi-unit buildings, a weighted the average of points assigned to bathrooms is individual dwelling units may be used asto calculate the number of points available for this practice (rounded down to athe nearest whole number).)

(2) all lavatory faucets in the dwelling unit and common areas

Committee Clarification of rounding method. Editorial revision of the averaging method language.
Reason:

PC137	LogID 684	801.6 Water closets and urinals
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **801.6 Water closets and urinals.** Water closets and urinals are in accordance with the following:
(1) Gold and emerald levels: All water closets and urinals are in accordance with Section 801.6.
(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 (all water closets) or when tested in accordance with ASME A112.19.14 (all dual flush water closets), and is in accordance with EPA WaterSense *Tank-Type High-Efficiency Toilet*, or
(Points awarded per fixture. In multi-unit buildings, a weighted average of fixtures per unit is used to calculate the number of points available for this practice (rounded down to a whole number))
(3) All water closets are in accordance with Section 801.6(2).
(a) Dual flush (or other) water closets are used that have a flush volume of 1.2 gallons or less and comply with 801.6(2); and all other water closets comply with 801.6(2).
(Points awarded per toilet In multi-unit buildings, a weighted average of fixtures per unit is used to calculate the number of points available for this practice (rounded down to a whole number))

Reason: The NGBS already recognizes that multi-unit buildings should not be limited in the ability to earn points because the building contains units of various sizes. Practice 601.1 allows the use of a weighted average for determining the conditioned area. It is reasonable to extend that approach to water saving fixtures.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Agree with intent. Reject in favor of PC138.
Reason:

PC138	LogID 684'	801.6 Water closets and urinals
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **801.6 Water closets and urinals.** Water closets and urinals are in accordance with the following:
(1) Gold and emerald levels: All water closets and urinals are in accordance with Section 801.6.
(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 (all water closets) or when tested in accordance with ASME A112.19.14 (all dual flush water closets), and is in accordance with EPA WaterSense *Tank-Type High-Efficiency Toilet*, or
(Points awarded per fixture. In multi-unit buildings, a weighted average of fixtures per unit is used to calculate the number of points available for this practice (rounded down to a whole number))
(3) All water closets are in accordance with Section 801.6(2).
(a) Dual flush (or other) water closets are used that have a flush volume of 1.2 gallons or less and comply with 801.6(2); and all other water closets comply with 801.6(2).
(Points awarded per toilet. In multi-unit buildings, a weighted average of fixtures per unit is used to calculate the number of points available for this practice (rounded down to a whole number))

Reason: The NGBS already recognizes that multi-unit buildings should not be limited in the ability to earn points because the building contains units of various sizes. Practice 601.1 allows the use of a weighted average for determining the conditioned area. It is reasonable to extend that approach to water saving fixtures.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

801.6 Water closets and urinals. Water closets and urinals are in accordance with the following:
(1) Gold and emerald levels: All water closets and urinals are in accordance with Section 801.6.
(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 (all water closets) or when tested in accordance with ASME A112.19.14 (all dual flush water closets), and is in accordance with EPA WaterSense *Tank-Type High-Efficiency Toilet*, or
(Points awarded per fixture. ~~In multi-unit buildings, a weighted the average of fixtures per unit is points assigned to individual dwelling units may be used to calculate as the number of points available for this practice (rounded down to a the nearest whole number.)~~)
(3) All water closets are in accordance with Section 801.6(2).
(a) Dual flush (or other) water closets are used that have a flush volume of 1.2 gallons or less and comply with 801.6(2); and all other water closets comply with 801.6(2).
(Points awarded per toilet. ~~In multi-unit buildings, a weighted the average of fixtures per unit is points assigned to individual dwelling units may be used to calculate as the number of points available for this practice (rounded down to a the nearest whole number.)~~)

Committee Clarification of rounding method. Editorial revision of the averaging method language.
Reason:

PC139	LogID 720	801.7.1 High DU rotating spray heads
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Submitter: Brent Mecham, Irrigation Association

Public Comment: ~~**801.7.1 High-Distribution Uniformity (DU) rotating spray heads are installed in lieu of spray heads for turf or landscaping.**~~ Multi-stream, multi-trajectory rotating nozzles are installed in lieu of spray nozzles for turf or landscaping.

Reason: Use correct generic term for nozzle

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:
Committee
Reason:

PC140 LogID 716 801.7.3 Landscape plan and implementation

Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: Points should be had for self-sustaining landscaping.

Reason: A self-sustaining landscape helps to reduce water consumption. Hawaii has many indigenous plants that do not require a lot of water.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee A self-sustaining landscape does not require irrigation. Points are already awarded for no irrigation
Reason: system in Section 801.7.5(3). Awarding points would be redundant and is not necessary.

PC141 LogID 721 801.7.2 Drip irrigation zones

Submitter: Brent Mecham, Irrigation Association

Public Comment: ~~801.7.2 Drip Irrigation installed for each landscape type. 8 points~~ Drip Irrigation installed for: landscape beds 4 points subsurface drip for turfgrass areas. 4 points

Reason: provide credit for using in shrub beds only and additional credit if used for turf areas

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

~~801.7.2 Drip Irrigation installed for each landscape type.~~ Drip irrigation is installed. 8 Points Max
(1) Drip irrigation is installed for landscape beds. 4
(2) Subsurface drip is installed for turf grass areas. 4

Committee The maximum of 8 points is retained.
Reason:

PC142 LogID 685 801.7.5 Irrigation System Smart Controller

Submitter: Robert Hill, NAHB Research Center

Public Comment: ~~801.7. 5 The irrigation system(s) is controlled by a smart controller.
(Points for 801.7.4(3) are not additive with points for 801.7.4(a) or 801.7.4(b).)~~

Reason: Practices 801.7.4(3), 801.7.4(a), and 801.7.4(b) do not exist in the draft standard.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

~~801.7. 5 The irrigation system(s) is controlled by a smart controller.
(Points for 801.7.45(3) are not additive with points for 801.7.45(a1) or 801.7.45(b2).)~~

Committee Editorial coordination based on the updated section numbering.
Reason:

PC143 LogID 609 901.1 Space and Water Heating Options

Submitter: Chris Allison, City of Longmont

Public Comment: This item should reference the International Fuel Gas Code (IFGC).

Reason: This item should reference the International Fuel Gas Code (IFGC) to avoid confusion.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

901.1.4 Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the National Fuel Gas Code or International Fuel Gas Code or the applicable local gas appliance installation code. Gas-fired fireplaces and direct heating equipment are vented to the outdoors.

Committee Add IFGC to Section 901.1.4 as an option.

Reason:

PC144	LogID 688	901.1.1 Natural draft furnaces, boilers, or water heaters
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **901.1.3** The following ~~combustion~~ space heating and or water heating equipment is installed ~~within conditioned space~~ as follows: (points awarded for only 1 practice for heating systems and for water heaters).

(1) all ~~direct vent~~ furnaces or all boilers **5**

(a) power vent furnace(s) or boiler(s) are in conditioned space **TBD**

(b) direct vent furnace(s) or boiler(s) are in conditioned space **5**

(c) Natural draft furnaces and boilers are not located in conditioned spaces, including conditioned crawlspaces. Natural draft furnaces, boilers and water heaters are permitted to be installed within the conditioned spaces if located in a mechanical room that has an outdoor air source, and is otherwise sealed and insulated to separate it from the conditioned space(s).

(2) all water heaters

(a) power vent water heater(s) are in conditioned space **3**

(b) direct vent water heater(s) are in conditioned space

(c) Natural draft water heaters are not located in conditioned spaces, including conditioned crawlspaces. Natural draft water heaters are permitted to be installed within the conditioned spaces if located in a mechanical room that has an outdoor air source, and is otherwise sealed and insulated to separate it from the conditioned space(s).

(3) all heat pump air handlers are installed in

_____ **(a)** unconditioned space

_____ **(b)** conditioned space

Reason: Suggest deleting 901.1.1 and incorporating the idea in 901.1.3. There is often confusion with both builders and verifiers trying to claim points for 901.1.1 for not having natural draft equipment in conditioned space when they do not have any natural draft equipment. Often times they also claim points for not having natural draft equipment and also points for having a heat pump. The old 901.1.1 and 901.1.4 should be combined into one practice that awards points for the appropriate system but does not allow for this confusion.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

901.1.1 Natural draft furnaces, boilers or water heaters are not located in conditioned spaces, including conditioned crawlspaces. Natural draft furnaces, boilers and water heaters are permitted to be installed within the conditioned spaces if located in a mechanical room that has an outdoor air source, and is otherwise sealed and insulated to separate it from the conditioned space(s).

(Points are awarded only for buildings that use combustion space and/or water heating equipment.)

Committee Rejecting the proponent's wording, however, include a points note to Section 901.1.1 to address this
Reason:

issue.

PC145 LogID 763 901.1.1 Natural draft furnaces, boilers, or water heaters

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment: ~~901.1.1 Natural draft space heating or water heating equipment furnaces, boilers or water heaters are~~ not located in conditioned spaces, including conditioned crawlspaces. Natural draft furnaces, boilers and water heaters are equipment is permitted to be installed within the conditioned spaces if located in a mechanical room that has an outdoor air source, and is otherwise sealed and insulated to separate it from the conditioned space(s). ~~5-Mandatory~~

Reason: The above provisions are recommended to be mandatory for life safety reasons. As we build to tighter standards that are encouraged in this document, combustion safety needs to be prioritized. Tying these particular provisions to points implies that they are optional and not as critical as other mandatory practices. The same life-safety recommendation applies to 901.1.3, 901.1.4, 901.1.5, and 901.2.1. These should be mandatory practices where these appliances are used.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Compliance with the minimum codes per section 901.1.4 provides for safe equipment operation.

Reason: Natural draft equipment can be installed in homes of different tightness and can operate safely.

PC146 LogID 651 901.1.4 Gas fireplaces and direct heating equipment vented outdoors

Submitter: Don Denton, Vent-Free Gas Products Alliance Section

Public Comment: **901.1.4** Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the National Fuel Gas Code or the applicable local gas appliance installation code. ~~Gas-fired fireplaces and direct heating equipment are vented to the outdoors.~~

Reason: Section should be revised to allow unvented gas-fired fireplaces. They are green as a result of high efficiency and clean combustion. No other gas product permitted by the NGBS has as high an efficiency. Numerous independent, peer-reviewed, research projects have documented that national indoor air quality guidelines for carbon monoxide, carbon dioxide, nitrogen dioxide, oxygen, and water vapor are met. The products' safety record is outstanding and without peer, with 20 million units installed in American homes over the last 30 years. No technical justification exists for excluding them. The products are accepted by the major applicable codes.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Given the air tightness of green homes, unvented appliances should not be installed.

Reason:

PC147 LogID 694 901.1.4 Gas fireplaces and direct heating equipment vented outdoors

Submitter: kenneth belding, empire comfort systems

Public Comment: 901.1.4 Gas-fired fireplaces and direct heating equipment is listed and is installed in accordance with the National Fuel Gas Code or the applicable local gas appliance installation code. ~~Gas-fired fireplaces and direct heating equipment are vented to the outdoors.~~ Gas-fired unvented direct heating equipment must comply with ANSI Standard Z.21.11.2.

Reason: Section 901.1.4; delete, "Gas fired fireplaces and direct heating equipment are vented to the outdoors." Substitute with, "Gas fired unvented direct heating equipment must comply with ANSI Standard Z.21.11.2." My company manufactures and markets vented and vent free direct heating products. We have manufactured vented direct heating products for almost 80 years and the first company to certify

vent free products almost 30 years ago. Empire has many competing companies manufacturing and marketing vented and vent free as well. The track record for vent free products, relative to emissions, is outstanding. Twenty-one million units have been installed in American homes over the past 30 years with proven performance and safety record. Of those, we have been fortunate enough to sell about 1 million units. I have been in charge of Empire's product liability department for 25 years and have not had a reported death or substantiated illness attributed to our vent free products due to emissions. All vent free products sold in the United States have been certified by agencies such as UL and CSA to an ANSI National Standard which includes the requirements for safety, performance, and construction. It is astounding the products approved to or by the National Center for Disease Control, World Health Organization, DOE, OSHA, EPA, and the CPSC are threatened by a code without any substantiated evidence which, in the end, keeps consumers from making the ultimate green choice. We would ask that you support this code proposal. Two primary criteria for being green: energy efficiency and indoor air quality. Energy efficiency: Vent free is more energy efficient than any gas or wood product allowed by the code; on a source basis, vent free is more energy efficient than any electric product allowed by the code. Indoor air quality: vent free complies with Federal IAQ guidelines as confirmed by independent scientific groups. The IGCC IAQ working group has never claimed that Federal IAQ guidelines are inadequate or defined what alternative IAQ guidelines would be acceptable. The code's current disallowance is based upon subjective impressions rather than objective analysis. CPSC staff has confirmed that no emissions related fatalities have ever occurred involving a vent free product. CSA, the Secretariat of the vent free national product standard, has acknowledged that vent free is arguably the safest gas product in existence. Since the beginning of the I-codes, vent free has always been accepted. Vent free performs better relative to IAQ as structures become tighter as confirmed by independent peer-reviewed research--both a unique and important attribute for green construction.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Given the air tightness of green homes, unvented appliances should not be installed.

PC148 outdoors	LogID 773	901.1.4 Gas fireplaces and direct heating equipment vented
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Submitter: Frank A. Stanonik, AHRI

Public Comment: Gas-fired fireplaces and direct heating equipment is listed and is installed in

accordance with the National Fuel Gas Code or the applicable local gas appliance installation code.
~~Gas-fired fireplaces and direct heating equipment are vented to the outdoors.~~

Reason: This sentence precludes the installation of a gas-fired vent free fireplace or heater in a "Green" home. This prohibition is unjustified and not technically supported. Green buildings include a variety of design and component features. Some of those features affect the ventilation rate of the house. There are several provisions that address the actual measurement of the air change rate of the home. Given that information, other parameters and the information found in the applicable installation code, a determination can be made as to what design features or components, if any, should be added to accommodate the installation of a gas-fired vent free heaters. As an example, if the natural air change rate is .35 per hour, then a properly sized, listed gas-fired vent free heater can be installed per the referenced installation code without any adverse effect on the indoor air quality. The deletion of this sentence does not promote the installation gas-fired vent-free heaters. It merely reflects the fact that millions of such products are being safely used in homes today. If a builder has chosen to include a gas-fired vent-free heaters in a "Green" home and has taken the steps to ensure that it is installed properly and will have an adequate supply of combustion air, there is no rational reason to dictate that such a home is automatically disqualified from carrying any level of "Green" designation. The choice should be left up to the builder. The standard does not limit the size, number or type of bathtubs and showers that can be provided in a Green home because of moisture concerns. Rather, it requires ventilation to address that moisture concern. The same approach should be applied to gas-fired vent-free heaters.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Given the air tightness of green homes, unvented appliances should not be installed.

PC149	LogID 778	901.1.5 Gas fireplaces power vented or direct vent vented
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Submitter: Gregg Achman, Hearth & Home Technologies

Public Comment: 901.1.5 Natural gas and propane fireplaces and direct heating equipment that are shall be power vented or direct vented and have permanently fixed glass fronts or gasketed doors, and comply with ANSI Z21.88/CSA 2.33, ~~or~~ ANSI Z21.50/CSA 2.22, or ANSI Z21.86/CSA2.32.

Reason: Section 901.1.4 refers to gas fired fireplaces and direct heating equipment, therefore, in section 901.1.5 where it is defining requirements and certification standards it should also address the certification standard used by direct heating equipment (ANSI Z21.86/CSA 2.32). Also, the wording for power venting and direct venting for gas fired fireplaces and direct heating equipment is consistent with requirements of section 901.1.3 for heating equipment installed within a conditioned space. The point scale for gas fireplaces and direct heating should be consistent with power vented and direct vented furnaces/boilers/water heaters in how they affect the indoor environmental quality.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: This section is intended only for fireplaces. The proposed language is outside the scope of this section.

PC150	LogID TG3-4	901.1.5 Natural gas and propane fireplaces
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Submitter: Randy Melvin (on behalf of Task Group 3), Winchester Homes

Public Comment: **901.1.5** Natural gas and propane fireplaces ~~that are power vented or direct vented~~, have permanently fixed glass fronts or gasketed doors, and comply with ANSI Z21.88/CSA 2.33 or ANSI Z21.50/CSA 2.22.

Reason: Points cannot be awarded for power vents for fireplaces with gasketed doors.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee Reason:

PC151	LogID 780	901.2.1 Fireplaces, inserts, stoves, and heaters
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Submitter: Gregg Achman, Hearth & Home Technologies

Public Comment: 901.2.1 (6) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA-certified. equipped with outside combustion air and a means of sealing the flue and the combustion air outlets to minimize interior air (heat) loss when not in operation.
Points = 4.

Reason: Add another category for factory built wood-burning fireplaces that are UL 127 certified but not EPA certified, but have outside air and a means of sealing the flue so as to minimize interior air (heat) loss when not in operation just like a site built masonry wood burning fireplace [901.2.1(1)]. There is no reason to allow one and not the other when outfitted properly they perform the same. This product would have the same point scale as the site built masonry wood burning fireplace of 4 points.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: It is appropriate to require EPA certification for factory-built fireplaces.

PC152 LogID 713 901.2.2 Not installed

Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: Point for not having fireplaces or woodstoves or equivalent in Hawaii.

Reason: This requirement ignores the mild climate of Hawaii.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The committee recognizes that this credit will be common in some areas of the country. The practice provides environmental benefit in those climate zones as well. Buildings without fireplaces in Hawaii are also eligible for these points.

PC153 LogID 723 901.5 Cabinets

Submitter: Josh Jacobs, GREENGUARD Environmental Institute

Public Comment: **901.5 Cabinets.** A minimum of 85 percent of installed kitchen and bath vanity cabinets are in accordance with KCMA ESP 04 (or equivalent) or CARB Composite Wood Air Toxic Contaminant Measure Standard or certified by a program such as but not limited to, those in Appendix D. **3**

Appendix D 901.5 Cabinets KCMA ESP 04

Reason: As the KCMA is a certification program that has added features on the base standard (CARB), it should be placed in appendix D with the other programs of the product emission section.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

901.5 Cabinets. A minimum of 85 percent of installed ~~kitchen and bath vanity cabinets are in accordance with KCMA ESP 04 (or equivalent) or CARB Composite Wood Air Toxic Contaminant Measure Standard.~~ cabinets are in accordance with one or any combination of the following: **3**

(Where more than one of the following practices is used, points are awarded based on the practice with the fewest number of points.)

901.5.1 Solid Wood or Non-Formaldehyde Emitting. If all parts of the cabinet are made of solid wood or non-formaldehyde emitting materials such as metal or glass. **5 points**

901.5.2 CARB Compliance. The composite wood used in wood cabinets are in accordance with CARB Composite Wood Air Toxic Contaminant Measure Standard or equivalent as certified by a program such as but not limited to, those in Appendix D. **3 points**

Appendix D
901.5 Cabinets KCMA ESP 04

Committee Reason: The modification was offered by the proponent. The practice is revised to better align with the format of other practices in this chapter.

PC154	LogID 689	901.6 Carpets
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Submitter: Robert Hill, NAHB Research Center

Public Comment: **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. **Mandatory**
- (2) A minimum of 10% of the conditioned floor space has carpet and at least 85 percent of installed carpet area, carpet cushion (padding), and carpet adhesives are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 when 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: This change requires a minimum amount of carpet in order to receive the points and is consistent with how hard surface flooring is now treated in the draft.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC155	LogID 729	Appendix D Examples of third-party programs for Chapter 9
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Submitter: Josh Jacobs, GREENGUARD Environmental Institute

Public Comment: 901.8 Architectural coatings
GREENGUARD Environmental Institute Children & Schools Certification Program
Scientific Certification Systems (SCS) Indoor Advantage Gold Program
Green Seal
EcoLogo

Reason: As we are referencing numerous different standards and compliance pathways for architectural coatings VOC content minimization, we should give manufacturers and builders options. The EcoLogo's certification program to their CCD -047 is internationally recognized through the Global EcoLabelling Network's membership and has around 2,000 products certified through it from large and small paint manufacturers. Similar to the currently referenced Green Seal, EcoLogo certifications looks at multiple areas for architectural coatings including performance, minimization of harmful chemicals (both to humans and to the environment), and VOC content minimization. Finally you will find the VOC content requirements equal to or below the requirements already called-out in the document.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*

Public Comment: Appendix D
901.8 Architectural coatings
GREENGUARD Environmental Institute Children & Schools Certification Program
Scientific Certification Systems (SCS) Indoor Advantage Gold Program
Green Seal-**11 Standard for Paints and Coatings**
EcoLogo **CCD-047**

Committee The modification includes an added level of specificity to two referenced programs.
Reason:

PC156	LogID 656	901.9 Architectural Coatings
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Submitter: Naveen Berry, SCAQMD

Public Comment: *Add new as follows:*

<u>COLORANT</u>	<u>Limit</u>
Architectural Coatings, excluding IM Coatings	50

Solvent-Based IM	600
Waterborne IM	50

Reason: Include a section on VOC limitations for colorants. Earlier this year, the SCAQMD Board adopted VOC limits for colorants added at the point of sale, since the addition of conventional colorants can add a significant amount of VOCs to a low-VOC coating. SCAQMD Rule 1113 section (c)(2), stipulates that the addition of colorants must not exceed the VOC limit of the corresponding coatings. At the point of manufacture, any colorant added is considered part of the overall VOC content of the coating. However, once the product reaches the retail or wholesale market, any colorant added at that point of sale is not considered as part of the total VOC of the product. Therefore, colorants are subject to their own VOC limits.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise Draft Standard as follows:*
Public Comment:

901.9 Architectural coatings. A minimum of 85 percent of the architectural coatings are in accordance with either Section 901.9.1 or Section 901.9.23, not both. A minimum of 85 percent of architectural colorants are in accordance with Section 901.9.2.

901.9.2 Architectural coating colorant additive VOC content added is in accordance with Table 901.9.2 1 point

(Points for 901.9.2 are awarded only if base architectural coating is in accordance with 901.9.1.)

Table 901.9.2
VOC content limits for colorants

COLORANT	Limit
Architectural Coatings, excluding IM Coatings	50
Solvent-Based IM	600
Waterborne IM	50

901.9.23 Site-applied interior products are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 when 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 found in Appendix D

Committee Accept as modified to be consistent with Table 909.1 to not exceed VOC limits. As this is an emerging
Reason: technology, added one point for this item to encourage use.

PC157	LogID 722	901.9 Architectural Coatings
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Submitter: Josh Jacobs, GREENGUARD Environmental Institute

Public Comment: (1) Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)

(2) GreenSeal GS-11 Standard for Paints and Coatings

(3) EcoLogo CCD-047 Architectural Surface Coatings

(3) (4) CARB *Suggested Control Measure for Architectural Coatings* (see Table 901.9.1).

Reason: As we are referencing numerous different standards and compliance pathways for architectural coatings VOC content minimization, we should give manufacturers and builders options. The EcoLogo's CCD-047 is a consensus developed standard, which is internationally recognized through the Global EcoLabelling Network's membership and has around 2,000 products certified to it. Similar to the currently referenced Green Seal-11, CCD-047 is a multi-attribute standard for architectural

coatings which focuses on performance, minimization of harmful chemicals (both to humans and to the environment), and VOC content minimization. Finally you will find the VOC content requirements equal to or below the requirements already called-out in the document.

Committee Action **Withdrawn**
from Meeting:

Modification of
Public Comment:

Committee Reason: Withdrawn by proponent during TG-3 conference call on January 19, 2012.

PC158	LogID 652	901.9.1 Site applied interior architectural coatings
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Submitter: Naveen Berry, SCAQMD

Public Comment: Table 901.9.1 VOC Content Limits For Architectural Coatings,

Non-Flats Coatings – ~~400~~ 50
Non-Flat High Gloss Coatings – ~~450~~ 50
Aluminum Roof Coatings – ~~400~~ 100
Concrete Curing Compounds – ~~350~~ 100

Floor Coatings – ~~400~~ 50
Industrial Maintenance Coatings – ~~250~~ 100

Rust Preventative Coatings – ~~250~~ 100

Tub and Tile Refinish Coatings – ~~420~~ 250

Waterproofing Membranes – ~~250~~ 100

Zinc-Rich Primers – ~~340~~ 100

Reason: Disagree with various VOC content limits for architectural coating categories. AQMD's Rule 1113 Architectural Coatings was recently amended on June 3, 2011. The following changes should be made to reflect the current R1113 VOC limits.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: The CARB limits are preferred by the committee for use in the NGBS. The decision to use the CARB limits included industry input.

PC159	LogID 818	901.9.1 Site applied interior architectural coatings
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: Delete section

Reason: This section is supposed to be related to site-applied architectural coatings however the requirements especially the table list many other items that are not architectural coatings. Also not all VOC's are hazardous. This section needs a lot of work. For now it should be deleted until better guidance can be developed.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Based on action on PC163. There is scientific data that these chemicals can be harmful to humans.

Reason: The table provides a comprehensive list of potential products.

PC160	LogID 613	901.9.2 Site applied interior products
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **901.9.2** Site-applied interior ~~products~~ architectural coatings, which are inside the water proofing envelope, are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 when 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 found in Appendix D.

Reason: Replace with the term "products" in order to make the language consistent with 901.9.1 and to distinguish architectural coatings from adhesives and sealants.

Committee Action **Accept as Modified**
from Meeting:

Modification of Public Comment: *Revise public comment as follows (in red):*

901.9.2 Site-applied interior ~~products~~ architectural coatings, which are inside the water proofing envelope, are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1 when 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 found in Appendix D.

Committee Reason: The existing language already specifies the interior application. The deleted language does not clarify this application for builder, verifiers, and code officials.

PC161	LogID 820	901.9.2 Site applied interior products
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: Delete section

Reason: Manufacturer's should not be forced to test if they do not have emissions. It adds unnecessary cost.

Committee Action **Reject**
from Meeting:

Modification of Public Comment:

Committee Reason: Based on actions on PC163. There is scientific evidence that chemicals emitted from products can be harmful to humans.

PC162	LogID 653	901.10 Adhesives and sealants
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Submitter: Naveen Berry, SCAQMD

Public Comment: **(3)** SCAQMD Rule 1168 (see Table 901.10.2), excluding products that are ~~purchased in containers that are less than 16 ounces~~ sold in 16 ounce containers or less and are regulated by the California Air Resources Board (CARB) Consumer Products Regulation.

Reason: Clarification regarding reference to SCAQMD Rule 1168. Certain adhesives and sealants sold in 16 ounce containers or less, e.g. PVC solvent cement, are not regulated by CARB and, therefore, fall under SCAQMD R1168 requirements.

Committee Action **Accept**
from Meeting:

Modification of Public Comment:

Committee Reason:

PC163	LogID 821	901.10 Adhesives and sealants
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: Delete

Reason: 901.10 should be deleted. It is impractical and costly to test products that do not have hazardous VOCs.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee There is scientific evidence that chemicals emitted from products can be harmful to humans.
Reason:

PC164	LogID 823	901.11 Insulation
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: delete section

Reason: 901.11 should be deleted. Insulation is encapsulated in the wall and many types do not have hazardous emissions levels. Manufacturers should not be required to perform expensive testing and certification when their products do not have hazardous emissions.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee There is scientific evidence that chemicals emitted from products can be harmful to humans. There are areas of home where insulation can be exposed to humans and emissions also can reach humans by seeping through the air barrier.
Reason:

PC165	LogID TG3-5	901.11 Insulation
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Submitter: Randy Melvin (on behalf of Task Group 3), Winchester Homes

Public Comment: **901.11 Insulation.** Emissions of 85 percent of wall, ceiling, and floor insulation materials are in accordance with the emission levels of CDPH/EHLB Standard Method v1.1...*(the rest of section is without change)*

Reason: The 85% allowance is added to enable inclusion of this practice into the Bronze Level threshold.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee The public comment aligns this practice with other practices in this chapter.
Reason:

PC166	LogID 715	902.2.1 Building Ventilation Systems
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: Many points given here for systems that are not available to passively cooled homes.

Reason: This requirement should take into consideration Hawaii's warm climate and how many of our homes are passively cooled by our tradewinds.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Passive ventilation does not always provide sufficient ventilation for control of air quality and moisture levels in Hawaii. Also passively cooled homes can accrue points in other parts of the Standard. Also the points in this practice have been reduced.
Reason:

PC167	LogID 610	903.1 Plumbing
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Submitter: Chris Allison, City of Longmont

Public Comment: Clarify which sprinkler lines are not allowed in wall cavities (lawn irrigation or fire suppression) or state that all water lines are not allowed in wall cavities to avoid confusion.

Reason: P535 Section 903.5.1 should clarify which sprinkler lines are not allowed in wall cavities (lawn irrigation or fire suppression) or state that all water lines are not allowed in wall cavities.

Committee Action **Withdrawn**
from Meeting:

Modification of
Public Comment:

Committee Withdrawn by proponent per email dated January 19, 2012.
Reason:

PC168	LogID TG3-6	903.2 Duct insulation
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Submitter: Randy Melvin (on behalf of Task Group 3), Winchester Homes

Public Comment: **903.2 Duct insulation.** ~~All HVAC ducts, plenums, and trunks in unconditioned attics, basements, and crawl spaces are insulated to a minimum of R-6. Outdoor air supplies to ventilation systems are insulated to a minimum of R-6.~~ Ducts are in accordance with one of the following.

~~(1) insulated to a minimum of R-6~~ All HVAC ducts, plenums, and trunks in are conditioned space. Mandatory 1 point

~~(2) insulated to a minimum of R-8~~ All HVAC ducts, plenums, and trunks in are conditioned space. All HVAC ducts are insulated to a minimum of R4. 23 points

Reason: This change aligns point allocations with the new baseline building code requirements.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC169	LogID TG1-1	1001.1 Building owner's manual
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Submitter: Matt Dobson (on behalf of Task Group 1), Vinyl Siding Institute

Public Comment: Move item #13 to be item #4 and move all other items down.

Reason: The task group thought item #13 should be raised in importance.

Committee Action **Accept**
from Meeting:

Modification of
Public Comment:

Committee
Reason:

PC170	LogID 743	1002.1 Training of Building Owners
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Submitter: Susan Gitlin, US Environmental Protection Agency

Public Comment: .

Reason: We are glad to see that recycling practices was added to the training topics. Proper handling of refrigerant-containing appliances in particular should be mentioned. Common refrigerants and insulating foam found in refrigerators and freezers are not only ozone-depleting but are also powerful greenhouse gases. For example, the refrigerant CFC-12 has more than 10,000 times the effect of carbon dioxide in the atmosphere. Further, releasing 1 pound of CFC-11 from the foam in a refrigerator is equivalent to releasing 4,750 pounds of carbon dioxide. Ensuring proper recovery and handling of refrigerant and appliance foam results in benefits to the ozone layer and climate system.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: This section of the standard is intended as a broad education point with regard to operation of the building and household waste management. The subject addressed by the public comment is too specific and not in the scope of this section of the Standard. Additionally, other portions of the standard will likely address these types of issues – Section 1001.1(4) Information on local recycling programs.

PC171 LogID 690 11.1 Intent

Submitter: Robert Hill, NAHB Research Center

Public Comment: Task Group 7 is working on a revised version that I believe will address my concerns.

Reason: The requirement that each remodeling project receive a certain percentage of points from "applicable" practices will result in the need for much project specific interpretations by the adopting entity making the approach unworkable. There are too many qualifiers needed to clearly indicate if a particular practice is applicable to a particular project.

Committee Action **Withdrawn**
from Meeting:

Modification of
Public Comment:

Committee Reason: Withdrawn by proponent at the Consensus Committee meeting in Washington, DC in February of 2012.

PC172 LogID 745 11.1000 (Occupant education practices)

Submitter: Susan Gitlin, US Environmental Protection Agency

Public Comment: .

Reason: It is especially important that operations manuals for remodeling address proper handling of old appliances. Replacing old refrigerators and freezers with ENERGY STAR® appliances and properly disposing of the old refrigerators and freezers should be added to the list of options.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: During remodeling, disposal of appliances is the responsibility of the remodeler, not the homeowner. Also, Section 11.1001.1(4) addresses local recycling programs. The suggested level of detail proposed by the public comment is too specific for this section of the Standard and would be more appropriate for commentary.

PC173 LogID 634 11.600 (Resource efficiency practices)

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: ~~11.603.0 Intent.~~

~~Practices that reuse or modify existing structures, salvage materials for other uses, or use salvaged materials in the building's construction are implemented.~~

~~11.603.1 New Work – Reuse of existing building.~~

~~Major elements of existing buildings and structures are reused, modified, or deconstructed for later use in lieu of demolition. Possibly calculate by percentage of materials re-used~~

~~11.603.2 Salvaged materials. Reclaimed and/or salvaged materials and components are used.~~

~~The total material value and labor cost of salvaged materials is equal to or exceeds 1 percent of the total construction cost. Facilitation for sorting and reuse of scrap building material (e.g., provide a central storage area or dedicated bins) are provided on site and used during construction.~~

~~11.603.3 Scrap materials.~~

Reason: Sections 11.603, 11.605, 12.1.1.1(b), 12.4.2.5 should all be removed or the specific requirements removed and they all make a general reference back to waste diversion requirements in chapter 6. The conflicts between sections are confusing and make it seem as though the sections have been written by different authors that have not shared information. For example, 12.1 is the first place where demolition waste diversion is addresses, but why should only bathroom remodels have the opportunity to recycle or salvage, when that could be applied to any project. Please coordinate and clarify these sections.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee In favor of public comment PC193.

Reason: PC193 includes a comprehensive set of revisions to Chapter 11.

PC174	LogID 635	11.600 (Resource efficiency practices)
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: ~~11.605.0 All waste classified as hazardous shall be properly handled and disposed.~~

~~11.605.1 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 and land clearing waste.~~

Reason: Sections 11.603, 11.605, 12.1.1.1(b), 12.4.2.5 should all be removed or the specific requirements removed and they all make a general reference back to waste diversion requirements in chapter 6. The conflicts between sections are confusing and make it seem as though the sections have been written by different authors that have not shared information. For example, 12.1 is the first place where demolition waste diversion is addresses, but why should only bathroom remodels have the opportunity to recycle or salvage, when that could be applied to any project. Please coordinate and clarify these sections.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee In favor of public comment PC193.

Reason: PC193 includes a comprehensive set of revisions to Chapter 11.

PC175	LogID 727	11.600 (Resource efficiency practices)
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Submitter: Josh Jacobs, GREENGUARD Environmental Institute

Public Comment: 11.610.2 Sustainable Products. One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit, as applicable. Certification third-party agency is ISO Guide 65 accredited. **10 Points Max**

(1) 50% or more of carpet installed (by square feet) is third-party certified to NSF/ANSI 140. 5

(2) 50% or more of resilient flooring installed (by square feet) is third-party certified to NSF/ANSI 332. 5

(3) 50% or more of the insulation installed (by square feet) is third-party certified to EcoLogo CCD-016. 5

(4) 50% or more of interior wall coverings installed (by square feet) is third-party certified to NSF/ANSI 342 5

(5) 50% or more of the gypsum board installed (by square feet) is third-party certified to ULE ISR 100
5

(6) 50% or more of the door leafs installed (by number of door leafs) is third-party certified to ULE ISR 102 5

Reason: Single attribute traits allow us to see valuable snapshots of a products impact on certain areas of the environment and they bring value to a building standard such as this one, but many product manufacturers and sustainability purchasers/experts are looking to multi-attribute standards as a way to show that a product, in total, addresses the triple bottom line of sustainability. Referencing these standards and awarding points would allow the homes built to this standard to show that some of the products chosen to build the building have been looked at in terms of their overall sustainable impact. Adding it in renovations would also make this section agree with chapter 6 on which it is modeled after.

Committee Action **Withdrawn**
from Meeting:

Modification of
Public Comment:

Committee Reason: Withdrawn by proponent at the Consensus Committee meeting in Washington, DC in February of 2012.

PC176	LogID 643	11.700 (Energy efficiency practices)
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Submitter: John Gant, Glen Raven Inc

Public Comment: Add 11.701.4.4.1 Window Attachments should be identified using the product selection tool on www.windowattachments.com in order to optimize the benefits of dynamic attachments to manage daylighting and solar heat gain according to user and seasonal needs. At least one attachment should be installed on every window. Mandatory Points = 2.

Reason: Section 11.701.4.4.1 Fenestration, add section to select "Window Attachments" to increase thermal comfort, visual comfort, and solar control via the installation of appropriate devices as delineated on "www.windowattachments.org" as created by Berkeley Labs, DOE, and BuildingGreen.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of public comment PC193.

Reason: PC193 includes a comprehensive set of revisions to Chapter 11.

PC177	LogID 767	11.700 (Energy efficiency practices)
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Submitter: Eric Lacey, RECA

Public Comment: **11.701.4.4.1 Fenestration**

New Work. NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis are in accordance with ~~ENERGY STAR, or equivalent, or Table 701.4.4.1~~ 11.701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

**Table 11.701.4.4.1
Fenestration Specifications**

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

Mandatory

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

[Option 2: 2009 IECC]

**Table 11.701.4.4.1
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
<u>1</u>	<u>1.20</u>	<u>0.30</u>
1 and 2	0.65	0.40 <u>0.30</u>
3	0.40 <u>0.50</u>	0.40 <u>0.30</u>
4 to 8	0.35	Any
	Skylights and TDDs	
1 to 3	0.75 <u>0.75</u>	0.40 <u>0.30</u>
<u>2</u>	<u>0.75</u>	<u>0.30</u>
3 <u>4 to 8</u>	0.60 <u>0.65</u>	Any <u>0.30</u>
<u>4 to 8</u>	<u>0.60</u>	<u>Any</u>

Mandatory

Re-Work. NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.1 11.701.4.4.1. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing

area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

**Table 11.701.4.4.1
Fenestration Specifications**

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

Mandatory

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

[Option 2: 2009 IECC]

**Table 11.701.4.4.1
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
<u>1</u>	<u>1.20</u>	<u>0.30</u>
1 and 2	0.65	0.40 <u>0.30</u>
3	0.40 <u>0.50</u>	0.40 <u>0.30</u>
4 to 8	0.35	Any
	Skylights and TDDs	
1 to 3	0.75 <u>0.75</u>	0.40 <u>0.30</u>
<u>2</u>	<u>0.75</u>	<u>0.30</u>
3 <u>4 to 8</u>	0.60 <u>0.65</u>	Any <u>0.30</u>
<u>4 to 8</u>	<u>0.60</u>	<u>Any</u>

Mandatory

Reason: One of the most critical improvements to a renovated building's energy efficiency is high-efficiency fenestration. The renovations chapter makes improved fenestration mandatory in many scenarios, but cites values from an outdated Energy Star standard. Consistent with RECA's other proposals, we urge the Committee to adopt the superior fenestration requirements in the 2012 IECC. However, if the Committee determines that the 2009 IECC is the appropriate baseline, we recommend at least

updating the mandatory fenestration efficiency requirements to the 2009 IECC to maintain consistency with the new construction requirements of the NGBS. For convenience, both options are outlined below. Recognizing that any of the recommended standards represent an improvement in energy efficiency, we have also added the flexibility of an area-weighted average – something not available in the 2008 NGBS fenestration requirements.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Remodeling practice under this section should be consistent with that for new construction (Chapter 7).
Also, in favor of public comment PC193.
PC193 includes a comprehensive set of revisions to Chapter 11.

PC178	LogID 612	11.900 (IEQ practices)
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **11.901.8 Architectural coatings.** A minimum of 85 percent of the newly applied architectural coatings are in accordance with either Section 901.8.1 or Section 901.8.2, not both: _

~~11.901.8.1 Site-applied interior products are in accordance with one or more of the following standards:~~

~~(1) Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)~~

~~(2) CARB Suggested Control Measure for Architectural Coatings~~

~~(3) GS 11~~

~~(4) VOC limits in accordance with:~~

~~(a) 50 grams/liter flat~~

~~(b) 100 grams/liter non flat~~

~~(c) 350 grams/liter clear wood varnish~~

~~(d) 550 grams/liter clear wood lacquer~~

~~11.901.8.2 Site-applied interior products are in accordance with the emissions levels of CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's *Children and Schools Certification Program* or the Scientific Certification Systems *Indoor Advantage Gold Program*.~~

Reason: 11.901.8 refers to 901.8.1 and 901.8.2. 11.901.8.1 and 11.901.8.2 regurgitates the language from 901.8.1 and 901.8.2, so there is no need to have it in two places. Plus, it appears as though 11.901.8.1 and 11.901.8.2 have not been updated

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Remodeling is a standalone chapter and the intent is to keep all the information in one place for remodelers.
In favor of public comment PC193.

PC193 includes a comprehensive set of revisions to Chapter 11.

PC179 LogID 614 11.900 (IEQ practices)

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **11.901.9 Adhesives and sealants.**

A minimum of 85 percent of newly applied site-applied adhesives and sealants are in accordance with Section ~~901.9.1 and/or Section 901.9.2.~~ 901.10.

Reason: 901.9.1 and 901.9.2 applies to Architectural Coatings, so they have been replaced with the appropriate reference: 901.10.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 changes.

PC180 LogID 620 11.900 (IEQ practices)

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **11.901.9.2 Interior low-VOC adhesives and sealants.** ~~A minimum of 85 percent of s~~ Site-applied products low-VOC adhesives and sealants used within the interior of the building are in accordance with 901.10 one of the following, as applicable.

~~(1) CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's *Children and Schools Certification Program* or the Scientific Certifications Systems *Indoor Advantage Gold Program*.~~

~~(2) GS-36~~

Reason: 901 appears to be where all IEQ thresholds are placed and other sections in 11.901 refer back to 901; in order to be consistent and reduce redundancies, 11.901.9.2 has been modified to refer back to 901.10 – which also identifies an 85% requirement

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 changes. Also, remodeling is a standalone chapter and the intent is to keep all the information in one place for remodelers.

PC181 LogID 621 11.900 (IEQ practices)

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **11.901.9.1 Exterior low-VOC adhesives and sealants:** ~~A minimum of 85 percent of s~~ Site-applied exterior low-VOC adhesives and sealants products used for the installation of subfloors and on the exterior of the project are in accordance with one of the following: 901.10.2.

~~(1) The California Air Resources Board consumer products regulation as follows:-~~

~~(a) Construction Adhesives: VOC content not to exceed 7 percent by weight or 75 grams/liter, whichever is greater.~~

~~(b) The VOC content of reactive sealants (i.e., silicones, polyurethanes, and hybrids, such as MS Polymer and silylated polyurethane resin or SPUR) not to exceed 4 percent by weight or 50 grams/liter, whichever is greater.~~

~~(c) The VOC content of all other caulks and sealants not to exceed 2 percent by weight or 30 grams/liter, whichever is greater.~~

~~(d) The VOC content of contact adhesives not to exceed 55 percent by weight or 480 grams/liter, whichever is greater.~~

~~(2) GS-36~~

New Section:

901.10.2 ~~11.901.9.4~~ **Exterior low-VOC adhesives and sealants:** A minimum of 85 percent of exterior low-VOC adhesives and sealants used for the installation of subfloors and on the exterior of the project are in accordance with one of the following:

(1) The California Air Resources Board consumer products regulation as follows:

(a) Construction Adhesives: VOC content not to exceed 7 percent by weight or 75 grams/liter, whichever is greater.

(b) The VOC content of reactive sealants (i.e., silicones, polyurethanes, and hybrids, such as MS Polymer and silylated polyurethane resin or SPUR) not to exceed 4 percent by weight or 50 grams/liter, whichever is greater.

(c) The VOC content of all other caulks and sealants not to exceed 2 percent by weight or 30 grams/liter, whichever is greater.

(d) The VOC content of contact adhesives not to exceed 55 percent by weight or 480 grams/liter, whichever is greater.

(2) GS-36

Reason: 901 appears to be where all IEQ thresholds are placed and other sections in 11.901 refer back to 901. In order to be consistent and reduce redundancies, 11.901.9.1 has been modified to refer back to 901.10 – which also identifies an 85% requirement

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 changes. Also, remodeling is a standalone chapter and the intent is to keep all the information in one place for remodelers.

PC182	LogID 699	11.900 (IEQ practices)
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Submitter: Donn Thompson, Portland Cement Association

Public Comment: **11.903.2.1 Capillary breaks**

11.37.1 New Work. A capillary break and vapor retarder are installed at all concrete slabs in accordance with Sections ~~903.2.1(1)~~ 602.1.1.1(1) or ~~903.2.1(2)~~ 602.1.1.1(2), as modified by Section ~~903.2.1(3)~~ 602.1.1.1(3):

Mandatory

(1) A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting, minimum thickness 10 mil (25mm), in direct contact with the

concrete slab, with the sheeting joints lapped in accordance with Section ~~903.3~~ 602.1.4.

(2) A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, minimum thickness 10 mil (25mm), with the sheeting joints

lapped in accordance with Section 903.3 602.1.4.

(3) Modification:

(a) In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.

(b) In Dry climate locations, as defined by Figure 6(1), polyethylene sheeting is not required unless required for radon resistance (Section 902.3).

11.37.2 Re-Work. A capillary break and vapor retarder are installed at newly installed concrete slabs in accordance with Sections ~~903.2.1(1)~~ 602.1.1.1(1) or ~~903.2.1(2)~~ 602.1.1.1(2), as modified by Section ~~903.2.1(3)~~ 602.1.1.1(3):

(1) A minimum 4-inch-thick (102 mm) bed of ½-inch (13 mm) diameter or greater clean aggregate, covered with polyethylene or polystyrene sheeting minimum thickness 10 mil (25mm), in direct contact with the

concrete slab, with the sheeting joints lapped in accordance with Section ~~903.3~~ 602.1.4.

(2) A minimum 4-inch-thick (102 mm) uniform layer of sand, overlain with a layer or strips of geotextile drainage matting, covered with polyethylene sheeting, minimum thickness 10 mil (25mm), with the sheeting joints

lapped in accordance with Section ~~903.3~~ 602.1.4.

(3) Modification:

(a) In areas with free-draining soils, identified as Group 1 in the ICC IRC by a certified hydrologist, soil scientist, or engineer through a site visit, a gravel bed or geotextile matting is not required.

(b) In Dry climate locations, as defined by Figure 6(1), polyethylene sheeting is not required unless required for radon resistance (Section 902.3).

Reason: Based on the recommendations of the American Concrete Institute, the minimum thickness of a vapor retarder should be at least 10 mils (25mm) to enable the retarder to maintain its integrity under construction loads. Correct references to portions of section 903 which no longer cover capillary break and vapor retarders. Refer to appropriate portions of section 602.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Based on rejecting the same item for new construction (Chapter 6). Remodeling practice under this section should be consistent with that for new construction. Also, rejected in favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 6 changes.

PC183	LogID 700	11.900 (IEQ practices)
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Submitter: Michael Cudahy, PPFA

Public Comment: ~~11.901.9 Adhesives and sealants. A minimum of 85 percent of newly applied site-applied adhesives and sealants are in accordance with Section 901.9.1 and/or Section 901.9.2.~~
~~11.901.9.1 Exterior low-VOC adhesives and sealants: A minimum of 85 percent of site-applied products used for the installation of subfloors and on the exterior of the project are in accordance with one of the following:~~

~~5~~

~~(1) The California Air Resources Board consumer products regulation as follows:~~

~~(a) Construction Adhesives: VOC content not to exceed 7 percent by weight or 75~~

grams/liter, whichever is greater.

~~(b) The VOC content of reactive sealants (i.e., silicones, polyurethanes, and hybrids, such as MS Polymer and silylated polyurethane resin or SPUR) not to exceed 4 percent by weight or 50 grams/liter, whichever is greater.~~

~~(c) The VOC content of all other caulks and sealants not to exceed 2 percent by weight or 30 grams/liter, whichever is greater.~~

~~(d) The VOC content of contact adhesives not to exceed 55 percent by weight or 480 grams/liter, whichever is greater.~~

~~(2) GS-36~~

~~11.901.9.2 Interior low-VOC adhesives and sealants. A minimum of 85 percent of site-applied products used within the interior of the building are in accordance with one of the following, as applicable.~~

~~5~~

~~(1) CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.~~

~~(2) GS-36~~

Replace section with language from 901.10 OR refer to section 901.10

Reason: VOC sections in renovations do not match VOC sections in new construction. This could become an issue. For consistency, please revise to match, or simply refer back to the relevant section.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 changes.

PC184	LogID 774	11.900 (IEQ practices)
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Submitter: Amanda Evans, Santa Fe

Public Comment: (Follow the requirements for new construction)

Reason: 11.902.1 Whole house ventilation should be required for remodel new construction. There is also no provision for mandatory kitchen fans for new construction in this section

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 (new construction) changes.

PC185	LogID 775	11.900 (IEQ practices)
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Submitter: Amanda Evans, Santa Fe

Public Comment: Make CO monitors mandatory here, instead of awarding points.

Reason: 11.901.12 Carbon Monoxide alarms should be mandatory. Particularly when people are remodeling - and often tightening - existing buildings, there can be negative consequences to pressures in the house that can cause water heaters and other naturally rafting appliances to backdraft and spill carbon monoxide into the house. CO monitors should be mandatory if there are combustion appliances or fireplaces in the house.

Committee Action **Reject**
from Meeting:

**Modification of
Public Comment:**

Committee In favor of public comment PC193.

Reason: Safety considerations raised in the public comment are outside of the intent of the Standard. The Standard is a rating system. Refer to Section 101.3 Intent of the Standard.

PC186	LogID 782	11.900 (IEQ practices)
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Submitter: Gregg Achman, Hearth & Home Technologies

Public Comment: **11.901.2 Wood-burning and gas Fireplaces and ~~fuel-burning~~ direct heating equipment appliances.** Wood-burning and gas

Fireplaces and ~~fuel-burning appliances~~ direct heating equipment (except cooking appliances, clothes dryers, water heaters, and furnaces) located in conditioned space are in accordance with the following:

Mandatory

~~[Section 901.2.1(2)(a) is not mandatory.]~~

Reason: Need better clarification that in a remodel a "fireplace" means all wood buring (masonry and factory built)and gas, and to be consisten with 901.1.4, includse direct heating equipment. The statement Section 901.2.1(2)(a) is a potential safety issue and should not be included in the standard. This will be covered in a sperate comment.

Committee Action **Reject**
from Meeting:

**Modification of
Public Comment:**

Committee In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11

Reason: and is coordinated with the Chapter 9 changes. Remodeling practice under this section should be consistent with that for new construction (Chapter 9).

PC187	LogID 783	11.900 (IEQ practices)
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Submitter: Gregg Achman, Hearth & Home Technologies

Public Comment: **11.901.2.1 New Work.** Wood-burning

Fireplaces and natural drafting gas fireplaces and direct heating equipment ~~fuel-burning appliances~~ are code compliant, vented to the outdoors, and have adequate combustion and ventilation air provided to minimize spillage or back-drafting, ~~in accordance with the following, as applicable.~~ Wood-buring fireplaces must have a means of sealing the flue to minimize interior air (heat) loss when not in operation.

Mandatory

Reason: 11.901.2.1, as modified below, should be done as mandatory in a remodel to ensure that any fuel buring (wood and gas) appliances have the proper air for combustion and will not back draft. This section should not have an "in accordance with the following as applicable" because ther is already a Re-work incentive to comply with 901.2.1, the intent of the section is to ensure that any existing appliances performance is not affected by the remodel and making it mandatory to ensure it but incentivising them to upgrade to something comlying to 901.2.1. All the other sub sections of 11.901.2.1 (other than the two re-work items) are not needed, they are what is being incented in the re-work. Also, 11.901.2.1(2)(a) is a safety issue, putting gasketed doors onto wood burning fireplaces can be a safety (fire hazard) issue, especially wood buring fireplaces that are not design certified for gasketed doors.

Committee Action **Reject**
from Meeting:

**Modification of
Public Comment:**

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 changes. Also, safety considerations raised in the public comment are outside of the intent of the Standard. The Standard is a rating system. Refer to Section 101.3 Intent of the Standard.

PC188 LogID 784 11.900 (IEQ practices)

Submitter: Gregg Achman, Hearth & Home Technologies

Public Comment: ~~11.901.2.1(1)~~

~~**Natural gas and propane fireplaces that are power vented or direct vented, are equipped with permanently fixed glass fronts or gasketed doors, and comply with CSA Z21.88a/CSA 2.33a or CSA Z21.50/CSA 2.22.**~~

Reason: Section not needed, see comments on section 11.901.2.1

Committee Action from Meeting: **Reject**

**Modification of
Public Comment:**

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 changes. Also, safety considerations raised in the public comment are outside of the intent of the Standard. The Standard is a rating system. Refer to Section 101.3 Intent of the Standard.

PC189 LogID 786 11.900 (IEQ practices)

Submitter: Gregg Achman, Hearth & Home Technologies

Public Comment: ~~11.901.1.2.1(2) Solid fuel burning appliances are in accordance with the following requirements:~~

~~(a) Wood-burning fireplaces are equipped with gasketed doors designed to operate with the doors closed, outside combustion air, and a means is provided for sealing the flue to minimize interior air (heat) loss when not in operation.~~

~~(b) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.~~

~~(c) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.~~

~~(d) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.~~

~~(e) Wood stove and fireplace inserts, as defined in UL 1482 Section 3.8, are in accordance with the certification requirements of UL 1482 and are in accordance with the emission requirements of the EPA Certification and the State of Washington WAC 173-433-100(3).~~

Reason: All sections in and under 11.901.2.1(2) to be stricken, see previous comment to 11.901.2.1.

Committee Action from Meeting: **Reject**

**Modification of
Public Comment:**

Committee Reason: In favor of public comment PC193. PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with the Chapter 9 changes. Also, safety considerations raised in the public comment are outside of the intent of the Standard. The Standard is a rating system. Refer to Section 101.3 Intent of the Standard.

PC190 LogID 825 11.900 (IEQ practices)

Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: Delete section

Reason: There should not be requirements for testing and certifying products that don't have IEQ issues.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Remodeling practice under this section should be consistent with that for new construction (Chapter 7).

PC191	LogID 827	11.900 (IEQ practices)
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Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: **11.903.4.2 Moisture control measures.** Moisture content of subfloor, substrate, or concrete slabs is in accordance with the appropriate industry standard for the new finish flooring to be applied.
Mandatory

(1) Building materials with visible mold are not installed or are cleaned or encapsulated prior to concealment and closing. **2**

(3) The moisture content of lumber is sampled to ensure it does not exceed 19 percent prior to the surface and/or wall cavity enclosure. **4-Mandatory**

Reason: The moisture content of wood is just as important as the moisture content of insulation. Both should be mandatory.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Remodeling practice under this section should be consistent with that for new construction (now in Chapter 6).

Also, in favor of public comment PC193.

PC193 includes a comprehensive set of revisions to Chapter 11 and is coordinated with other changes to the Standard.

PC192 below)	LogID 728	Other for Chapter 11 (include section number and title
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Submitter: Josh Jacobs, GREENGUARD Environmental Institute

Public Comment: Please use product emission credits in chapter 9 as substitutes for all relevant renovation chapters' product emission credits.

Reason: This comment should apply to all of Chapter 11 & 12 (all product emission sections (11.901.4, 11.901.5, 11.901.6, 11.901.7, 11.901.8, 11.901.9, 11.901.10, 11.901.11, 12.1.1.4 (b)/(c), 12.1.2.2(a), 12.2.2, 12.2.7, 12.2.9, 12.4.4.6, 12.4.4.7)) A great deal of work was done by work group 3 on chapter 9 to ensure that the correct information, standards, and details were used in the product emission section. I would ask that the information in chapter 9 be used to update all product emission sections of the renovation chapters.

Committee Action **Withdrawn**
from Meeting:

Modification of
Public Comment:

Committee Reason: Withdrawn by proponent at the Consensus Committee meeting in Washington, DC in February of 2012.

PC193	LogID 757	Other for Chapter 11
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Submitter: Paul Sullivan (on behalf of Task Group 7), The Sullivan Company, Inc.

Public Comment: *Staff note: See Chapter 11 (in its entirety) of Draft #2 for the content of the public comment.*

Reason: Comprehensive review of Chapter 11 by Task Group 7 chairs and NAHB Research Center has resulted in a series of proposed edits, many of which are a result of incorporating the changes made by other Task Groups in their respective sections. TG7 could not complete their revisions without the revisions of the other task groups in place so this work is put forth as public comment.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Staff note: Per consensus committee's instructions, the approved public comments for Chapters 5, 6,*
Public Comment: *7, 9, and 10 are incorporated in the respective sections of the proposed Chapter 11. All updated point assignments are also carried over from Chapters 5, 6, 7, 9, and 10 to the respective sections of the proposed Chapter 11. All modifications are shown in track changes.*

Committee Coordination of Chapter 11 with the approved changes to Chapters 5, 6, 7, 9, and 10.
Reason:

PC194	LogID 622	12.1 Bathroom renovations
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: 12.1.1.4(b) Newly applied interior architectural coatings, which are inside the water proofing envelope, products are in accordance with section 901.9.1 ~~one or more of the following standards:~~

~~Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)~~

~~CARB~~

~~Suggested Control Measure for Architectural Coatings~~

~~GS-11~~

~~VOC limits in accordance with:~~

~~(a) 50 grams/liter flat~~

~~(b) 100 grams/liter non flat~~

~~(c) 350 grams/liter clear wood varnish~~

~~(d) 550 grams/liter clear wood lacquer~~

~~CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's~~

~~Children and Schools Certification Program or the Scientific Certification Systems Indoor Advantage Gold Program~~

Reason: The term "products" has been replaced to clarify that this section is addressing architectural coatings rather than sealants. Also, the compliance standards in 12.1.1.4(b) are the same as section 901.9.1, so in order to reduce redundancy, they have been removed and reference made to 901.9.1. Is this section supposed to include a threshold for 85% like other similar sections?

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as
Reason: shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new

construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC195 LogID 623 12.1 Bathroom renovations

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: ~~12.1.1.4(c) Interior low-VOC adhesives and sealants. A minimum of 85 percent of n~~Newly applied low-VOC adhesives and sealants products used within the interior of the building are in accordance with section 901.10 one of the following, as applicable.

~~CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's~~

~~Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program.~~

~~GS-36~~

Reason: Replace the ambiguous term "products" with what the product is. Make reference to section 901.10 instead of repeating the resource references, including the 85% threshold requirement.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC196 LogID 636 12.1 Bathroom renovations

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: ~~12.1.1.1(b) Demolition Waste. All waste classified as hazardous generated during demolition shall be properly handled and disposed.~~

~~12.1.1.1(c) Demolition Waste. At least 50% of demolition waste not classified as hazardous is diverted from landfill.~~

Reason: Sections 11.603, 11.605, 12.1.1.1(b), 12.4.2.5 should all be removed or the specific requirements removed and they all make a general reference back to waste diversion requirements in chapter 6. The conflicts between sections are confusing and make it seem as though the sections have been written by different authors that have not shared information. For example, 12.1 is the first place where demolition waste diversion is addresses, but why should only bathroom remodels have the opportunity to recycle or salvage, when that could be applied to any project. Please coordinate and clarify these sections.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC197 LogID 701 12.1 Bathroom renovations

Submitter: Michael Cudahy, PPFA

Public Comment: ~~12.1.1.4(c) Interior low-VOC adhesives and sealants. A minimum of 85 percent of newly applied products used within the interior of the building are in accordance with one of the following, as applicable: CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program. GS-36~~

Refer to, or replace with, language from section 901.10

Reason: VOC sections in small renovations do not match VOC sections in new construction. This could become an issue. For consistency, please revise to match, or simply refer back to the relevant section.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC198	LogID 768	12.1 Bathroom renovations
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Submitter: Eric Lacey, RECA

Public Comment: **12.1.1.2(a) Fenestration.** NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) on an area-weighted average basis are in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.4 12.1.1.2(a). Decorative fenestration elements with a maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

Table ~~701.4.4.4~~ 12.1.1.2(a)
Fenestration Specifications

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

Mandatory

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through

3 where the SHGC for such skylights does not exceed 0.30.

[Option 2: 2009 IECC]

**Table 701.4.4.4 12.1.1.2(a)
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	1.20	0.30
1 and 2	0.65	0.40 0.30
3	0.40 0.50	0.40 0.30
4 to 8	0.35	Any
	Skylights and TDDs	
1 to 3	0.75 0.75	0.40 0.30
2	0.75	0.30
3 4 to 8	0.60 0.65	Any 0.30
4 to 8	0.60	Any

Mandatory

Reason: One of the most critical improvements to a renovated building's energy efficiency is high-efficiency fenestration. The renovations chapter makes improved fenestration mandatory in many scenarios, but cites values from an outdated Energy Star standard. Consistent with RECA's other proposals, we urge the Committee to adopt the superior fenestration requirements in the 2012 IECC. However, if the Committee determines that the 2009 IECC is the appropriate baseline, we recommend at least updating the mandatory fenestration efficiency requirements to the 2009 IECC to maintain consistency with the new construction requirements of the NGBS. For convenience, both options are outlined below. Recognizing that any of the recommended standards represent an improvement in energy efficiency, we have also added the flexibility of an area-weighted average – something not available in the 2008 NGBS fenestration requirements.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Remodeling practice under this section should be consistent with that for new construction (Chapter 7).
Also, in favor of public comment PC216.
PC216 includes a comprehensive set of revisions to Chapter 12.

PC199	LogID 624	12.2 Green kitchen remodel
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: 12.2.2 Newly applied interior architectural coatings, which are inside the water proofing envelope, paint products are in accordance with one or more of the following standards:
~~Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)~~
~~GARB Suggested Control Measure for Architectural Coatings~~
~~GS-11~~
~~VOC limits in accordance with:~~
~~(a) 50 grams/liter flat~~
~~(b) 100 grams/liter non flat~~
~~(c) 350 grams/liter clear wood varnish~~
~~(d) 550 grams/liter clear wood lacquer~~
~~CDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certification Systems Indoor Advantage Gold Program~~

Reason: The term "paint products" has been clarified. Also, the compliance standards in 12.2.2 are the same as section 901.9.1, so in order to reduce redundancy, they have been removed and reference made to 901.9.1. Is this section supposed to include a threshold for 85% like other similar sections?

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC200	LogID 625	12.2 Green kitchen remodel
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: 12.2.9 Interior low-VOC adhesives and sealants. All newly applied low-VOC adhesives and sealants products used within the interior of the building are in accordance with section 901.10. ~~one of the following, as applicable. CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program. GS-36~~

Reason: Replace the ambiguous term "products" with what the product is. Make reference to section 901.10 instead of repeating the resource references. Is there supposed to be an 85% threshold requirement such as is in other similar sections?

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC201	LogID 702	12.2 Green kitchen remodel
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Submitter: Michael Cudahy, PPFA

Public Comment: ~~12.2.9 Interior low-VOC adhesives and sealants. All newly applied products used within the interior of the building are in accordance with one of the following, as applicable. CDPH 01350, as certified by a third party program, such as the GREENGUARD Environmental Institute's Children and Schools Certification Program or the Scientific Certifications Systems Indoor Advantage Gold Program. GS-36~~

Replace section with language from 901.10 OR refer to section 901.10

Reason: VOC sections in small renovations do not match VOC sections in new construction. This could become an issue. For consistency, please revise to match, or simply refer back to the relevant section.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC202 LogID 746 12.2 Green kitchen remodel

Submitter: Susan Gitlin, US Environmental Protection Agency

Public Comment: .

Reason: a) Section 12.2.12 states that all hazardous material that is removed or disturbed must be properly handled and disposed. This section should be further refined to note that this includes refrigerators and freezers, which contain hazardous materials subject to regulatory disposal requirements. b) Section 12.2.13 states that practice details for the disposal of an existing kitchen are to be determined. EPA suggests that the practice details specify that refrigerators and freezers be sent to a local recycling facility that handles the refrigerant, foam, hazardous materials and recyclables in accordance with the requirements of the RAD Program.

Committee Action from Meeting: **Reject**

Modification of Public Comment:

Committee Reason: In favor of PC216. Section 12.1.605.0 of Draft #2 addresses disposal of hazardous materials. Disposal of appliances must comply with the applicable federal and local regulations. The suggested level of detail proposed by the public comment is too specific for this section of the Standard and would be more appropriate for commentary.

PC203 LogID 770 12.2 Green kitchen remodel

Submitter: Eric Lacey, RECA

Public Comment: **12.2.3 Fenestration.** Newly installed windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are NFRC-certified and in accordance with ENERGY STAR, or equivalent, or Table 701.4.4.4 12.1.1.2(a), on an area-weighted average basis. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

Table ~~701.4.4.4~~ 12.2.3 Fenestration Specifications

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

Mandatory

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

[Option 2: 2009 IECC]

**Table 701.4.4.4 12.1.1.2(a)
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	1.20	0.30
1 and 2	0.65	0.40 0.30
3	0.40 0.50	0.40 0.30
4 to 8	0.35	Any
	Skylights and TDDs	
1 to 3	0.75 0.75	0.40 0.30
2	0.75	0.30
3 4 to 8	0.60 0.65	Any 0.30
4 to 8	0.60	Any

Mandatory

Reason: One of the most critical improvements to a renovated building's energy efficiency is high-efficiency fenestration. The renovations chapter makes improved fenestration mandatory in many scenarios, but cites values from an outdated Energy Star standard. Consistent with RECA's other proposals, we urge the Committee to adopt the superior fenestration requirements in the 2012 IECC. However, if the Committee determines that the 2009 IECC is the appropriate baseline, we recommend at least updating the mandatory fenestration efficiency requirements to the 2009 IECC to maintain consistency with the new construction requirements of the NGBS. For convenience, both options are outlined below. This proposal also maintains consistency with other fenestration requirements in the NGBS by requiring NFRC certification of the fenestration efficiency. This will ensure that the windows are objectively certified to meet the listed criteria and will simplify enforcement. Recognizing that any of the recommended standards represent an improvement in energy efficiency, we have also added the flexibility of an area-weighted average – something not available in the 2008 NGBS fenestration requirements.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Remodeling practice under this section should be consistent with that for new construction (Chapter 7).

Reason: Also, in favor of public comment PC216.
PC216 includes a comprehensive set of revisions to Chapter 12.

PC204 LogID 828 12.2 Green kitchen remodel

Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: Insert values at base code levels at a minimum.

Reason: 12.2.4 Insulation should be consistent with the base code as a minimum.

Committee Action **Reject**
from Meeting:

Modification of

Public Comment:

Committee Reason: Not all kitchen remodels will involve opening walls to replace the insulation. Substantial energy, water, and material resource efficiency can be achieved without the removal of existing finishes that may be perfectly good and would only increase jobsite waste and consumption of virgin material. Also, in favor of PC216.

PC205	LogID 626	12.3 Basement remodeling
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: 12.3.13 Paint and Stain

Newly applied interior ~~paint or stain products~~ architectural coatings or low-VOC adhesives and sealants are in accordance with sections 901.9.1 or 901.10, as applicable, ~~one or more of the following standards:~~

~~Zero VOC as determined by EPA Method 24 (VOC content below the detection limit for the method)
CARB Suggested Control Measure for Architectural Coatings~~

~~GS-11~~

~~VOC limits in accordance with:~~

~~(a) 50 grams/liter flat~~

~~(b) 100 grams/liter non flat~~

~~(c) 350 grams/liter clear wood varnish~~

~~(d) 550 grams/liter clear wood lacquer~~

~~GDPH 01350, as certified by a third party program such as the GREENGUARD Environmental Institute's *Children and Schools Certification Program* or the *Scientific Certification Systems Indoor Advantage Gold Program*~~

Reason: 12.3.13 states that it applies to paints and sealants but the reference standards appear to apply only to paints. Revise by referring to the actual sections 901.9.1 and 901.10. The term "products" has been clarified. Is this section supposed to include a threshold for 85% like other similar sections?

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC206	LogID 747	12.3 Basement remodeling
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Submitter: Susan Gitlin, US Environmental Protection Agency

Public Comment: .

Reason: Section 12.3.11: Appliances states that ENERGY STAR® appliances should be installed where available. In addition, to achieve maximum energy savings and environmental benefits, any old secondary refrigerators or freezers found in the basement should be disposed of properly.

Committee Action **Reject**
from Meeting:

**Modification of
Public Comment:**

Committee Reason: In favor of PC216. Section 12.1.605.0 of Draft #2 addresses disposal of hazardous materials. Disposal of appliances must comply with the applicable federal and local regulations.

PC207 LogID 756 12.3 Basement remodeling

Submitter: Jamie Hager, Southern Energy Management

Public Comment: Offer an alternative to mold-resistant drywall since mold is a moisture issue more than a material issue. As an alternative, allow projects to provide at minimum a moisture management plan that includes a humidistat and dehumidification strategy if the basement space is unconditioned and there are no moisture issues due to site grading.

Reason: 12.3.7 regarding mold resistant sheetrock -- does this apply to interior and exterior walls? Since mold is a moisture problem, an alternative humidity management system should be allowed instead of mold resistant drywall

**Committee Action
from Meeting:** **Reject**

**Modification of
Public Comment:**

Committee Reason: In favor of PC216. Refer to new Section 12.4.1 in Draft #2.

PC208 LogID 829 12.3 Basement remodeling

Submitter: Amy Schmidt, The Dow Chemical Company

Public Comment: Insert base code values at a minimum.

Reason: 12.3.6 insulation should be installed at base code values at a minimum.

**Committee Action
from Meeting:** **Reject**

**Modification of
Public Comment:**

Committee Reason: These are mandatory provisions. Not all basement remodels will involve construction of new walls or opening walls to replace the insulation. Substantial energy, water, and material resource efficiency can be achieved without the removal of existing finishes that may be perfectly good and would only increase jobsite waste and consumption of virgin material. Also, in favor of PC216.

PC209 LogID 637 12.4 Small addition

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: ~~12.4.2.5 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 and land-clearing waste. The construction waste management plan includes information on the proper handling and disposal of hazardous wastes~~

~~12.4.2.6 Hazardous waste: All waste classified as hazardous waste is properly handled and disposed of.~~

Reason: Sections 11.603, 11.605, 12.1.1.1(b), 12.4.2.5 should all be removed or the specific requirements removed and they all make a general reference back to waste diversion requirements in chapter 6. The conflicts between sections are confusing and make it seem as though the sections have been written by different authors that have not shared information. For example, 12.1 is the first place where demolition waste diversion is addresses, but why should only bathroom remodels have the opportunity to recycle or salvage, when that could be applied to any project. Please coordinate and clarify these sections.

Committee Action **Reject**

from Meeting:
Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC210	LogID 703	12.4 Small addition
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Submitter: Michael Cudahy, PPFA

Public Comment: ~~12.4.4.6 Adhesives and sealant when building is occupied (per 901.9) Adhesives and sealants. When the building is occupied during the construction of the addition, a minimum of 85 percent of site-applied adhesives and sealants are in accordance with Section 901.9.1 and/or Section 901.9.2. 901.9.1 Exterior low-VOC adhesives and sealants: A minimum of 85 percent of site-applied products used for the installation of subfloors and on the exterior of the project are in accordance with one of the following: (1) The California Air Resources Board consumer products regulation as follows: (a) Construction Adhesives: VOC content not to exceed 7 percent by weight or 75 grams/liter, whichever is greater. (b) The VOC content of reactive sealants (i.e., silicones, polyurethanes, and hybrids, such as MS Polymer and silylated polyurethane resin or SPUR) not to exceed 4 percent by weight or 50 grams/liter, whichever is greater. (c) The VOC content of all other caulks and sealants not to exceed 2 percent by weight or 30 grams/liter, whichever is greater. (d) The VOC content of contact adhesives not to exceed 55 percent by weight or 480 grams/liter, whichever is greater. (2) GS-36~~

Replace section with language from 901.10 OR refer to section 901.10

Reason: VOC sections in small renovations do not match VOC sections in new construction. This could become an issue. For consistency, please revise to match, or simply refer back to the relevant section.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. It is the consensus committee's intent for Chapter 12 to provide a self-contained set of remodeling provisions without referencing back to the provisions for new construction.

PC211	LogID 771	12.4 Small addition
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Submitter: Eric Lacey, RECA

Public Comment: ~~12.4.3.4 Fenestration (per 701.4.4.1 703.1.6).~~ NFRC-certified U-factor and SHGC windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ~~ENERGY STAR, or equivalent, or Table 701.4.4.1 12.4.3.4, on an area-weighted average basis.~~ Decorative fenestration elements with a maximum area of 15 square feet (1.39 m²) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

**Table 701.4.4.4 12.4.3.4
Fenestration Specifications**

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

Mandatory

¹ Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

[Option 2: 2009 IECC]

**Table 701.4.4.4 12.4.3.4
Fenestration Specifications**

Climate Zones	U-Factor	SHGC
	Windows and Exterior Doors (maximum certified ratings)	
1	1.20	0.30
1 and 2	0.65	0.40 0.30
3	0.40 0.50	0.40 0.30
4 to 8	0.35	Any
	Skylights and TDDs	
1 to 3	0.75 0.75	0.40 0.30
2	0.75	0.30
3 4 to 8	0.60 0.65	Any 0.30
4 to 8	0.60	Any

Mandatory

Reason: One of the most critical improvements to a green building project is highly-efficient fenestration. The small additions chapter makes improved fenestration mandatory in many scenarios, but cites values from an outdated Energy Star standard. Consistent with RECA's other proposals, we urge the Committee to adopt the superior fenestration requirements in the 2012 IECC. However, if the Committee determines that the 2009 IECC is the appropriate baseline, we recommend at least updating the mandatory fenestration efficiency requirements to the 2009 IECC to maintain consistency with the new construction requirements of the NGBS. For convenience, both options are outlined below. This proposal also maintains consistency with other fenestration requirements in the NGBS by requiring NFRC certification of the fenestration efficiency. This will ensure that the windows are objectively certified to meet the listed criteria and will simplify enforcement. Recognizing that any of the

recommended standards represent an improvement in energy efficiency, we have also added the flexibility of an area-weighted average – something not available in the 2008 NGBS fenestration requirements.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: Remodeling practice under this section should be consistent with that for new construction (Chapter 7).
Also, in favor of public comment PC216.
PC216 includes a comprehensive set of revisions to Chapter 12.

PC212	LogID 788	12.4 Small addition
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Submitter: Gregg Achman, Hearth & Home Technologies

Public Comment: 12.4.4.2 Fireplaces, etc (per 901.2.1)

Wood-burning Fireplaces and natural drafting gas fireplaces and direct heating equipment fuel-burning appliances are code compliant, vented to the outdoors, and have adequate combustion and ventilation air provided to minimize spillage or back-drafting, in accordance with the following, as applicable. Wood burning fireplaces must have a means of sealing the flue to minimize interior air (heat) loss when not in operation.

Reason: Section 12.4.4.2 Fireplaces etc.. should be the same as 11.901.2 and all other requirements deleted. See my comments on 11.901.2.1.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction. Remodeling practice under this section is intended to be consistent with that for new construction (Chapter 9).

PC213 below)	LogID 654	Other for Chapter 12 (include section number and title
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Submitter: Naveen Berry, SCAQMD

Public Comment: Section 12.3.13 Paint and Stain,

Non-Flat – ~~400~~ 50
Clear Wood Varnish – ~~350~~ 275
Clear Wood Lacquer – ~~550~~ 275

Reason: Disagree with various VOC content limits for architectural coating categories. SCAQMD's Rule 1113 Architectural Coatings was recently amended on June 3, 2011. The following changes should be made to reflect the current R1113 VOC limits.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. Chapter 12 has been correlated with the respective provisions for new construction.
Reason: Remodeling practice under this section is intended to be consistent with that for new construction (Chapter 9).

PC214 below)	LogID 655	Other for Chapter 12 (include section number and title
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Submitter: Naveen Berry, SCAQMD

Public Comment: Section 12.4.4.6 Architectural Coatings when building is occupied,

Non-Flat – ~~400~~ 50
Clear Wood Varnish – ~~350~~ 275
Clear Wood Lacquer – ~~550~~ 275

Reason: Disagree with various VOC content limits for architectural coating categories. SCAQMD's Rule 1113 Architectural Coatings was recently amended on June 3, 2011. The following changes should be made to reflect the current R1113 VOC limits.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee In favor of PC 216. Chapter 12 has been correlated with the respective provisions for new construction.
Reason: Remodeling practice under this section is intended to be consistent with that for new construction (Chapter 9).

PC215 below)	LogID 691	Other for Chapter 12 (include section number and title
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Submitter: Robert Hill, NAHB Research Center

Public Comment: Task Group 7 is working on a revised version that I believe will address my concerns. That version should be substituted for the current Chapter 12.

Reason: The small project remodeling requirements are not complete. Although the intent was to have some mandatory practices and require a percentage of optional practices, some project types do not have any optional practices and others have too few to make it worthwhile.

Committee Action **Withdrawn**
from Meeting:

Modification of
Public Comment:

Committee Withdrawn by proponent at the Consensus Committee meeting in Washington, DC on February 23,
Reason: 2012.

PC216 below)	LogID 758	Other for Chapter 12 (include section number and title
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Submitter: Paul Sullivan (on behalf of Task Group 7), The Sullivan Company, Inc.

Public Comment: *Staff note: See Chapter 12 (in its entirety) of Draft #2 for the content of the public comment.*

Reason: Comprehensive review of Chapter 12 by Task Group 7 chairs and NAHB Research has resulted in a new Chapter 12. Previous Chapter 12 was accepted with the understanding that additional work would take place once the other task groups finished their revisions.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Staff note: All revisions approved by the consensus committee are shown in Chapter 12 of Draft #2 in*
Public Comment: *track changes including Chapter 12 updates based on the approved public comments for the respective sections in Chapters 6, 7, 8, and 9 as applicable.*

Committee Revisions to individual practices to clarify the intent and implementation of the remodeling provisions of
Reason: Chapter 12. Coordination of Chapter 12 with the approved changes to Chapters 6, 7, 8, and 9.

PC217	LogID 831	Other for Chapter 12 (include section number and title
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below)

Submitter: Craig Conner, Building Quality

Public Comment: Neither remodeling nor small renovations is not ready for review. It is a mistake to include these in a standard. Another public review is required when the draft of these sections is completed.

Reason: The renovations section needs to be completed before it can get a realistic review. It should not go out with the rest of the standard. A few examples follow. 11.502.1 A knowledgeable team is established and team member roles are identified with respect to green lot design, preparation, and re-development. The project's green goals and objectives are written into a mission statement. ---What is a knowledgeable team? 11.505.2 (2) Light-colored hardscaping: Horizontal hardscaping materials are installed with a solar reflectance index of 29 or greater. ---SRI is an inappropriate measure of thermally massive materials like hardscape. Suggest reflectivity of 0.30 as appropriate. 11.610.1 Manufacturer's environmental management system concepts. Product manufacturer's operations and business practices include environmental management system concepts, and the production facility is certified to ISO 14001 or equivalent. The aggregate value of building products from certified ISO 14001 or equivalent production facilities is 1 percent or more of the estimated total building materials cost. (1 point awarded per percent.) ---This is trivial. It would be difficult not to meet this. 11.701.4.1.2 HVAC Systems TG 7 will need to see what the task group on this section changes in order to complete this. --This is clearly not done. 11.902.1 (2) Clothes dryers are vented to the outdoors. ---So is the intention to ban condensing dryers, which are permitted by code? This is not ready. 12.1.1.1 (a) Recycled content. Building materials with recycled content are used for two minor or major components of the renovation. ---Any amount of recycled content? For many types of materials it would be hard not to meet this requirement. For example anything with steel in it would pass? ---When windows or equipment is replaced, the same efficiency requirements as in the energy chapter should apply. 12.1.1.6 Home Owner Education 12.1.1.6 (a) Building owners/occupants are familiarized with the green building goals and strategies implemented during the renovation and the impacts of the occupants' practices on the costs of operating the building. Training is provided to the responsible party(ies) regarding all equipment operation and control systems in the bathroom. ---This is vague and/or trivial. This says you train them in how to operate the bathroom? What are the control systems in the bathroom? 12.1.2.1(b) Recycled content. Building materials with recycled content are used in the renovation meeting one of the criteria in Table 12.1.2.1(a). These materials are in excess of those required to meet 12.1.1.1(e). Table 12.1.2.1(a) ---The goals in this table are trivial. 12.2.4 All gutted or newly constructed exterior walls and exterior ceilings must be insulated to a minimum R- value for the climate zone per table: "Can we insert values based on current code?" Minimum R-value Table has no values. ---This is clearly not ready for review. 12.2.11 A garbage disposal must be installed in the kitchen sink unless local regulations prohibit installation. ---Why would a green code require this? 12.2.12 All hazardous material that is removed or disturbed must be properly handled and disposed. 12.2.13 Lighting – practice details TBD 12.2.13 Disposal of Existing Kitchen – practice details TBD 12.2.14 Water Usage – practice details TBD ---Again not ready. The renovations section needs to be completed before it can get a realistic review. It should not go out with the rest of the standard. 11.502.1 A knowledgeable team is established and team member roles are identified with respect to green lot design, preparation, and re-development. The project's green goals and objectives are written into a mission statement. ---What is a knowledgeable team? 11.505.2 (2) Light-colored hardscaping: Horizontal hardscaping materials are installed with a solar reflectance index of 29 or greater. ---SRI is an inappropriate measure of thermally massive materials like hardscape. Suggest reflectivity of 0.30 as appropriate. 11.610.1 Manufacturer's environmental management system concepts. Product manufacturer's operations and business practices include environmental management system concepts, and the production facility is certified to ISO 14001 or equivalent. The aggregate value of building products from certified ISO 14001 or equivalent production facilities is 1 percent or more of the estimated total building materials cost. (1 point awarded per percent.) ---This is trivial. It would be difficult not to meet this. 11.701.4.1.2 HVAC Systems TG 7 will need to see what the task group on this section changes in order to complete this. ---This is clearly not done. 11.902.1 (2) Clothes dryers are vented to the outdoors. ---So is the intention to ban condensing dryers, which are permitted by code? This is not ready. 12.1.1.1 (a) Recycled content. Building materials with recycled content are used for two minor or major components of the renovation. ---Any amount of recycled content? For many types of materials it would be hard not to meet this requirement. For example anything with steel in it would

pass? ---When windows or equipment is replaced, the same efficiency requirements as in the energy chapter should apply. 12.1.1.6 Home Owner Education 12.1.1.6 (a) Building owners/occupants are familiarized with the green building goals and strategies implemented during the renovation and the impacts of the occupants' practices on the costs of operating the building. Training is provided to the responsible party(ies) regarding all equipment operation and control systems in the bathroom. ---This is vague and/or trivial. This says you train them in how to operate the bathroom? What are the control systems in the bathroom? 12.1.2.1(b) Recycled content. Building materials with recycled content are used in the renovation meeting one of the criteria in Table 12.1.2.1(a). These materials are in excess of those required to meet 12.1.1.1(e). Table 12.1.2.1(a) ---The goals in this table are trivial. 12.2.4 All gutted or newly constructed exterior walls and exterior ceilings must be insulated to a minimum R-value for the climate zone per table: "Can we insert values based on current code?" Minimum R-value Table has no values. ---This is clearly not ready for review. 12.2.11 A garbage disposal must be installed in the kitchen sink unless local regulations prohibit installation. ---Why would a green code require this? 12.2.12 All hazardous material that is removed or disturbed must be properly handled and disposed. 12.2.13 Lighting – practice details TBD 12.2.13 Disposal of Existing Kitchen – practice details TBD 12.2.14 Water Usage – practice details TBD ---Again not ready.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Reason: In favor of PC 216. In response to review of the public comment draft, Chapter 12 has been revised as shown in Draft #2. Chapter 12 has also been correlated with the respective provisions for new construction.

PC218	LogID 772	1302 Referenced Documents
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Submitter: Eric Lacey, RECA

Public Comment:

Chapter 13

Referenced Documents

IBC	<u>2006-2012</u>	International Building Code	202, 602.3.1, 602.9, 602.10, 703.1.1, 901.2.1(2)(e), 1001.1(10)
IECC	<u>2004-2012</u>	International Energy Conservation Code	B201.1
IECC	<u>2006-2012</u>	International Energy Conservation Code	701.1.1, 702.2, 703.1.1
IMC	<u>2006-2012</u>	International Mechanical Code	701.4.2.1, 704.6.1(1)
IPC	<u>2006-2012</u>	International Plumbing Code	903.5.3
IRC	<u>2006-2012</u>	International Residential Code	202, 3035.1, 601.1, 602.3.1, 602.9, 602.10, 701.4.2.1, 703.1.1, 704.6.1(1), 802.1, 902.3, 903.2.1(3), 1001.1(10)

Reason: As a part of the 2012 family of International Codes, the National Green Building Standard should reference only the latest versions of the International Codes wherever possible. Because the all 2012 International Codes are currently available, and because a number of states are already beginning the process of adopting the 2012 International Codes, the updated NGBS should reference the 2012 versions.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Based on the action on items PC096 and PC097.

Reason:

PC219 LogID 787 1302 Referenced Documents

Submitter: Bridget Herring, Mathis Consulting Company

Public Comment:	IBC	2009 2012	International Building Code	
	IECC	2004	International Energy Conservation Code	
	IECC	2009 2012	International Energy Conservation Code	
	IMC	2009 2012	International Mechanical Code	
	IPC	2009 2012	International Plumbing Code	
	IRC	2009 2012	International Residential Code	

Reason: Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.

Committee Action **Reject**
from Meeting:

Modification of
Public Comment:

Committee Based on the action on items PC096 and PC097.
Reason:

PC220 LogID TG1-2 Section 202 Definitions, Section 306 Accessory Structures, Appendix E

Submitter: Robert Hill, NAHB Research Center

Public Comment: *Add the following provisions to the Standard:*

DEFINITIONS

Accessory Structure. A structure, the use of which is customarily accessory to and incidental to that of the residential building; the structure is located on the same lot or site as the residential building; the structure does not contain a dwelling; and (1) is classified as Group U – Utility and Miscellaneous in accordance with the International Building Code; or (2) is classified as accessory to the residential use by a determination of the Adopting Entity.

306 - ACCESSORY STRUCTURES

306.1 Applicability. The designation criteria for accessory structures shall be in accordance with Appendix E.

306.2 Compliance. Compliance with Appendix E shall be either mandatory or voluntary in accordance with this section.

306.2.1 Mandatory Compliance. If the Adopting Entity adopts Appendix E, it shall establish rules for

compliance with Appendix E.

306.2.2 Voluntary Compliance. The voluntary use of Appendix E for accessory structures is permitted.

Appendix E – Accessory Structures

E101.1 Applicability of Appendix A. Appendix E is part of this Standard.

E101.2 Scope. The provisions contained in Appendix E provide the criteria necessary for complying with Section 306 for accessory structures. Accessory structures are to be in accordance with the applicable criteria of Appendix E. Text identified as “User Note” is not considered part of this Standard.

E201 Conforming. Accessory structures that meet all applicable requirements of this Appendix shall be designated as *conforming*. The *conforming* designation for the accessory structure is complementary to the rating achieved by the residential buildings located on the same site or lot. Where residential buildings located on the same lot have not achieved a rating in accordance with this Standard, the accessory structures shall not be eligible for designation under this Appendix. Each accessory structure shall seek a separate designation of *conforming* based on the rules established by the Adopting Entity in accordance with Section E102. The residential building shall not receive points for any practices implemented only for the accessory structure.

E202 Conformance Criteria. Accessory structures shall implement practices from Chapters 5 through 10 in accordance with Sections E202.1 through E202.7.

E202.1 The practices that are mandatory for the residential building on the same site or lot shall be also mandatory for the accessory structure unless these practices are exempt under Sections E202.5 or E202.7.

E202.2 All land development practices associated with construction of the accessory structure shall comply with the land development practices for the residential building located on the same lot.

E202.3 For the accessory structures that use the same basic construction and mechanical systems as the residential buildings located on the same site or lot, the design and construction of the accessory structures shall meet the practices or the intent of the practices implemented to achieve compliance for the residential building located on the same site or lot.

E202.4 For the accessory structures that use basic construction or mechanical systems that are different from the residential buildings located on the same site or lot, the design and construction of the accessory structures shall meet the intent of the practice implemented to achieve compliance for the residential building located on the same site or lot.

E202.5 Where the residential buildings located on the same site or lot include construction methods or systems that do not have functionally equivalent counterparts as part of the accessory structure, the accessory structure does not need to comply with any of the practices implemented with regard to such construction methods or systems.

User note: Examples of the practices that may be exempt from implementation in accessory structures include, but not limited to:

- 1) Section 601.5 Prefabricated Components – accessory structure is not required to be modular if the residential building is modular.
- 2) Section 601.6 Stacked Stories – accessory structures is not required to have

- more than one story if the residential building is more than one story.*
- 3) Section 602.2 Roof surfaces – if the residential building has a landscaped roof, the accessory structure is not required to have a landscaped roof.
 - 4) Chapter 7 Energy efficiency – accessory structure is not required to comply with Chapter 7 unless it includes conditioned space.

E202.6 Where the accessory structure includes construction methods or systems that do not have functionally equivalent counterparts as part of the residential buildings located on the same site or lot, the Adopting Entity shall review such construction methods and systems and shall establish an approach for meeting the overall intent of the Standard with regard to the minimum acceptable threshold.

E202.7 Where the use of the accessory structure has an effect of the functionality of the specific practice, such practices may be exempt by the Adopting Entity.

User note: Examples of the practices that may be exempt from implementation in accessory structures include, but not limited to:

Section 602.1.14 Ice barrier – if the accessory structure does not contain conditioned space, ice barrier is not required.

Reason: In an effort to coordinate ICC-700 and IgCC, an expansion of scope of ICC-700 has been approved by the Executive Standards Committee of the NAHB Research Center to include structures accessory to residential use. The revised scope will allow adopting entities and jurisdictions to adopt both documents with a clear delineation of mandate over accessory structures. This scope revision is posted as a separate item on the NGBS website at www.nahbrc.com/ngbs.

In support of this scope revision, new provisions for accessory structures are proposed as shown below. The new provisions include a definition of accessory structure, charging language in Chapter 3, and a new Appendix E summarizing criteria for accessory structures. The charging language of Chapter 3 allows the Adopting Entity to select mandatory or voluntary use of Appendix E. A single level of designation is available for accessory structures. The designation is available only if the residential building located on the same site or lot achieves a rating under ICC-700. The conformance criteria for the accessory structure are based on the design and construction methods used for the residential building. The criteria are located in an appendix to allow for voluntary use.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

DEFINITIONS

Accessory Structure. A structure, the use of which is customarily accessory to and incidental to that of the residential building; the structure is located on the same lot or site as the residential building; the structure does not contain a dwelling; and (1) is classified as Group U – Utility and Miscellaneous in accordance with the International Building Code, **or (2) is classified as accessory in accordance with the International Residential Code, or (23) is classified as accessory to the residential use by a determination of the Adopting Entity.**

306 - ACCESSORY STRUCTURES

306.1 Applicability. The designation criteria for accessory structures shall be in accordance with Appendix E.

306.2 Compliance. Compliance with Appendix E shall be **voluntary unless specifically adopted as**

~~mandatory either mandatory or voluntary in accordance with this section. If specifically adopted, the adopting entity shall establish rules for compliance with Appendix E.~~

~~**306.2.1 Mandatory Compliance.** If the Adopting Entity adopts Appendix E, it shall establish rules for compliance with Appendix E.~~

~~**306.2.2 Voluntary Compliance.** The voluntary use of Appendix E for accessory structures is permitted.~~

Appendix E – Accessory Structures

E101.1 Applicability of Appendix AE. Appendix E is part of this Standard.

E101.2 Scope. The provisions contained in Appendix E provide the criteria necessary for complying with Section 306 for accessory structures. ~~Accessory structures are to be in accordance with the applicable criteria of Appendix E.~~ Text identified as “User Note” is not considered part of this Standard.

E201 Conforming. Accessory structures that meet all applicable requirements of this Appendix shall be designated as *conforming*. The *conforming* designation for the accessory structure is ~~complementary separate to~~ from the rating achieved by the residential buildings located on the same site or lot. Where residential buildings located on the same lot have not achieved a rating in accordance with this Standard, the accessory structures shall not be eligible for designation under this Appendix. Each accessory structure shall seek a separate designation of *conforming* based on the rules established by the Adopting Entity in accordance with Section E4202. The residential building shall not receive points for any practices implemented only for the accessory structure.

E202 Conformance Criteria. Accessory structures shall implement practices from Chapters 5 through 10 in accordance with Sections E202.1 through E202.7.

E202.1 The practices that are mandatory for the residential building ~~on the same site or lot~~ shall ~~be~~ also ~~be~~ mandatory for the accessory structure unless these practices are exempt under Sections E202.5 or E202.7.

E202.2 All land development practices associated with construction of the accessory structure shall comply with the land development practices for the residential building located on the same lot.

E202.3 For the accessory structures that use the same basic construction and mechanical systems as the residential buildings ~~located on the same site or lot~~, the design and construction of the accessory structures shall meet the practices or the intent of the practices implemented to achieve compliance for the residential building located on the same site or lot.

E202.4 For the accessory structures that use basic construction or mechanical systems that are different from the residential buildings ~~located on the same site or lot~~, the design and construction of the accessory structures shall meet the intent of the practice implemented to achieve compliance for the residential building located on the same site or lot.

E202.5 Where the residential buildings located on the same site or lot include construction methods or systems that do not have functionally equivalent counterparts as part of the accessory structure, the accessory structure does not need to comply with any of the practices implemented with regard to such construction methods or systems.

User note: Examples of the practices that may be exempt from implementation in accessory

structures include, but not limited to:

- 1) Section 601.1 Conditioned floor area.
- ~~42)~~ Section 601.5 Prefabricated Components – accessory structure is not required to be modular if the residential building ~~is~~ modular.
- 23) Section 601.6 Stacked Stories – accessory structures ~~is~~are not required to have more than one story if the residential building is more than one story.
- 34) Section 602.2 Roof surfaces – if the residential building has a landscaped roof, the accessory structure is not required to have a landscaped roof.
- 45) Chapter 7 Energy efficiency – ~~unconditioned spaces in the~~ accessory structure ~~is~~are not required to comply with Chapter 7 unless it includes conditioned space.
- 6) Section 902.3 Radon Control except for habitable space.

E202.6 Where the accessory structure includes construction methods or systems that do not have functionally equivalent counterparts as part of the residential buildings located on the same site or lot, the Adopting Entity shall review such construction methods and systems and shall establish an approach for meeting the overall intent of the Standard with regard to the minimum acceptable threshold.

E202.7 Where the use of the accessory structure has an effect of the functionality of the specific practice, such practices may be exempted by the Adopting Entity.

User note: Examples of the practices that may be exempted from implementation in accessory structures include, but not limited to:

Section 602.1.14 Ice barrier – if the accessory structure does not contain conditioned space, ice barrier is not required.

Committee Reason: Clarifications and simplifications. The option of classification as accessory based on IRC is added. The references to lot and site are included in the definition and therefore removed from the provisions of Appendix E.

PC221	LogID TG-1	Chapter 3 Points
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Submitter: Matt Dobson (Task Group 1 Chair), Vinyl Siding Institute

Public Comment:

Table 303

Threshold Point Ratings for Green Buildings

Green Building Categories			Rating Level Points ^{(1) (2)}			
			BRONZE	SILVER	GOLD	EMERALD
1.	Chapter 5	Lot Design, Preparation, and Development	3950	6664	93	419121
2.	Chapter 6	Resource Efficiency	4543	7959	41389	446119
3.	Chapter 7	Energy Efficiency	30	60	40080	420100
4.	Chapter 8	Water Efficiency	4419	2639	4167	6097
5.	Chapter 9	Indoor Environmental Quality	3625	6542	40069	44097
6.	Chapter 10	Operation, Maintenance, and Building Owner Education	8	10	11	12

7.		Additional Points from any category	50	100	100	100
Total Points:			222226	406374	558509	697647

Reason: Updated rating thresholds based on Task Groups' reviews of the assigned chapters.

Committee Action **Accept as Modified**
from Meeting:

Modification of *Revise public comment as follows (in red):*
Public Comment:

Table 303

Threshold Point Ratings for Green Buildings

Green Building Categories			Rating Level Points ^{(1) (2)}			
			BRONZE	SILVER	GOLD	EMERALD
1.	Chapter 5	Lot Design, Preparation, and Development	39 <u>50</u>	<u>66</u> 64	93	119 <u>121</u>
2.	Chapter 6	Resource Efficiency	45 <u>43</u>	<u>79</u> 59	113 <u>89</u>	146 <u>119</u>
3.	Chapter 7	Energy Efficiency	30	60	100 <u>80</u>	120 <u>100</u>
4.	Chapter 8	Water Efficiency	44 <u>19</u> <u>25</u>	26 <u>39</u>	41 <u>67</u>	60 <u>97</u> <u>92</u>
5.	Chapter 9	Indoor Environmental Quality	36 <u>25</u>	65 <u>42</u>	100 <u>69</u>	140 <u>97</u>
6.	Chapter 10	Operation, Maintenance, and Building Owner Education	8	10	11	12
7.		Additional Points from any category	50	100 <u>75</u>	100	100
Total Points:			222 <u>226</u> <u>231</u>	406 <u>374</u> <u>349</u>	558 <u>509</u>	697 <u>647</u> <u>641</u>

Committee Reason: Increase the Bronze threshold in Water efficiency to raise the bar at the entry level for the Standard. Adjust the Emerald threshold in Water efficiency to compensate for the reduction of available points in that chapter. Adjust the number of additional points for the Silver level to provide for a more gradual transition from the Bronze to the Gold levels.

PC222	LogID TG2-1	Chapter 4 Points
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Submitter: Bruce Boncke (on behalf of Task Group 2), BME Associates

Public Comment: All proposed updates to the point assignments for Chapter 4 are shown in Draft #2.

Reason: Based on Task Group 2 review of the point assignments for Chapter 4 in accordance with the established process.

Committee Action **Accept as Modified**
from Meeting:

Modification of *The consensus committee made the following changes to the Task Group recommendations on points*
Public Comment: *for Chapter 4 (in red).*

403.2 Building orientation. A minimum of 75 percent of the building sites are designed with the longer dimension of the structure to face within 20 degrees of south. ~~6~~36

405.10 Community garden(s). A portion of the site is established as a community garden(s), available to residents of the site, to provide for local food production to residents or area consumers. ~~TBD~~63

Committee Section 403.2: This practice should be encouraged because it can have a large impact on the design

Reason: and loads on the building. Orientation is an important design consideration that enables future design and development options.

Section 405.10: While the consensus committee wants to encourage community gardens, 6 points is excessive relative to other practices in the chapter such as Open Space.

PC223	LogID TG2-2	Chapter 5 Points
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Submitter: Bruce Boncke (on behalf of Task Group 2), BME Associates

Public Comment: All proposed updates to the point assignments for Chapter 5 are shown in Draft #2.

Reason: Based on Task Group 2 review of the point assignments for Chapter 5 in accordance with the established process.

Committee Action from Meeting: **Accept as Modified**

Modification of Public Comment: *The consensus committee made the following changes to the Task Group recommendations on points for Chapter 5 (in red).*

Section 505.2 Heat Island Mitigation - See Draft #2 and PC042 for revised points.

505.5 Community Garden(s). A portion of the lot is established as a community garden(s), available to residents of the lot, to provide for local food production to residents or area consumers. **TBD~~63~~**

Committee Reason: The revised points on Section 505.2 Heat Island Mitigation are based on committee's action on PC042 by Robert Hill.

Section 505.5: While the consensus committee wants to encourage community gardens, 6 points is excessive relative to other practices in the chapter such as Open Space.

PC224	LogID TG3-7	Chapter 6 Points
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Submitter: Randy Melvin (on behalf of Task Group 3), Winchester Homes

Public Comment: All proposed updates to the point assignments for Chapter 6 are shown in Draft #2.

Reason: Based on Task Group 3 review of the point assignments for Chapter 6 in accordance with the established process.

Committee Action from Meeting: **Accept as Modified**

Modification of Public Comment: *The consensus committee made the following changes to the Task Group recommendations on points for Chapter 6 (in red).*

611.2 Sustainable Products. One or more of the following products are used for at least 30% of the floor or wall area of the entire dwelling unit, as applicable. Certification third-party agency is ISO Guide 65 accredited. **4~~69~~ Points Max**

Committee Reason: The maximum points value is adjusted to accommodate the additional practices included in PC075.

PC225	LogID TG5-2	Chapter 7 Points
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Submitter: Michael Hodgson (on behalf of Task Group 5), Consol

Public Comment: All proposed updates to the point assignments for Chapter 7 are shown in Draft #2.

Reason: Based on Task Group 5 review of the point assignments for Chapter 7 in accordance with the established process.
 The report summarizing the methodology used to develop point assignments for Chapter 7 based on estimated energy savings is available upon request.

Committee Action from Meeting: **Accept as Modified**

Modification of Public Comment: *The consensus committee made the following changes to the Task Group recommendations on points for Chapter 7 (in red).*

701.4.3.2 Air sealing and insulation.

Table 701.4.3.2(2)

Air Barrier and Insulation Inspection Component Criteria	
COMPONENT	CRITERIA
Air barrier and thermal barrier	<p>Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier.</p> <p>Breaks or joints in the air barrier are filled or repaired.</p> <p>Air-permeable insulation is not used as a sealing material.</p> <p>Air-permeable insulation is inside of<u>installed with</u> an air barrier.</p>

Revise Table 703.1.2 as follows:

**Table 703.1.2
Insulation Installation Grades**

Grade	POINTS
1	157
2	104

Revise Table 703.4.1(1) as follows:

Table 703.4.1(1)(a)

Gas Water Heating								
Energy Factor	Climate Zone							
	1	2	3	4	5	6	7	8
	POINTS							
0.67 to <0.80	4	4	3	2	3	2	1	1
>=0.80	7	7	5	4	5	4	2	2

Add Table 703.4.1(1)(b) as follows:

Table 703.4.1(1)(b)

Gas Water Heating

Storage with input rate greater than 75,000 Btu/h or instantaneous input rate greater than 200,000 Btu/h

<u>Thermal Efficiency</u>	<u>Climate Zone</u>							
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
	<u>POINTS</u>							
<u>>=0.86</u>	<u>7</u>	<u>7</u>	<u>5</u>	<u>4</u>	<u>5</u>	<u>4</u>	<u>2</u>	<u>2</u>

Revise Table 703.4.1(2) as follows:

Table 703.4.1(2)

Electric Water Heating

<u>Energy Factor or Thermal Efficiency</u>	<u>Climate Zone</u>							
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
	<u>POINTS</u>							
<u>>=0.95</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

Revise Table 703.4.1(4) as follows:

Table 703.4.1(4)

Heat Pump Water Heating

<u>Energy Factor</u>	<u>Climate Zone</u>							
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
	<u>POINTS</u>							
<u>1.5 to <2.0</u>	<u>14</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>4</u>	<u>4</u>	<u>4</u>
<u>2.0 to <2.2</u>	<u>19</u>	<u>16</u>	<u>16</u>	<u>15</u>	<u>15</u>	<u>6</u>	<u>6</u>	<u>6</u>
<u>>=2.2</u>	<u>20</u>	<u>17</u>	<u>17</u>	<u>17</u>	<u>16</u>	<u>6</u>	<u>6</u>	<u>6</u>

Committee Table 701.4.3.2(2): Clarification.

Reason:

Table 703.1.2: In consensus committee judgment, the points should be increased for Grades 1 and 2.

Table 703.4.1(1)(a): Include points for Energy Factor of above 0.67 and below 0.80.

Table 703.4.1(1)(b): Added for equipment that uses thermal efficiency metric.

Table 703.4.1(2): Clarification.

Table 703.4.1(4): Clarification.

PC226	LogID TG4-1	Chapter 8 Points
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Submitter: Michael Cudahy (on behalf of Task Group 4), Plastic Pipe and Fittings Association

Public Comment: All proposed updates to the point assignments for Chapter 8 are shown in Draft #2.

Reason: Based on Task Group 4 review of the point assignments for Chapter 8 in accordance with the established process.

Committee Action **Accept as Modified**
from Meeting:

Modification of *The consensus committee made the following changes to the Task Group recommendations on points*

Public Comment: *for Chapter 8 (in red).*

801.7.5(3) No irrigation is installed and a landscape plan is developed in accordance with Section 503.5, as applicable. ~~452515~~

Committee Reason: In consensus committee judgment, the points for this practice should remain at 15.

PC227	LogID TG3-8	Chapter 9 Points
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Submitter: Randy Melvin (on behalf of Task Group 3), Winchester Homes

Public Comment: All proposed updates to the point assignments for Chapter 9 are shown in Draft #2.

Reason: Based on Task Group 3 review of the point assignments for Chapter 9 in accordance with the established process.

Committee Action from Meeting: **Accept as Modified**

Modification of Public Comment: *The consensus committee made the following changes to the Task Group recommendations on points for Chapter 9 (in red).*

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 points are awarded in Chapter 7 for air infiltration rate less than 5 ACH50 (see Section 703.1.5 of Chapter 7)

Committee Reason: This provision is intended to be used with either the performance or prescriptive path of Chapter 7. The reference to Section 703.1.5 is removed because Section 703.1.5 is part of the prescriptive path only.

PC228	LogID TG1-3	Chapter 10 Points
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Submitter: Matt Dobson (on behalf of Task Group 1), Vinyl Siding Institute

Public Comment: All proposed updates to the point assignments for Chapter 10 are shown in Draft #2.

Reason: Based on Task Group 1 review of the point assignments for Chapter 10 in accordance with the established process.

Committee Action from Meeting: **Accept**

Modification of Public Comment:

Committee Reason:

PC229	LogID TG-2	Chapter 13 Referenced Documents
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Submitter: Matt Dobson (Task Group 1 Chair), Vinyl Siding Institute

Public Comment: Update referenced documents as shown in Draft #2.
Staff note: See Chapter 13 (in its entirety) of Draft #2 for the reference documents updates.

Reason: Update references to the current applicable versions.

Committee Action from Meeting: **Accept as Modified**

Modification of Public Comment: *Staff note: All updates approved by the consensus committee are shown in Chapter 13 of Draft #2 in track changes including Chapter 13 updates based on the approved public comments in the body of the Standard and Appendices. The revisions also include numbering coordination with other Chapters of the Standard.*

Committee Reason:

PCH001**LogID 794****101.3 Intent**

Submitter: Shari Hendley, J.S. Hovnanian & Sons

Public Comment: Please take into consideration the continued slow economy, decreased sales volumes and increasing costs when determining the right time to institute some or all of these changes.

Reason: "This Standard shall establish practices for the design and construction of green residential buildings, building sites, subdivisions, and renovation thereof." While considering instituting these changes, please keep in mind that those who choose to continue to certify their sites, renovations and/or new construction are doing so in spite of the continued slow economy, and decreased home values and sales volumes.

Committee Action from Meeting: **Non-Responsive**

Modification of Public Comment:

Committee Reason: This public comment is unrelated to the content of the Draft Standard (September 23, 2011) and does not propose any action that can be taken by the consensus committee. Comments on implementation of the Standard are outside of the purview of the consensus committee. As an informational item only, your comment will be forwarded to Michelle Desiderio who is the point of contact for the certification program. No further action will be taken on this comment. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

In addition, the scope, intent, purpose, and title of the standard are under the purview of the Executive Standards Council. Please refer to the Procedures for information on submitting changes to these sections.

PCH002**LogID 739****102.1 Applicability**

Submitter: Thomas Culp, Birch Point Consulting LLC

Public Comment: **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.

Committee Action from Meeting: **Held**

**Modification of
Public Comment:**

Committee Reason: This Public Comment proposes changes to a section or part of the Draft Standard (September 23, 2011) that was not changed during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

In addition, the scope, intent, purpose, and title of the standard are under the purview of the Executive Standards Council. Please refer to the Procedures for information on submitting changes to these sections.

PCH003	LogID 695	301.2 Awarding of points
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Submitter: Drew Wallace, econsultants, LLC

Public Comment: Similar to the exception Energy Star used I would suggest that you allow low income housing projects to continue to certify to the 2008 Green Building Standard for an extended period of time.

Reason: This is just a general comment. Does not particularly pertain to the Chapter and Section listed above. I would like to suggest that you take in to consideration low income housing projects when you decide on the timeline to implement the new standard. Energy Star did this with the new Version 3.0.

Committee Action from Meeting: **Non-Responsive**

**Modification of
Public Comment:**

Committee Reason: This public comment is unrelated to the contents of the Draft Standard (September 23, 2011). Also, comments on implementation of the Standard are not in the purview of the consensus committee. As an informational item only, your comment will be forwarded to Michelle Desiderio who is the point of contact for the certification program. No further action will be taken on this comment. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH004	LogID 755	601.1 Conditioned Floor Area
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Submitter: Derek Huetinck, BeaconCrest Homes

Public Comment: [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.

Committee Action from Meeting: **Held**

**Modification of
Public Comment:**

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH005	LogID 705	601.9 Above Grade Wall Systems
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Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: 601.9 – Would like an additional ‘wall system’ for bamboo

Reason: Bamboo is starting to take hold and is good for our mild climate.

Committee Action **Held**

from Meeting:

**Modification of
Public Comment:**

Committee Reason: This Public Comment proposes changes to a section or part of the Draft Standard (September 23, 2011) that was not changed during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH006	LogID 629	605.0 Intent (Recycled Construction Waste)
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: RECYCLED CONSTRUCTION and DEMOLITION WASTE

Reason: The section 605 heading should be revised to include demolition.

**Committee Action Held
from Meeting:**

**Modification of
Public Comment:**

Committee Reason: This Public Comment proposes changes to a section or part of the Draft Standard (September 23, 2011) that was not changed during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH007	LogID 631	605.0 Intent (Recycled Construction Waste)
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **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?

**Committee Action Held
from Meeting:**

**Modification of
Public Comment:**

Committee Reason: This Public Comment proposes changes to a section or part of the Draft Standard (September 23, 2011) that was not changed during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH008	LogID 638	605.0 Intent (Recycled Construction Waste)
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Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: 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.

**Committee Action Held
from Meeting:**

**Modification of
Public Comment:**

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In

accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH009 LogID 708 605.0 Intent (Recycled Construction Waste)

Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: 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.

**Committee Action Held
from Meeting:**

**Modification of
Public Comment:**

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH010 LogID 628 605.1 Construction Waste Management Plan

Submitter: Kathleen Petrie, City of Seattle, Department of Planning and Development

Public Comment: **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

**Committee Action Held
from Meeting:**

**Modification of
Public Comment:**

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH011 LogID 754 703.1.2.2 Grade 1 installation

Submitter: Matthew Dobson, Vinyl Siding Institute

Public Comment: 703.1.2.2 (3) Exterior rigid insulationed sheathing or siding ...

Reason: Change for further clarity.

**Committee Action Held
from Meeting:**

**Modification of
Public Comment:**

Committee Reason: This Public Comment proposes changes to a section or part of the Draft Standard (September 23, 2011) that was not changed during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

Submitter: Gary Klein, Affiliated International Management, LLC

Public Comment: 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.

Committee Action Held
from Meeting:

Modification of
Public Comment:

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

Submitter: Gary Klein, Affiliated International Management, LLC

Public Comment: 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.

Committee Action Held
from Meeting:

Modification of
Public Comment:

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this

PCH014 LogID 714 901.3 Garages

Submitter: Gladys Quinto Marrone, BIA Hawaii

Public Comment: 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.

Committee Action Held from Meeting:

Modification of Public Comment:

Committee Reason: This Public Comment proposes changes to a section or part of the Draft Standard (September 23, 2011) that was not changed during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH015 LogID 726 1001.1 Homeowner's Manual

Submitter: Josh Jacobs, GREENGUARD Environmental Institute

Public Comment: (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 'greenness', 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.

Committee Action Held from Meeting:

Modification of Public Comment:

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH016 LogID 742 1001.1 Homeowner's Manual

Submitter: Susan Gitlin, US Environmental Protection Agency

Public Comment: UUU

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.

Committee Action Held from Meeting:

Modification of Public Comment:

Committee Reason: The changes recommended by this Public Comment to this section of the Draft Standard (September 23, 2011) do not pertain to the changes made during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.

PCH017	LogID 744	1003.2 Operations Manuals
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Submitter: Susan Gitlin, US Environmental Protection Agency

Public Comment: .

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.

Committee Action Held from Meeting:

Modification of Public Comment:

Committee Reason: This Public Comment proposes changes to a section or part of the Draft Standard (September 23, 2011) that was not changed during the development of the Draft Standard. In accordance with the development procedures this comment is Held. Please see the Forward of this Public Comments Report for the action and notification required of the submitter of this Public Comment.