Task Group 7

Chapter 3 Compliance Method

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 156	687	Jamie Hager Southern Energy Management self	305 Green Remodeling Delete and substitute as follows	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"	Change Table 305.2.3 performance levels from Bronze, Silver, Gold and Emerald to One Star, Two Star, Three Star, and Four Star		
PC 157	692	Robert Hill NAHB Research Center NAHB Research Center	305 Green Remodeling Delete and substitute as follows	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.	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.		
PC 158	693	Jamie Hager Southern Energy Management self	305 Green Remodeling Delete and substitute as follows	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.	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. Table 305.2.4 Threshold Ratings for Green Remodels Green Remodel Practice from Section 11 / Minimum Points Needed One Star: 0 / Two Star: TBD / Three Star: TBD / Four Star: TBD Site Work (11.5): 0 / TBD / TBD / TBD Materials (11.6): 0 / TBD / TBD / TBD Indoor Air Quality (11.9): 0 / TBD / TBD / TBD		
PC 159	760	Paul Sullivan The Sullivan Company, Inc. Task Group 7	305 Green Remodeling Revise as follows	After a meeting of Task Group 7 Chairs and NAHB Research Center a need for a completely revised Remodeling section was determined.	A draft of the revision is being sent under separate cover to "standards" ***Staff Note: The revised remodeling provisions are appended at the end of the document due to the large size of the submission.***		
PC 160	781	Bridget Herring Mathis Consulting Company Mathis Consulting Company	305.2.2 Energy and water consumption Revise as follows	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.	**(1)Energy consumption comparison**: Energy consumption mustcomply with the performance requirements for Energy Star Version e3.0 orachieve a HERS index at or below Energy Star Version 3.0 index target ~~shallbe based on the estimated annual energy use due to heating, cooling, and waterheating as determined by a third-party energy audit or analysis. The comparison is based on the percentagedifference between the HERS index before and the HERS index after theremodeling calculated as follows: (HERSbefore-HERSafter)/HERSbefore*100.~~		

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 161	796	Amy Schmidt The Dow Chemical Company Dow Building Solutions	305.2.2 Energy and water consumption Revise as follows	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.	**305.2.2** 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: (HERSbefore-HERSafter)/HERSbefore*100.		

Chapter 11 Remodeling

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 162	759	Paul Sullivan The Sullivan Company, Inc. Task Group 7	202 Definitions Revise as follows	After a meeting between Task Group 7 chairs and NAHB Research Center, it was determined that two of the definitions would become obsolete and one new definition would be needed as it concerns remodeling.	The deletions and additional definition are being forwarded in a separate document to "standards" ***Staff Note: The revised remodeling provisions are appended at the end of the document due to the large size of the submission.***		
PC 163	690	Robert Hill NAHB Research Center NAHB Research Center	11.1 Intent Delete and substitute as follows	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.	Task Group 7 is working on a revised version that I believe will address my concerns.		
PC 164	745	Susan Gitlin US Environmental Protection Agency US Environmental Protection Agency	11.1000 (Occupant education practices) Revise as follows	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.	.		
PC 165	634	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	11.600 (Resource efficiency practices) Delete without substitution	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.	~~**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.~~ ~~**11.603.3 Scrap materials.** 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.~~		
PC 166	635	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	11.600 (Resource efficiency practices) Delete without substitution	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.	~~**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.~~		
PC 167	727	Josh Jacobs GREENGUARD Environmental Institute	11.600 (Resource efficiency practices) Revise as follows	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	**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**		

<table>
<tr><th>PC #</th><th>Log ID</th><th>Full Name
Company Jurisdiction Entity Represented</th><th>Section Number
Requested Action</th><th>Comment</th><th>Proposed Resolution</th><th>TG Action</th><th>Reason</th></tr>
<tr><td></td><td></td><td>GREENGUARD Environmental Institute</td><td></td><td>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.</td><td>(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</td><td></td><td></td></tr>
<tr><td>PC 168</td><td>643</td><td>John Gant
Glen Raven Inc
self</td><td>11.700 (Energy efficiency practices)
Revise as follows</td><td>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.</td><td>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.</td><td></td><td></td></tr>
<tr><td>PC 169</td><td>767</td><td>Eric Lacey
RECA
RECA</td><td>11.700 (Energy efficiency practices)
Revise as follows</td><td>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.</td><td>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 m^2) 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

<table>
<tr><td>Climate Zones</td><td>U-Factor</td><td>SHGC</td></tr>
<tr><td></td><td colspan="2">Windows and Exterior Doors (maximum certified ratings)</td></tr>
<tr><td>1</td><td>0.50</td><td>0.25</td></tr>
<tr><td>~~1 and~~ 2</td><td>~~0.65~~ 0.40</td><td>~~0.40~~ 0.25</td></tr>
<tr><td>3</td><td>~~0.40~~ 0.35</td><td>~~0.40~~ 0.25</td></tr>
<tr><td>~~4 to 8~~</td><td>~~0.35~~ 0.35</td><td>~~Any~~ 0.40</td></tr>
<tr><td>5 to 8</td><td>0.32</td><td>Any</td></tr>
<tr><td></td><td colspan="2">Skylights and TDDs</td></tr>
<tr><td>1 ~~to 3~~</td><td>~~0.75~~ 0.75</td><td>~~0.40~~ 0.25</td></tr>
<tr><td>2</td><td>0.65</td><td>0.25</td></tr>
<tr><td>3 ~~4 to 8~~</td><td>~~0.60~~ 0.55</td><td>~~Any~~ 0.25</td></tr>
<tr><td>4</td><td>0.55</td><td>0.40</td></tr>
<tr><td>5 to 8</td><td>0.55</td><td>Any</td></tr>
</table>
[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

<table>
<tr><td>Climate Zones</td><td>U-Factor</td><td>SHGC</td></tr>
<tr><td></td><td colspan="2">Windows and Exterior Doors (maximum certified ratings)</td></tr>
</table></td><td>Mandatory</td><td></td></tr>
</table>

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution			TG Action	Reason
					1	1.20	0.30	Mandatory	
					~~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		

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 m^2) 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)		
1	0.50	0.25	Mandatory
~~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	

[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)		
1	1.20	0.30	Mandatory
~~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	

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 170	612	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	11.900 (IEQ practices) Revise as follows	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	**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*.~~		
PC 171	614	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	11.900 (IEQ practices) Revise as follows	901.9.1 and 901.9.2 applies to Architectural Coatings, so they have been replaced with the appropriate reference: 901.10.	**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.		
PC 172	620	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	11.900 (IEQ practices) Revise as follows	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	**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~~		

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 173	621	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	11.900 (IEQ practices) Revise as follows	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	**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** ~~11.901.9.1~~ **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		
PC 174	699	Donn Thompson Portland Cement Association Portland Cement Association	11.900 (IEQ practices) Revise as follows	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.	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		

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
					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).		
PC 175	700	Michael Cudahy PPFA PPFA	11.900 (IEQ practices) Delete and substitute as follows	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.	~~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		
PC 176	774	Amanda Evans Santa Fe self	11.900 (IEQ practices) Revise as follows	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	(Follow the requirements for new construction)		
PC 177	775	Amanda Evans Santa Fe self	11.900 (IEQ practices) Revise as follows	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	Make CO monitors mandatory here, instead of awarding points		
PC 178	782	Gregg Achman Hearth & Home Technologies Hearth & Home Technologies	11.900 (IEQ practices) Revise as follows	Need better clarification that in a remodel a "fireplace" means all wood burning (masonry and factory built) and gas, and to be consistent with 901.1.4, includes 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 separate 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.]~~**		

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 179	783	Gregg Achman Hearth & Home Technologies Hearth & Home Technologies	11.900 (IEQ practices) Revise as follows	11.901.2.1, as modified below, should be done as mandatory in a remodel to ensure that any fuel burning (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 there 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 incentivizing them to upgrade to something complying 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 burning fireplaces that are not design certified for gasketed doors.	**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-burning fireplaces must have a means of sealing the flue to minimize interior air (heat) loss when not in operation. **Mandatory**		
PC 180	784	Gregg Achman Hearth & Home Technologies Hearth & Home Technologies	11.900 (IEQ practices) Revise as follows	Section not needed, see comments on section 11.901.2.1	~~**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.~~		
PC 181	786	Gregg Achman Hearth & Home Technologies Hearth & Home Technologies	11.900 (IEQ practices) Revise as follows	All sections in and under 11.901.2.1(2)to be stricken, see previous comment to 11.901.2.1.	~~**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.~~ ~~**(c)** 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).~~		
PC 182	825	Amy Schmidt The Dow Chemical Company Dow Building Solutions	11.900 (IEQ practices) Delete without substitution	There should not be requirements for testing and certifying products that don't have IEQ issues.	Delete section		
PC 183	827	Amy Schmidt The Dow Chemical Company Dow Building Solutions	11.900 (IEQ practices) Revise as follows	The moisture content of wood is just as important as the moisture content of insulation. Both should be mandatory.	**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**		
PC 184	728	Josh Jacobs GREENGUARD Environmental Institute GREENGUARD Environmental Institute	Other for Chapter 11 (include section number and title below) Revise as follows	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.	Please use product emission credits in chapter 9 as substitutes for all relevant renovation chapters' product emission credits.		
PC 185	757	Paul Sullivan The Sullivan Company, Inc. Task Group 7	Other for Chapter 11 (include section number and title below) Revise as follows	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 even though it is the task group work	See separate document sent to "standards" for Chapters 11 and 12 ***Staff Note: The revised remodeling provisions are appended at the end of the document due to the large size of the submission.***		

Chapter 12 Small Renovations

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 186	622	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	12.1 Bathroom renovations Revise as follows	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?	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*~~		
PC 187	623	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	12.1 Bathroom renovations Revise as follows	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.	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~~		
PC 188	636	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	12.1 Bathroom renovations Delete without substitution	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.	~~**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.~~		
PC 189	701	Michael Cudahy PPFA PPFA	12.1 Bathroom renovations Delete and substitute as follows	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.	~~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		

<table>
<tr><th>PC #</th><th>Log ID</th><th>Full Name
Company Jurisdiction Entity Represented</th><th>Section Number
Requested Action</th><th>Comment</th><th>Proposed Resolution</th><th>TG Action</th><th>Reason</th></tr>
<tr><td>PC 190</td><td>768</td><td>Eric Lacey
RECA
RECA</td><td>12.1 Bathroom renovations
Revise as follows</td><td>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.</td><td>
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 ~~701.4.4.1~~ 12.1.1.2(a). Decorative fenestration elements with a maximum area of 15 square feet (1.39 m^2) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

Table ~~701.4.4.1~~ 12.1.1.2(a)
Fenestration Specifications
<table>
<tr><th>Climate Zones</th><th>U-Factor</th><th>SHGC</th></tr>
<tr><td></td><td colspan="2">Windows and Exterior Doors (maximum certified ratings)</td></tr>
<tr><td>1</td><td>0.50</td><td>0.25</td></tr>
<tr><td>~~1 and~~ 2</td><td>~~0.65~~ 0.40</td><td>~~0.40~~ 0.25</td></tr>
<tr><td>3</td><td>~~0.40~~ 0.35</td><td>~~0.40~~ 0.25</td></tr>
<tr><td>4 ~~to 8~~</td><td>~~0.35~~ 0.35</td><td>~~Any~~ 0.40</td></tr>
<tr><td>5 to 8</td><td>0.32</td><td>Any</td></tr>
<tr><td></td><td colspan="2">Skylights and TDDs</td></tr>
<tr><td>1 ~~to 3~~</td><td>~~0.75~~ 0.75</td><td>~~0.40~~ 0.25</td></tr>
<tr><td>2</td><td>0.65</td><td>0.25</td></tr>
<tr><td>3 ~~4 to 8~~</td><td>~~0.60~~ 0.55</td><td>~~Any~~ 0.25</td></tr>
<tr><td>4</td><td>0.55</td><td>0.40</td></tr>
<tr><td>5 to 8</td><td>0.55</td><td>Any</td></tr>
</table>
[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~~ 12.1.1.2(a)
Fenestration Specifications
<table>
<tr><th>Climate Zones</th><th>U-Factor</th><th>SHGC</th></tr>
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<tr><td>4 to 8</td><td>0.60</td><td>Any</td></tr>
</table>
</td><td>Mandatory

Mandatory</td><td></td></tr>
</table>

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 191	624	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	12.2 Green kitchen remodel Revise as follows	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?	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)~~ ~~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*~~		
PC 192	625	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	12.2 Green kitchen remodel Revise as follows	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?	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~~		
PC 193	702	Michael Cudahy PPFA PPFA	12.2 Green kitchen remodel Delete and substitute as follows	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.	~~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		
PC 194	746	Susan Gitlin US Environmental Protection Agency US Environmental Protection Agency	12.2 Green kitchen remodel Revise as follows	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.	.		

<table>
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Requested Action</th><th>Comment</th><th>Proposed Resolution</th><th>TG Action</th><th>Reason</th></tr>
<tr><td>PC 195</td><td>770</td><td>Eric Lacey
RECA
RECA</td><td>12.2 Green kitchen remodel
Revise as follows</td><td>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.</td><td>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 ~~701.4.4.1~~ 12.1.1.2(a), on an area-weighted average basis. Decorative fenestration elements with a maximum area of 15 square feet (1.39 m^2) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice.

[Option 1: 2012 IECC]

Table ~~701.4.4.1~~ 12.2.3
Fenestration Specifications
<table><tr><th rowspan="2">Climate Zones</th><th>U-Factor</th><th>SHGC</th></tr><tr><th colspan="2">Windows and Exterior Doors (maximum certified ratings)</th></tr><tr><td>1</td><td>0.50</td><td>0.25</td></tr><tr><td>~~1 and~~ 2</td><td>~~0.65~~ 0.40</td><td>~~0.40~~ 0.25</td></tr><tr><td>3</td><td>~~0.40~~ 0.35</td><td>~~0.40~~ 0.25</td></tr><tr><td>4 ~~to 8~~</td><td>~~0.35~~ 0.35</td><td>~~Any~~ 0.40</td></tr><tr><td>5 to 8</td><td>0.32</td><td>Any</td></tr><tr><td></td><td colspan="2">Skylights and TDDs</td></tr><tr><td>1 ~~to 3~~</td><td>~~0.75~~ 0.75</td><td>~~0.40~~ 0.25</td></tr><tr><td>2</td><td>0.65</td><td>0.25</td></tr><tr><td>3 ~~4 to 8~~</td><td>~~0.60~~ 0.55</td><td>~~Any~~ 0.25</td></tr><tr><td>4</td><td>0.55</td><td>0.40</td></tr><tr><td>5 to 8</td><td>0.55</td><td>Any</td></tr></table>[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~~ 12.1.1.2(a)
Fenestration Specifications
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Mandatory</td><td></td></tr>
<tr><td>PC 196</td><td>828</td><td>Amy Schmidt
The Dow Chemical Company
Dow Building Solutions</td><td>12.2 Green kitchen remodel
Revise as follows</td><td>12.2.4 Insulation should be consistent with the base code as a minimum.</td><td>Insert values at base code levels at a minimum.</td><td></td><td></td></tr>
</table>

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 197	626	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	12.3 Basement remodeling Revise as follows	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?	**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~~ ~~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*~~		
PC 198	747	Susan Gitlin US Environmental Protection Agency US Environmental Protection Agency	12.3 Basement remodeling Revise as follows	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.	.		
PC 199	756	Jamie Hager Southern Energy Management self	12.3 Basement remodeling Revise as follows	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	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.		
PC 200	829	Amy Schmidt The Dow Chemical Company Dow Building Solutions	12.3 Basement remodeling Revise as follows	12.3.6 insulation should be installed at base code values at a minimum.	Insert base code values at a minimum.		
PC 201	637	Kathleen Petrie City of Seattle, Department of Planning and Development City of Seattle, Department of Planning and Development	12.4 Small addition Delete without substitution	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.	~~**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.~~		

<table>
<tr><th>PC #</th><th>Log ID</th><th>Full Name
Company Jurisdiction Entity Represented</th><th>Section Number
Requested Action</th><th>Comment</th><th>Proposed Resolution</th><th>TG Action</th><th>Reason</th></tr>
<tr><td>PC 202</td><td>703</td><td>Michael Cudahy
PPFA
PPFA</td><td>12.4 Small addition
Delete and substitute as follows</td><td>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.</td><td>~~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</td><td></td><td></td></tr>
<tr><td>PC 203</td><td>771</td><td>Eric Lacey
RECA
RECA</td><td>12.4 Small addition
Revise as follows</td><td>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.</td><td>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 m^2) 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~~ 12.4.3.4
Fenestration Specifications
<table><tr><td>Climate Zones</td><td>U-Factor</td><td>SHGC</td></tr><tr><td></td><td colspan="2">Windows and Exterior Doors (maximum certified ratings)</td></tr><tr><td>1</td><td>0.50</td><td>0.25</td></tr><tr><td>~~1 and~~ 2</td><td>~~0.65~~ 0.40</td><td>~~0.40~~ 0.25</td></tr><tr><td>3</td><td>~~0.40~~ 0.35</td><td>~~0.40~~ 0.25</td></tr><tr><td>~~4 to 8~~</td><td>~~0.35~~ 0.35</td><td>~~Any~~ 0.40</td></tr><tr><td>5 to 8</td><td>0.32</td><td>Any</td></tr><tr><td></td><td colspan="2">Skylights and TDDs</td></tr><tr><td>1 ~~to 3~~</td><td>~~0.75~~ 0.75</td><td>~~0.40~~ 0.25</td></tr><tr><td>2</td><td>0.65</td><td>0.25</td></tr><tr><td>3 ~~4 to 8~~</td><td>~~0.60~~ 0.55</td><td>~~Any~~ 0.25</td></tr><tr><td>4</td><td>0.55</td><td>0.40</td></tr><tr><td>5 to 8</td><td>0.55</td><td>Any</td></tr></table>[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~~ 12.4.3.4
Fenestration Specifications
<table><tr><td>Climate Zones</td><td>U-Factor</td><td>SHGC</td></tr><tr><td></td><td colspan="2">Windows and Exterior Doors (maximum certified ratings)</td></tr><tr><td>1</td><td>1.20</td><td>0.30</td></tr><tr><td>~~1 and~~ 2</td><td>0.65</td><td>~~0.40~~ 0.30</td></tr><tr><td>3</td><td>~~0.40~~ 0.50</td><td>~~0.40~~ 0.30</td></tr><tr><td>4 to 8</td><td>0.35</td><td>Any</td></tr><tr><td></td><td colspan="2">Skylights and TDDs</td></tr><tr><td>1 ~~to 3~~</td><td>~~0.75~~ 0.75</td><td>~~0.40~~ 0.30</td></tr><tr><td>2</td><td>0.75</td><td>0.30</td></tr><tr><td>3 ~~4 to 8~~</td><td>~~0.60~~ 0.65</td><td>~~Any~~ 0.30</td></tr><tr><td>4 to 8</td><td>0.60</td><td>Any</td></tr></table></td><td>Mandatory</td><td></td></tr>
</table>

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
PC 204	788	Gregg Achman Hearth & Home Technologies Hearth & Home Technologies	12.4 Small addition Revise as follows	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.	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.		
PC 205	654	Naveen Berry SCAQMD SCAQMD	Other for Chapter 12 (include section number and title below) Delete and substitute as follows	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.	Section 12.3.13 Paint and Stain, Non-Flat – ~~100~~ 50 Clear Wood Varnish – ~~350~~ 275 Clear Wood Lacquer – ~~550~~ 275		
PC 206	655	Naveen Berry SCAQMD SCAQMD	Other for Chapter 12 (include section number and title below) Delete and substitute as follows	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.	Section 12.4.4.6 Architectural Coatings when building is occupied, Non-Flat – ~~100~~ 50 Clear Wood Varnish – ~~350~~ 275 Clear Wood Lacquer – ~~550~~ 275		
PC 207	691	Robert Hill NAHB Research Center NAHB Research Center	Other for Chapter 12 (include section number and title below) Delete and substitute as follows	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.	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.		
PC 208	758	Paul Sullivan The Sullivan Company, Inc. Task Group 7	Other for Chapter 12 (include section number and title below) Revise as follows	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.	See separate document on Chapters 11 and 12 that is being sent to "standards" ***Staff Note: The revised remodeling provisions are appended at the end of the document due to the large size of the submission.***		
PC 209	831	Craig Conner Building Quality self	Other for Chapter 12 (include section number and title below) Revise as follows	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 effiency 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	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.		

PC #	Log ID	Full Name Company Jurisdiction Entity Represented	Section Number Requested Action	Comment	Proposed Resolution	TG Action	Reason
				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 effiency 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.			

Chapter 13 Referenced Documents

<table>
<tr><th>PC #</th><th>Log ID</th><th>Full Name
Company Jurisdiction Entity Represented</th><th>Section Number
Requested Action</th><th>Comment</th><th>Proposed Resolution</th><th>TG Action</th><th>Reason</th></tr>
<tr><td>PC 210</td><td>772</td><td>Eric Lacey
RECA
RECA</td><td>1302 Referenced Documents
Revise as follows</td><td>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.</td><td>Chapter 13

Referenced Documents

<table><tr><td>IBC</td><td><s>2006</s> 2012</td><td>International Building Code</td><td>202, 602.3.1, 602.9, 602.10, 703.1.1, 901.2.1(2)(e), 1001.1(10)</td></tr><tr><td>IECC</td><td><s>2004</s> 2012</td><td>International Energy Conservation Code</td><td>B201.1</td></tr><tr><td>IECC</td><td><s>2006</s> 2012</td><td>International Energy Conservation Code</td><td>701.1.1, 702.2, 703.1.1</td></tr><tr><td>IMC</td><td><s>2006</s> 2012</td><td>International Mechanical Code</td><td>701.4.2.1, 704.6.1(1)</td></tr><tr><td>IPC</td><td><s>2006</s> 2012</td><td>International Plumbing Code</td><td>903.5.3</td></tr><tr><td>IRC</td><td><s>2006</s> 2012</td><td>International Residential Code</td><td>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)</td></tr></table></td><td></td><td></td></tr>
<tr><td>PC 211</td><td>787</td><td>Bridget Herring
Mathis Consulting Company
Mathis Consulting Company</td><td>1302 Referenced Documents
Revise as follows</td><td>Green standards are universally understood and expected to be above code programs. Failure to reference the current minimum code is misleading and unacceptable.</td><td><table><tr><td>IBC</td><td><s>200620092012</s></td><td>International Building Code</td><td></td></tr><tr><td>IECC</td><td>2004</td><td>International Energy Conservation Code</td><td></td></tr><tr><td>IECC</td><td><s>200620092012</s></td><td>International Energy Conservation Code</td><td></td></tr><tr><td>IMC</td><td><s>200620092012</s></td><td>International Mechanical Code</td><td></td></tr><tr><td>IPC</td><td><s>200620092012</s></td><td>International Plumbing Code</td><td></td></tr><tr><td>IRC</td><td><s>200620092012</s></td><td>International Residential Code</td><td></td></tr></table></td><td></td><td></td></tr>
</table>

Public Comment on Remodeling

Attached are proposed remodeling provisions submitted by Sullivan CGP as chair and on behalf of Task Group 7 (November 2011) for the following public comments:

1. PC159
2. PC162
3. PC185
4. PC208

PC159 / PC162 / PC185 / PC208

NATIONAL GREE BUILDING STANDARD 2012
PUBLIC COMMENTS

SUBMITTED BY: Paul Sullivan CGP as chair and on behalf of Task Group 7

CHAPTER 2 Definitions

Section 202

Action: Delete definitions for Major Remodeling and Minor Remodeling
Reason: The public comment for Chapter 11 that follows makes both of these definitions obsolete

CHAPTER 3 Compliance Method

Action: Replace entire section 305 with the following new section 305.
Reason: This new section will reflect the public comment suggestions made in chapters 11 and 12

NOTE: The language is NOT underlined for clarity.

305 Remodeling of existing buildings

305.1 Compliance options. The criteria for existing buildings 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	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:

[(consumption before remodel - consumption after remodel)/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:

[(consumption before remodel - consumption after remodel)/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.

CHAPTER 11

Action: Replace entire chapter 11 with the following:
Reason: The original proposal with various “applicable practices” and “new work” and “re-work” was deemed to be too confusing for practical implementation. This replacement chapter provides for the same mandatory requirements as originally intended and it also provides that building must go above the mandatory is some areas but eliminates the confusion. It also incorporates all the approved changes for new construction in order to be as consistent as possible between new construction and remodeling.

NOTE: The language is NOT underlined for clarity.

GREEN BUILDING PRACTICES	POINTS
11.500 LOT DESIGN, PREPARATION, AND DEVELOPMENT	
11.500.0 Intent. This section applies to the lot and changes to the lot due to remodeling of an existing building.	
11.501 LOT SELECTION	
11.501.2 Multi-modal transportation. A range of multi-modal transportation choices are promoted by one or more of the following:	
(1) The building is located within one-half mile (805 m) of pedestrian access to a mass transit system or within five miles (8046 m) of a mass transit station with provisions for parking.	**3**
(3) The building is located within one-half mile (805 m) of six or more community resources [e.g., recreational facilities (such as pools, tennis courts, basketball courts), parks, grocery store, post office, place of worship, community center, daycare center, bank, school, restaurant, medical/dental office, laundromat/dry cleaner].	**3**
(4) The building is on a lot located within a community that has rights-of-way specifically dedicated to bicycle use in the form of paved paths or bicycle lanes or on an infill lot located within 1/2 mile of a bicycle lane designated by the jurisdiction.	**TBD**
11.502 PROJECT TEAM, MISSION STATEMENT, AND GOALS	
11.502.1 Project team, mission statement, and goals. A knowledgeable team is established and team member roles are identified with respect to green lot design, preparation, and development. The project’s green goals and objectives are written into a mission statement.	**4**
11.503 LOT DESIGN	
11.503.0 Intent. The lot is designed to avoid detrimental environmental impacts first, minimize any unavoidable impacts, and mitigate for those impacts that do occur. The project is designed to minimize environmental impacts and to protect, restore, and enhance the natural features and environmental quality of the lot. **(To be awarded points allocated for design the intent of the design is implemented.)**	

GREEN BUILDING PRACTICES	POINTS
11.503.1 Natural resources. Natural resources are conserved by one or more of the following:	
(1) A natural resources inventory is completed under the direction of a qualified professional.	**5**
(2) A plan is implemented to conserve the elements identified by the resource inventory as high-priority resources.	**6**
(3) Items listed for protection in the resource inventory plan are protected under the direction of a qualified professional.	**4**
(4) Basic training in tree or other natural resource protection is provided for the on-site supervisor.	**4**
(5) All tree pruning on-site is conducted by a Certified Arborist.	**2**
(6) Ongoing maintenance of vegetation on the lot during construction is in accordance with TCIA A300 or locally accepted best practices.	**3**
(7) Where a lot adjoins a landscaped common area, a protection plan from the remodeling construction activities next to the common area is implemented.	**5**
11.503.2 Slope disturbance. Slope disturbance is minimized by the use of terrain adaptive architecture including terracing, retaining walls, landscaping, or other re-stabilization techniques.	
(1) Hydrological/soil stability study is completed and used to guide the design of any additions to buildings on the site.	**5**
(2) All or a percentage of new driveways and parking are aligned with natural topography to reduce cut and fill.	
(a) less than 25 percent	**1**
(b) 25 percent to 75 percent	**3**
(c) greater than 75 percent	**5**
(3) Long-term erosion effects are reduced through the design and implementation of terracing, retaining walls, landscaping, or restabilization techniques.	**6**
(4) Underground parking uses the natural slope for parking entrances.	**4**
11.503.3 Soil disturbance and erosion. Soil disturbance and erosion are minimized by one or more of the following: (also see Section 11.504.3)	
(1) Remodeling construction activities are scheduled to minimize length of time that soils are exposed.	**5**
(2) The newly installed utilities on the lot are installed using one or more alternative means:	**5**
(a) tunneling instead of trenching **(b)** use of smaller (low ground pressure) equipment or geomats to spread the weight of construction equipment **(c)** shared utility trenches or easements	

GREEN BUILDING PRACTICES	POINTS
(d) placement of utilities under paved surfaces instead of yards	
(3) Limits of any new clearing and grading are demarcated on the lot plan.	**5**

11.503.4 Storm water management. A storm water management design includes one or more of the following low-impact development techniques:	
(1) Natural water and drainage features are preserved and used.	**6**
(2) Facilities that minimize concentrated flows and simulate flows found in natural hydrology by the use of vegetative swales, french drains, wetlands, drywells, rain gardens, and similar infiltration features.	**6**
(3) All or a percentage of impervious surfaces are minimized and permeable materials are used for driveways, parking areas, walkways, and patios.	
(a) less than 25 percent	**1**
(b) 25 percent to 75 percent	**3**
(c) greater than 75 percent	**5**
(4) A minimum of 50 percent of the roof is vegetated (green roof) using technology capable of withstanding the climate conditions of the jurisdiction and the microclimate conditions of the building site. Invasive plant species are not permitted.	**3**
(5) Stormwater management practices that manage rainfall on-site and prevent the off-site discharge from all storms up to and including the volume of the 95th percentile storm event.	**TBD**

11.503.5 Landscape plan. A landscape plan for the lot is developed to limit water and energy use while preserving or enhancing the natural environment. **(Where "front" only or "rear" only plan is implemented, only half of the points (rounding down to a whole number) are awarded for items 1-6)**	
(1) Where a lot is less than 50% turf, a plan is formulated to restore or enhance natural vegetation that is cleared during construction. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.	**5**
(2) Turf grass species, other vegetation, and trees are selected and specified on the lot plan that are native or regionally appropriate for local growing conditions.	**4**

(3) The percentage of turf areas that is designed to be mowed is limited and shown on the lot plan. The percentage is based on the landscaped area of the lot not including the home footprint, hardscape, and any undisturbed natural areas.	
(a) 0 percent	**4**
(b) greater than 0 percent to less than 20 percent	**3**
(c) 20 percent to less than 40 percent	**2**
(d) 40 percent to 60 percent	**1**
(4) Plants with similar watering needs are grouped (hydrozoning) and shown on the lot plan.	**5**

GREEN BUILDING PRACTICES		POINTS
(5)	Summer shading by planting installed to shade a minimum of 30% of building walls. To conform to summer shading, the effective shade coverage is the arithmetic mean of the shade coverage calculated at 10 am for eastward facing walls, noon for southward facing walls, and 3 pm for westward facing walls on the summer solstice five years after planting.	**5**
(6)	Vegetative wind breaks or channels are designed to protect the lot and immediate surrounding lots as appropriate for local conditions.	**4**
(7)	On-site (or community generated) tree trimmings or stump grinding of regionally appropriate trees are used on the site to provide protective mulch during construction or for landscaping.	**3**
(8)	An integrated pest management plan is developed to minimize chemical use in pesticides and fertilizers.	**4**

11.503.6 Wildlife habitat. Measures are planned that will support wildlife habitat and include at least two of the following:	**4**
(1) Plants and gardens that will encourage wildlife, such as bird and butterfly gardens.	**TBD**
(2) Inclusion of a certified “backyard wildlife” program.	**TBD**
(3) Lots are adjacent to wildlife corridors, fish and game parks, or preserved areas and are designed with regard for this relationship.	**TBD**
(4) Outdoor lighting techniques are utilized with regard for wildlife.	**TBD**

11.503.7 Environmentally sensitive areas. Environmentally sensitive areas.	
(1) The lot does not contain any environmentally sensitive areas that are disturbed during remodeling.	**3**
(2) Environmentally sensitive areas compromised during remodeling are mitigated or restored.	**3**

11.504 LOT CONSTRUCTION

11.504.0 Intent. Environmental impact during construction is avoided to the extent possible; impacts that do occur are minimized, and any significant impacts are mitigated.

11.504.1 On-site supervision and coordination. On-site supervision and coordination is provided during clearing, grading, trenching, paving on the lot, and installation of utilities on the lot to ensure that specified green development practices are implemented. (also see Section 11.503.3)	**4**

11.504.2 Trees and vegetation. Designated trees and vegetation are preserved by one or more of the following:		
(1)	Fencing or equivalent is installed to protect trees and other vegetation.	**3**
(2)	Trenching, significant changes in grade, and compaction of soil and critical root zones in all “tree save” areas as shown on the lot plan are avoided.	**4**

GREEN BUILDING PRACTICES		POINTS
(3)	Damage to designated existing trees and vegetation is mitigated during construction through pruning, root pruning, fertilizing, and watering.	**4**

11.504.3 Soil disturbance and erosion implementation. On-site soil disturbance and erosion during remodeling are minimized by one or more of the following in accordance with the SWPPP or applicable plan: (also see Section 11.503.3)	
(1) Sediment and erosion controls are installed on the lot and maintained in accordance with the storm water pollution prevention plan, where required.	**5**
(2) Limits of clearing and grading are staked out on the lot.	**5**
(3) "No disturbance" zones are created using fencing or flagging to protect vegetation and sensitive areas on the lot from construction activity.	**5**
(4) Topsoil from either the lot or the site development is stockpiled and stabilized for later use and used to establish landscape plantings on the lot.	**5**
(5) Soil compaction from construction equipment is reduced by distributing the weight of the equipment over a larger area (laying lightweight geogrids, mulch, chipped wood, plywood, OSB, metal plates, or other materials capable of weight distribution in the pathway of the equipment).	**3**
(6) Disturbed areas on the lot that are complete or to be left unworked for 21 days or more are stabilized within 14 days using methods as recommended by the EPA, or in the approved storm water pollution prevention plan, where required.	**3**
(7) Soil is improved with organic amendments and mulch.	**3**
(8) Newly installed utilities on the lot are installed using one or more alternative means (e.g., tunneling instead of trenching, use of smaller equipment, use of low ground pressure equipment, use of geomats, shared utility trenches or easements).	**5**

11.505 INNOVATIVE PRACTICES

11.505.0 Intent. Innovative lot design, preparation and development practices are used to enhance environmental performance. Waivers or variances from local development regulations are obtained, and innovative zoning practices are used to implement such practices.

11.505.1 Driveways and parking areas. Driveways and parking areas are minimized by one or more of the following:	
(1) Off-street parking areas are shared or driveways are shared. Waivers or variances from local development regulations are obtained to implement such practices, if required.	4
(2) In a multi-unit project, parking capacity is not to exceed the local minimum requirements.	4

GREEN BUILDING PRACTICES	POINTS
(3) Structured parking is utilized to reduce the footprint of surface parking areas.	
(a) 25 % to less than 50%	2
(b) 50% to 75%	3
(c) greater than 75%	4

11.505.2 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:	**4**
(1) 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) Light-colored hardscaping: Horizontal hardscaping materials are installed with a solar reflectance index of 29 or greater.	
(3) Permeable hardscaping: Permeable hardscaping materials are installed.	
(4) Roofs: Not less than 75 percent of the surface of the roof meets one or a combination of the following methods. **(a)** Minimum initial Solar Reflectance Index of 78 for a low-sloped roof (a slope less than or equal to 2:12) and a minimum initial Solar Reflectance Index of 29 for a steep-sloped roof (a slope of more than 2:12). **(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.	

11.505.3 Density. The average density on the lot on a net developable area basis is:	
(1) 7 to less than 14 dwelling units per acre (per 4047 m^2)	**4**
(2) 14 to less than 21 dwelling units per acre (per 4047 m^2)	**7**
(3) 21 or greater dwelling units per acre (per 4047 m^2)	**10**

11.505.4 Mixed-use development. The lot contains a mixed-use building.	**6**

11.505.5 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**

GREEN BUILDING PRACTICES	POINTS

11.601
QUALITY OF CONSTRUCTION MATERIALS AND WASTE

11.601.0 Intent. Design and construction practices that minimize the environmental impact of the building materials are incorporated, environmentally efficient building systems and materials are incorporated, and waste generated during construction is reduced.

11.601.1 Conditioned floor area. Finished floor area of a dwelling unit after the remodeling is limited. Finished floor area is calculated in accordance with NAHBRC Z765. Only the finished floor area for stories above grade plane is included in the calculation.		
(1)	less than or equal to 1,000 square feet (93 m^2)	**15**
(2)	less than or equal to 1,500 square feet (139 m^2)	**12**
(3)	less than or equal to 2,000 square feet (186 m^2)	**9**
(4)	less than or equal to 2,500 square feet (232 m^2)	**6**
(5)	greater than 4,000 square feet (372 m^2)	**Mandatory**
	(For every 100 square feet (9.29 m^2) over 4,000 square feet (372 m^2), one point is to be added in Table 305.2.4for each performance level.)	
Multi-Unit Building Note*: For a multi-unit building, use a weighted average of the individual unit sizes in qualifying for available points.*		
11.601.2 Material usage. Newly installed structural systems are designed or construction techniques are implemented that reduce and optimize material usage.		**9 Points Max**
	(To be eligible for points, the newly installed portion of the structural system shall comprise at least 25 percent of the total area of the entire structural system after the remodel)	
(1)	Minimum structural member or element sizes necessary for strength and stiffness in accordance with advanced framing techniques or structural design standards are selected.	**3**
(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**
(3)	Performance-based structural design is used to optimize lateral force-resisting systems.	**3**

11.601.3 Building dimensions and layouts. Building dimensions and layouts are designed to reduce material cuts and waste. This practice is used for a minimum of 80 percent of the newly installed areas:		
	(To be eligible for points, the newly installed portion of the building shall comprise at least 25 percent of the total area of that entire element of the building after the remodel)	
(1)	floor area	**3**
(2)	wall area	**3**
(3)	roof area	**3**
(4)	cladding or siding area	**3**
(5)	penetrations or trim area	**1**

GREEN BUILDING PRACTICES	POINTS
11.601.4 Framing and structural plans. Detailed framing or structural plans, material quantity lists and on-site cut lists for newly installed framing, structural materials, and sheathing materials are provided.	**4**
11.601.5 Prefabricated components. Precut or preassembled components, or panelized or precast assemblies are utilized for a minimum of 90 percent for the following system or building:	
(To be eligible for points, the newly installed portion of the building shall comprise at least 25 percent of the total area of that entire system of the building after the remodel)	
(1) floor system	**4**
(2) wall system	**4**
(3) roof system	**4**
(4) modular construction for any new construction located above grade	**13**
11.601.6 Stacked stories. Stories above grade are stacked, such as in 1½-story, 2-story, or greater structures. The area of the upper story is a minimum of 50 percent of the area of the story below, based on areas with a minimum ceiling height of 7 feet (2134 mm).	**8 Points Max**
(1) first stacked story	**4**
(2) for each additional stacked story	**2**
11.601.7 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.	**12 Points Max**
(1) 90 percent or more (after the remodel) of the installed building materials or assemblies listed below: **(Points awarded for each type (a-g) of material or assembly.)**	**5**
(2) 50 percent to less than 90 percent (after the remodel) of the installed building material or assembly listed below: **(Points awarded for each type (a-g) of material or assembly.)**	**2**
(3) 35 percent to less than 50 percent (after the remodel) of the installed building material or assembly listed below: **(Points awarded for each type (a-g) of material or assembly.)**	**1**
(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 exterior or 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	
11.601.8 Foundations. A foundation system that minimizes soil disturbance, excavation quantities and material usage, such as frost-protected shallow foundations, isolated pier and pad foundations, deep foundations, post foundations, or helical piles is selected, designed, and constructed. The foundation is used on 25 percent or more of the building footprint after the remodel.	**3**

GREEN BUILDING PRACTICES	POINTS
11.602 **ENHANCED DURABILITY AND REDUCED MAINTENANCE**	
11.602.0 Intent. Design and construction practices are implemented that enhance the durability of materials and reduce in-service maintenance.	
11.602.1 Moisture Management – Building Envelope	
11.602.1.1 Capillary breaks	
11.602.1.1.1 a capillary break and vapor retarder are installed at all concrete slabs adjoining living space in accordance with Sections 11.602.1.1.1(1) or 11.602.1.1.1(2), as modified by Section 11.602.1.1.1(3):	**Mandatory**
Exception: This practice is not mandatory for existing slabs without apparent moisture problem.	
(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 11.602.1.4. **(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 11.602.1.4. **(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.	
11.602.1.1.2 Add a capillary break on footing to prevent moisture migration into foundation wall on all new foundations and not less than 25 percent of the total length of the foundation after the remodel.	**3**
11.602.1.2 Foundation waterproofing. Enhanced foundation waterproofing is installed on all new foundations and not less than 25 percent of the total length of the foundation after the remodel: **(1)** rubberized coating, or **(2)** drainage mat	**4**
11.602.1.3 Foundation drainage.	
11.602.1.3.1 Where required by the ICC IRC or IBC for habitable and usable spaces below grade, exterior drain tile is installed.	**Mandatory**
Exception: This practice is not mandatory for existing space without apparent moisture problem.	
11.602.1.3.2 Interior and exterior foundation perimeter drains are installed and sloped to discharge to daylight, dry well, or sump pit on all new foundations and not less than 25 percent of the total length of the foundation after the remodel.	**4**
11.602.1.4 Crawlspaces.	

GREEN BUILDING PRACTICES	POINTS
11.602.1.4.1 Crawlspace vapor retarder for all new foundations and not less than 25 percent of the total area after the remodel 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 crawlspace floor and extended up the wall sufficient to allow the material to be affixed with glue and furring strips.	**6**
(2) Walls. Damp-proof walls are provided below finished grade.	**Mandatory**
Exception: This practice is not mandatory for existing walls without apparent moisture problem.	
11.602.1.4.2 For all new foundations and not less than 25 percent of the total area of the crawlspace after the remodel, 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 6 mil polyethylene or polystyrene.	**10**
(2) 6 mil polyethylene sheeting, lapped a minimum of 6 inches (152 mm), and taped at the seams.	**8**
11.602.1.5 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).	**4**
11.602.1.6 Termite-resistant materials. Termite-resistant materials are used as follows:	
(1) In areas of slight to moderate termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 2 feet (610 mm) above the top of the foundation.	**2**
(2) In areas of moderate to heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings within the first 3 feet (914 mm) above the top of the foundation.	**4**
(3) In areas of very heavy termite infestation probability [as defined by Figure 6(3)] for the foundation, all structural walls, floors, concealed roof spaces not accessible for inspection, exterior decks, and exterior claddings.	**6**
11.602.1.7 Moisture control measures	
11.602.1.7.1 Moisture control measures are in accordance with the following:	
(1) Building materials with visible mold are not installed or are cleaned or encapsulated prior to concealment and closing.	**2**
(2) Insulation in cavities is dry in accordance with manufacturer's installation instructions when enclosed (e.g., with drywall).	**Mandatory** **2**
(3) The moisture content of lumber is sampled to ensure it does not exceed 19 percent prior to the surface and/or cavity enclosure.	**4**

GREEN BUILDING PRACTICES	POINTS
11.602.1.7.2 Moisture content of subfloor, substrate, or concrete slabs is in accordance with the appropriate industry standard for the finish flooring to be applied.	**2**
11.602.1.8 Water-resistive barrier. Where required by the ICC IRC or IBC, a water-resistive barrier and/or drainage plane system is installed behind newly installed exterior veneer and/or siding and where there is evidence of a moisture problem.	**Mandatory**
11.602.1.9 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.	
To achieve points, practices (2)-(8) shall be implemented in all newly installed construction and not less than 25 percent of the applicable building elements for the entire building after the remodel.	
(1) Flashing are installed at all of the following locations, as applicable: **(a)** around exterior fenestrations, skylights and doors **(b)** at roof valleys **(c)** at deck, balcony, porch or stair to building intersections **(d)** at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets. **(e)** at ends of and under masonry, wood, or metal copings and sills **(f)** above projecting wood trim **(g)** at built-in roof gutters **(h)** drip edge is installed at eave~~s~~ and rake edges.	**Mandatory**
Exception: These practices are not mandatory for existing building elements without apparent moisture problem.	
(2) All window head and jamb flashing are self-adhered flashing complying with AAMA 711-07.	**2**
(3) Pan flashing is installed at sills of all exterior windows and doors	**2**
(4) Seamless, preformed kickout flashing, or prefabricated metal with soldered seams is provided at all roof-to-wall intersections. The type and thickness of the material used for roof flashing including but not limited kickout and step flashing is commensurate with the anticipated service life of the roofing material.	**2**
(5) A rainscreen wall design is used for exterior wall assemblies	**2 Points Max**
(a) a system designed with minimum ¼" inch air space exterior to the water-resistive barrier, vented to the exterior at top and bottom of the wall and integrated with flashing details. OR	**2**
(b) either a cladding material or a water-resistive barrier with enhanced drainage, meeting 75% drainage efficiency requirement of ASTM E2273.	**1**
(6) A drip cap is provided above windows and doors that are not flashed or protected by covering in accordance with Section 11.602.1	**2**
(7) Through wall flashing is installed at transitions between wall cladding materials, or wall construction types.	**2**

<table>
<tr><th>GREEN BUILDING PRACTICES</th><th>POINTS</th></tr>
<tr><td></td><td></td></tr>
<tr><td>(8) Flashing is installed at expansion joints in stucco walls</td><td>2</td></tr>
<tr><td></td><td></td></tr>
<tr><td>11.602.1.10 Exterior doors. Entries at exterior door assemblies, inclusive of side lights, are covered by one of the following methods to protect the building from the effects of precipitation and solar radiation. A projection factor of 0.375 minimum is provided. Eastern- and western-facing entries in Climate Zones 1, 2, and 3, as determined in accordance with Figure 6(1) or Appendix C, have a projection factor of 1.0 minimum, unless otherwise protected from direct solar radiation by other means (e.g., screen wall, vegetation).</td><td>5 Points Max</td></tr>
<tr><td></td><td></td></tr>
<tr><td>(a) installing a porch roof or awning
(b) extending the roof overhang
(c) recessing the exterior door</td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>(1) main entrance door</td><td>3</td></tr>
<tr><td></td><td></td></tr>
<tr><td>(2) additional covered door assembly</td><td>1</td></tr>
<tr><td></td><td></td></tr>
<tr><td>11.602.1.11 Tile backing materials. Tile backing materials installed under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.</td><td>Mandatory</td></tr>
<tr><td>Exception: This practice is not mandatory for existing tile surfaces without apparent moisture problem.</td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>11.602.1.12 Roof overhangs. Roof overhangs, based on inches of rainfall in Table 11.602.2, are provided over a minimum of 90 percent of exterior walls to protect the building envelope.

Table 11.602.2
Minimum Roof Overhang for One- & Two-Story Buildings
<table><tr><th>Inches Rainfall (1)</th><th>Eave Overhang (Inches)</th><th>Rake Overhang (Inches)</th></tr><tr><td></td><td></td><td></td></tr><tr><td>≤40</td><td>12</td><td>12</td></tr><tr><td>>41 and ≤70</td><td>18</td><td>12</td></tr><tr><td>> 70</td><td>24</td><td>12</td></tr></table>(1) Annual mean total precipitation in inches is in accordance with Figure 6(2).
For SI: 12 inches = 304.8 mm</td><td>4</td></tr>
<tr><td>11.602.1.13 Drip edge. Drip edge is installed at eaves and gable roof edges.</td><td>3</td></tr>
<tr><td></td><td></td></tr>
<tr><td>11.602.1.14 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends at a minimum of 24 inches (610 mm) inside the exterior wall line of the building.</td><td>Mandatory</td></tr>
<tr><td></td><td></td></tr>
<tr><td>11.602.1.15 Architectural features. Architectural features that increase the potential for the water intrusion are avoided:</td><td></td></tr>
<tr><td>(1) No roof configurations that create horizontal valleys in roof design.</td><td>2</td></tr>
<tr><td>(2) No recessed windows and architectural features that trap water on horizontal surfaces.</td><td>2</td></tr>
<tr><td>(3) All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.</td><td>Mandatory</td></tr>
</table>

GREEN BUILDING PRACTICES	POINTS
11.602.2 Roof surfaces. A minimum of 90 percent of roof surfaces, not used for roof penetrations and associated equipment, on-site renewable energy systems such as photovoltaics or solar thermal energy collectors, or rooftop decks, amenities and walkways, are constructed of one or both of the following: **(1)** products that are in accordance with the ENERGY STAR® cool roof certification or equivalent	**3**
(2) a vegetated roof system	
11.602.3 Roof water discharge. A gutter and downspout system or splash blocks and effective grading are provided to carry water a minimum of 5 feet (1524 mm) away from perimeter foundation walls.	**4**
11.602.4 Finished grade.	
11.602.4.1 Finished grade at all sides of a building is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 2 percent.	**Mandatory**
11.602.4.2 The final grade is sloped away from the edge of the building at a minimum slope of 5 percent.	**1**
11.602.4.3 Water is directed to drains or swales to ensure drainage away from the structure.	**1**

11.603 REUSED OR SALVAGED MATERIALS

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 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. **(Points awarded for every 200 square feet (18.5 m^2) of floor area.)**	**1** **12 Points Max**
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. **(Points awarded per 1% of salvaged materials used based on the total construction cost.)**	**1** **9 Points Max**
11.603.3 Scrap materials. Facilitation for sorting and reuse of scrap building material (e.g., provide a central storage area or dedicated bins).	**4**

11.604 RECYCLED-CONTENT BUILDING MATERIALS

11.604.1 Recycled content. Building materials with recycled content are used for two minor and/or two major components of the building.	**Points per Table 11.604.1**

GREEN BUILDING PRACTICES	POINTS

Table 11.604.1
Recycled Content

Material Percentage Recycled Content	Points Per 2 Minor	Points Per 2 Major
25% to less than 50%	**1**	**2**
50% to less than 75%	**2**	**4**
more than 75%	**3**	**6**

11.605 RECYCLED CONSTRUCTION WASTE

11.605.0 Intent. Waste generated during construction is recycled. All waste classified as hazardous shall be properly handled and disposed.

(Points not awarded for hazardous waste removal.)

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 waste.	**6**

11.605.2 On-site recycling. On-site recycling measures following applicable regulations and codes are implemented, such as the following:	**7**
(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 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 11.901.2.1(2) will be available for on-site renewable energy.	

11.605.3 Recycled construction materials. Construction materials (e.g., wood, cardboard, metals, drywall, plastic, asphalt roofing shingles, or concrete) are recycled offsite.	**6 Points Max**
(1) a minimum of two types of materials are recycled	**3**
(2) for each additional recycled material	**1**

11.605.4 Hazardous Waste The construction waste management plan shall include information on the proper handling and disposal of hazardous waste. All hazardous waste is properly handled and disposed.	**Mandatory**

11.606 RENEWABLE MATERIALS

11.606.0 Intent. Building materials derived from renewable resources are used.

GREEN BUILDING PRACTICES	POINTS
11.606.1 Biobased products. The following biobased products are used: **(a)** certified solid wood in accordance with Section 11.606.2 **(b)** engineered wood **(c)** bamboo **(d)** cotton **(e)** cork **(f)** straw **(g)** natural fiber products made from crops (soy-based, corn-based) **(h)** products with the minimum biobased contents of the USDA 7 CFR Part 2902 **(i)** other biobased materials with a minimum of 50 percent biobased content (by weight or volume)	**8 Points Max**
(1) Two types of biobased materials are used, each for more than 0.5 percent of the project's projected building material cost.	**3**
(2) Two types of biobased materials are used, each for more than 1 percent of the project's projected building material cost.	**6**
(3) For each additional biobased material used for more than 0.5 percent of the project's projected building material cost.	**1** **2 Points Max**

11.606.2 Wood-based products. Wood or wood-based products are certified to the requirements of one of the following recognized product programs: **(a)** American Forest Foundation's *American Tree Farm System*® (ATFS) **(b)** Canadian Standards Association's *Sustainable Forest Management System Standards* (CSA Z809) **(c)** *Forest Stewardship Council* (FSC) **(d)** *Program for Endorsement of Forest Certification Systems* (PEFC) **(e)** *Sustainable Forestry Initiative® Program (SFI)* **(f)** other product programs mutually recognized by PEFC	
(1) Where a minimum of two certified wood-based products are used for minor elements of the building, such as all trim, cabinetry, or millwork.	**3**
(2) Where a minimum of two certified wood-based products are used in major elements of the building, such as walls, floors, or roof.	**4**

11.606.3 Manufacturing energy. Materials are used for major components of the building that are manufactured using a minimum of 33 percent of the primary manufacturing process energy derived from renewable sources, combustible waste sources, or renewable energy credits (RECs). **(2 points awarded per material.)**	**6 Points Max**

11.607
RECYCLING

11.607.1 Recycling. Occupant recycling is facilitated by one or more of the following methods:	
(1) A built-in collection space in each kitchen and an aggregation/pick-up space in a garage, covered outdoor space, or other area for recycling containers	**3**

GREEN BUILDING PRACTICES	POINTS
(2) Compost facility provided on-site	**3**

11.608
RESOURCE-EFFICIENT MATERIALS

11.608.1 Resource-efficient materials. Products containing fewer materials are used to achieve the same end-use requirements as conventional products, including but not limited to: **(3 points awarded for each material.)**	**9 Points Max**
(1) lighter, thinner brick with bed depth less than 3 inches and/or brick with coring of more that 25 percent **(2)** engineered wood or engineered steel products **(3)** roof or floor trusses	

11.609
REGIONAL MATERIALS

11.609.1 Regional materials. Regional materials are used for major elements or components of the building.	**10 Points Max**
(1) one type of material	**2**
(2) for each additional material	**2**

11.610
LIFE CYCLE ANALYSIS

11.610.1 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 11.6010.1.1, 11.610.1.2(1), or 11.610.1.2(2). Only one method of analysis 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 11.1003.1(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**
11.610.1.1 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**
11.610.1.2 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 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** **10 Points Max**
(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	**Points per Table 11.610.1.2(2)** **10 Points Max**

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.

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 15%.)

Table 11.610.1.2(2)
Assembly LCA

	4 Measures	6 Measures
	POINTS	
2 Assemblies	**3**	**6**
3 Assemblies	**4**	**8**
4 Assemblies	**5**	**10**

11.611 INNOVATIVE PRACTICES

11.611.1 Manufacturer's environmental management system concepts. Product manufacturer's operations and business practices include environmental management system concepts, and the production facility is registered to ISO 14001 or equivalent. The aggregate value of building products from registered ISO 14001 or equivalent production facilities is 1 percent or more of the estimated total building materials cost. **(1 point awarded per percent.)**	**10 points Max**

11.611.2 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**

11.611.3 Universal Design Elements. Dwelling incorporates one or more of the following universal design elements.	**10 Points Max**

(1)	Any no-step entrance into the dwelling which is accessible from a substantially level parking or drop-off area (no more than 2%) via an accessible path which has no individual change in elevation or other obstruction of more than 1-1/2 inches in height, whose pitch does not exceed 1 in 12 and which provides a minimum 32-inch wide clearance into the dwelling.	**3**
(2)	Minimum 36-inch wide accessible route from the no-step entrance into at least one visiting room in the dwelling and into at least one full or half bathroom which has a minimum 32 inch clear door width and a 30 inch by 48 inch clear area inside the bathroom outside the door swing.	**3**
(3)	Minimum 36-inch wide accessible route from the no-step entrance into at least one bedroom which has a minimum 32 inch clear door width.	**3**
(4)	Blocking or equivalent installed in the accessible bathroom walls for future installation of grab bars at commode and bathing fixture, if applicable.	**1**
	Note: *Reasonable construction tolerances are allowed.*	

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

GREEN BUILDING PRACTICES	POINTS
11.701 MINIMUM ENERGY EFFICIENCY REQUIREMENTS	
11.701.4 Mandatory practices.	
11.701.4.1 HVAC systems.	
11.701.4.1.1 HVAC system sizing. Newly installed or modified Space heating and cooling system is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. New Equipment is selected using ACCA Manual S or equivalent.	**Mandatory**
11.701.4.1.2 Radiant and hydronic space heating. Where installed as a primary heat source in the building, new radiant or hydronic space heating system is designed using industry-approved guidelines and standards (e.g., ACCA Manual J, AHRI I=B=R, ANSI/ACCA 5 QI-2010, or an accredited design professional's and manufacturer's recommendations).	**Mandatory**
11.701.4.2 Duct systems.	
11.701.4.2.1 Duct air sealing. Newly installed, modified, or Ducts that are exposed during the remodel are air sealed. All duct sealing materials are rated to UL 181A or UL 181B specifications and are used in accordance with manufacturer's instructions.	**Mandatory**
11.701.4.2.2 Supply ducts. Building cavities are not used as supply ducts. Existing building cavities currently used as supply ducts exposed during the remodel are lined.	**Mandatory**
11.701.4.2.3 Duct system sizing. New or modified Duct system is sized and designed in accordance with ACCA Manual D or equivalent.	**Mandatory**
11.701.4.3 Insulation and air sealing.	
11.701.4.3.1 Building Thermal Envelope. The building thermal envelope exposed or created during the remodel is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material:	**Mandatory**
(a) All joints, seams and penetrations. **(b)** Site-built windows, doors and skylights. **(c)** Openings between window and door assemblies and their respective jambs and framing. **(d)** Utility penetrations. **(e)** Dropped ceilings or chases adjacent to the thermal envelope. **(f)** Knee walls. **(g)** Walls and ceilings separating a garage from conditioned spaces. **(h)** Behind tubs and showers on exterior walls. **(i)** Common walls between dwelling units. **(j)** Attic access openings. **(k)** Rim joist junction. **(l)** Other sources of infiltration.	
11.701.4.3.2 Air sealing and insulation. The compliance of the building envelope air tightness and insulation installation is demonstrated in accordance with Section 11.701.4.3.2(1) or 11.701.4.3.2(2).	**Mandatory**

GREEN BUILDING PRACTICES	POINTS

(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. During testing:

(a) Exterior windows and doors, fireplace and stove doors are closed, but not sealed;
(b) Dampers are closed, but not sealed, including exhaust, intake, makeup air, backdraft and flue dampers;
(c) Interior doors are open;
(d) Exterior openings for continuous ventilation systems and heat recovery ventilators are closed and sealed;
(e) Heating and cooling system(s) is turned off;
(f) HVAC ducts are not sealed; and
(g) Supply and return registers are not sealed.

(2) Visual inspection option. Building envelope tightness and insulation installation are considered acceptable when the items listed in Table 11.701.4.3.2(2) applicable to the method of construction and exposed and visible during the remodel, are field verified.

Table 11.701.4.3.2(2)
Air Barrier and Insulation Inspection Component Criteria

COMPONENT	CRITERIA
Air barrier and thermal barrier	Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier. Breaks or joints in the air barrier are filled or repaired. Air-permeable insulation is not used as a sealing material. Air-permeable insulation is inside of an air barrier.
Ceiling/attic	Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and anygaps are sealed. Attic access (except unvented attic), knee wall door, or drop down stair is sealed.
Walls	Corners and headers are insulated. Junction of foundation and sill plate is sealed.
Windows and doors	Space between window/door jambs and framing is sealed.
Rim joists	Rim joists are insulated and include an air barrier.
Floors (including above-garage and cantilevered floors)	Insulation is installed to maintain permanent contact with underside of subfloor decking. Air barrier is installed at any exposed edge of insulation.
Crawl space walls	Insulation is permanently attached to walls. Exposed earth in unvented crawl spaces is covered with Class I vapor retarder with overlapping joints taped.
Shafts, penetrations	Duct shafts, utility penetrations, knee walls and flue shafts opening to exterior or unconditioned space are sealed.
Narrow cavities	Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.
Garage separation	Air sealing is provided between the garage and conditioned spaces.
Recessed lighting	Recessed light fixtures are air tight, IC rated, and sealed to drywall. Exception—fixtures in conditioned space.
Plumbing and wiring	Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.

GREEN BUILDING PRACTICES	POINTS
11.701.4.3.3 Fenestration air leakage. Newly installed Windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m2), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/ m2), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.	**Mandatory**
Exception: Site built windows, skylights and doors.	
11.701.4.3.4 Recessed lighting. Newly installed Recessed luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires are IC-rated and labeled as meeting ASTM E 283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All recessed luminaires are sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.	**Mandatory**
11.701.4.4 High-efficacy lighting. A minimum of 50 percent of the newly installed hard-wired lighting fixtures, or the bulbs in those fixtures, qualify as high efficacy or equivalent.	**Mandatory**
11.701.4.5 Boiler supply piping. Boiler supply piping is insulated in unconditioned spaces accessible during the remodel.	**Mandatory**

Shower/tub on exterior wall	Showers and tubs on exterior walls have insulation and an air barrier separating them from the exterior wall.	
Electrical/phone box on exterior walls	Air barrier extends behind boxes or air sealed-type boxes are installed.	
Common wall	Air barrier is installed in common wall between dwelling units.	
HVAC register boots	HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.	
Fireplace	Fireplace walls include an air barrier.	

901
POLLUTANT SOURCE CONTROL

Action: Add section 11.901.0
Reason: Omitted from draft

901.0 Intent. Pollutant sources are controlled.

Action: Replace 11.901.1.1 through 11.901.1.4 with the following
Reason: Reflects accepted changes in chapter 9 and makes relevant to remodeling

GREEN BUILDING PRACTICES	POINTS
11.901 POLLUTANT SOURCE CONTROL	
11.901.0 Intent. Pollutant sources are controlled.	
11.901.1 Space and water heating options	
11.901.1.1 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).	**5**
11.901.1.2 Air handling equipment or return ducts are not located in the garage, unless placed in isolated, air-sealed mechanical rooms with an outside air source.	**5**
11.901.1.3 The following combustion space heating or water heating equipment is installed within conditioned space:	
(1) all furnaces or all boilers	
(a) power vent furnace(s) or boiler(s)	**TBD**
(b) direct vent furnace(s) or boiler(s)	**5**
(2) all water heaters	
(a) power vent water heater(s)	**3**
(b) direct vent water heater(s)	**5**
11.901.1.4 Newly installed 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.	**Mandatory**
11.901.1.5 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.	**TBD**
11.901.1.6 The following electric equipment is installed:	
(1) heat pump air handler in unconditioned space	**2**
(2) heat pump air handler in conditioned space	**5**

GREEN BUILDING PRACTICES	POINTS
11.901.2 Solid fuel-burning appliances. **Exception: These practices are not mandatory for existing fuel burning appliances.**	**Mandatory**
11.901.2.1 Solid fuel-burning fireplaces, inserts, stoves and heaters are code compliant and are in accordance with the following requirements:	
(1) Site-built masonry wood-burning fireplaces are 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.	
(2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.	
(3) 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).	
(4) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified.	
(5) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.	
(6) Removal of or rendering unusable an existing fireplace or fuel burning appliance that is not in accordance with 11.901.2.1 or replacement of each fireplace or appliance that is not in accordance with 11.901.2.1 with a compliant appliance.	
11.901.2.2 Fireplaces, woodstoves, pellet stoves, or masonry heaters are not installed.	**7**

11.901.3 Garages. Garages are in accordance with the following:	
(1) Attached garage	
(a) Where installed in the common wall between the attached garage and conditioned space, the door is tightly sealed and gasketed.	**Mandatory 2**
(b) A continuous air barrier is provided between walls and ceilings separating the garage space from the conditioned living spaces.	**Mandatory 2**
(c) For one- and two-family dwelling units, a 100 cfm (47 L/s) or greater ducted, or 70 cfm (33 L/s) cfm or greater unducted wall exhaust fan is installed and vented to the outdoors, designed and installed for continuous operation, or has controls (e.g., motion detectors, pressure switches) that activate operation for a minimum of 1 hour when either human passage door or roll-up automatic doors are operated. For ducted exhaust fans, the fan airflow rating and duct sizing are in accordance with Appendix A.	**8**
(2) A carport is installed, the garage is detached from the building, or no garage is installed.	**10**

GREEN BUILDING PRACTICES	POINTS
11.901.4 Wood materials. A minimum of 85 percent of newly installed material within a product group (i.e., wood structural panels, countertops, composite trim/doors, custom woodwork, and/or component closet shelving) is manufactured in accordance with the following:	**10 Points Max**
(1) Structural plywood used for floor, wall, and/or roof sheathing is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB.	**Mandatory**
(2) Particleboard and MDF (medium density fiberboard) is manufactured and labeled in accordance with CPA A208.1 and CPA A208.2, respectively. **(Points awarded per product group.)**	**2**
(3) Hardwood plywood in accordance with HPVA HP-1. **(Points awarded per product group.)**	**2**
(4) Particleboard, MDF, or hardwood plywood is in accordance with CPA 3. **(Points awarded per product group.)**	**3**
(5) Composite wood or agrifiber panel products contain no added urea-formaldehyde or are in accordance with the CARB *Composite Wood Air Toxic Contaminant Measure Standard*. **(Points awarded per product group.)**	**4**
(6) Non-emitting products. **(Points awarded per product group.)**	**4**

11.901.5 Cabinets. A minimum of 85 percent of newly installed kitchen and bath vanity cabinets are in accordance with KCMA ESP 04 (or equivalent) or CARB *Composite Wood Air Toxic Contaminant Measure Standard*.	**3**

11.901.6 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 85 percent of newly 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.	
Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m^3 (13.5 ppb).	
(a) carpet	**6**
(b) carpet cushion	**2**
(c) carpet adhesives	**2**

GREEN BUILDING PRACTICES	POINTS
11.901.7 Hard-surface flooring. A minimum of 10% of the conditioned floor space has pre-finished hard-surface flooring installed and at least 85 percent of all prefinished installed hard-surface flooring is in accordance with the emission concentration limits 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. Where post-manufacture coatings or surface applications have not been applied, the following hard surface flooring types are deemed to comply with the emission requirements of this section:	**6**
Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m^3 (13.5 ppb).	
(a) Ceramic tile flooring **(b)** Organic-free, mineral-based flooring **(c)** Clay masonry flooring **(d)** Concrete masonry flooring **(e)** Concrete flooring **(f)** Metal flooring **(g)** Glass	

11.901.8 Wall coverings. When at least 10% of the interior wall surfaces are covered, a minimum of 85 percent of wall coverings are in accordance with the emission concentration limits 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.	**4**
Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).	

11.901.9 Architectural coatings. A minimum of 85 percent of newly applied architectural coatings are in accordance with either Section 11.901.9.1 or Section 11.901.9.2, not both:	
11.901.9.1 Site-applied interior architectural coatings, which are inside the water proofing envelope, are in accordance with one or more of the following:	**5**
(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)** CARB *Suggested Control Measure for Architectural Coatings* (see Table 11.901.9.1).	

GREEN BUILDING PRACTICES	POINTS

Table 11.901.9.1
VOC Content Limits For Architectural Coatings[c,d,e]

Coating Category	LIMIT[a] (g/l)
Flat Coatings	50
Non-flat Coatings	100
Non-flat - High Gloss Coatings	150
Specialty Coatings:	
Aluminum Roof Coatings	400
Basement Specialty Coatings	400
Bituminous Roof Coatings	50
Bituminous Roof Primers	350
Bond Breakers	350
Concrete Curing Compounds	350
Concrete/Masonry Sealers	100
Driveway Sealers	50
Dry Fog Coatings	150
Faux Finishing Coatings	350
Fire Resistive Coatings	350
Floor Coatings	100
Form-Release Compounds	250
Graphic Arts Coatings (Sign Paints)	500
High Temperature Coatings	420
Industrial Maintenance Coatings	250
Low Solids Coatings	120[b]
Magnesite Cement Coatings	450
Mastic Texture Coatings	100
Metallic Pigmented Coatings	500
Multi-Color Coatings	250
Pre-Treatment Wash Primers	420
Primers, Sealers, and Undercoaters	100
Reactive Penetrating Sealers	350
Recycled Coatings	250
Roof Coatings	50
Rust Preventative Coatings	250
Shellacs, Clear	730
Shellacs, Opaque	550
Specialty Primers, Sealers, and Undercoaters	100
Stains	250
Stone Consolidants	450
Swimming Pool Coatings	340
Traffic Marking Coatings	100
Tub and Tile Refinish Coatings	420

GREEN BUILDING PRACTICES	POINTS

Waterproofing Membranes	250
Wood Coatings	275
Wood Preservatives	350
Zinc-Rich Primers	340

a. Limits are expressed as *VOC* Regulatory (except as noted), thinned to the manufacturer's maximum thinning recommendation, excluding any colorant added to tint bases.
b. Limit is expressed as *VOC* actual.
c. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
d. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008.
e. Table 11.806.3(1) architectural coating regulatory category and *VOC* content compliance determination shall conform to the California Air Resources Board *Suggested Control Measure for Architectural Coatings* dated February 1, 2008.

11.901.9.2 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.	**8**
Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).	
11.901.9.3 When the building is occupied during the remodel a minimum of 85% of the newly applied interior architectural coatings are in accordance with either 11.901.9.1 or 11.901.9.2.	***MANDATORY***

11.901.10 Adhesives and sealants. Interior low-VOC adhesives and sealants located inside the water proofing envelope: A minimum of 85 percent of newly applied site-applied products used within the interior of the building are in accordance with one of the following, as applicable.		
(1)	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.	**8**
	Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).	
(2)	GreenSeal GS-36 Adhesives for Commercial Use	**5**
	OR	
(3)	SCAQMD Rule 1168 (see Table 11.901.10.2), excluding products that are purchased in containers that are less than 16 ounces	**5**

Table 11.901.10.2
Site Applied Adhesive And Sealants Voc Limits[a,b]

ADHESIVE	VOC LIMIT (g/l)
Indoor carpet adhesives	50

GREEN BUILDING PRACTICES	POINTS

Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Dry wall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single ply roof membrane adhesives	250
Architectural Sealants	250
Architectural Sealant Primer Non Porous Porous	 250 775
Modified Bituminous Sealant Primer	500
Other Sealant Primers	750
CPVC solvent cement	490
PVC solvent cement	510
ABS solvent cement	325
Plastic Cement Welding	250
Adhesive Primer for Plastic	550
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140

a. VOC limit less water and less exempt compounds in grams/liter
b. For low-solid adhesives and sealants, the VOC limit is expressed in grams/liter of material as specified in Rule 1168. For all other adhesives and sealants, the VOC limits are expressed as grams of VOC per liter of adhesive or sealant less water and less exempt compounds as specified in Rule 1168.

11.901.11 Insulation. Emissions of newly installed wall, ceiling, and floor insulation materials 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.	**4**
Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).	

11.901.12 Carbon monoxide (CO) alarms. Where not required by local codes, a carbon monoxide (CO) alarm is installed in a central location outside of each separate sleeping area in the immediate vicinity of the bedrooms. The CO alarm(s) is located in accordance with NFPA 720 and is hard-wired with a battery back-up. The alarm device(s) is certified by a third-party for conformance to either CSA 6.19 or UL 2034.	**3**

11.901.13 Building entrance pollutants control. Pollutants are controlled at all main building entrances by one of the following methods:	

GREEN BUILDING PRACTICES	POINTS
(1) Exterior grilles or mats are installed in a fixed manner and may be removable for cleaning.	**1**
(2) Interior grilles or mats are installed in a fixed manner and may be removable for cleaning.	**1**
901.14 Non-smoking areas. Environmental tobacco smoke is minimized by one or more of the following:	
(1) All interior common areas of a multi-unit building are designated as non-smoking areas with posted signage.	**1**
(2) Exterior smoking areas of a multi-unit building are designated with posted signage and located a minimum of 25 feet from entries, outdoor air intakes, and operable windows.	**1**
11.901.15 For buildings constructed before 1978, lead safe work practices are used during the remodeling.	

11.902 POLLUTANT CONTROL

11.902.0 Intent. Pollutants generated in the building are controlled.

11.902.1 Spot ventilation.	
11.902.1.1 Spot ventilation is in accordance with the following:	
(1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.	**Mandatory**
(2) Clothes dryers are vented to the outdoors.	**Mandatory**
(3) Kitchen exhaust units and/or range hoods are ducted to the outdoors and have a minimum ventilation rate of 100 cfm (47.2 L/s) for intermittent operation or 25 cfm (11.8 L/s) for continuous operation.	**8**
11.902.1.2 Bathroom and/or laundry exhaust fan is provided with an automatic timer and/or humidistat:	**11 Points Max**
(1) for first device	**5**
(2) for each additional device	**2**
11.902.1.3 Kitchen range, bathroom, and laundry exhaust are verified to specification. Ventilation airflow at the point of exhaust is tested to a minimum of 100 cfm (47.2 L/s) intermittent or 25 cfm (11.8 L/s) continuous for kitchens, and 50 cfm (23.6 L/s) intermittent or 20 cfm (9.4 L/s) continuous for bathrooms and/or laundry.	**8**
11.902.1.4 Exhaust fans are ENERGY STAR, as applicable.	**12 Points Max**
(1) ENERGY STAR, or equivalent, fans **(Points awarded per fan.)**	**2**

GREEN BUILDING PRACTICES	POINTS
(2) ENERGY STAR, or equivalent, fans operating at or below 1 sone **(Points awarded per fan.)**	**3**

11.902.2 Building ventilation systems	
11.902.2.1 One of the following whole building ventilation systems is implemented and is in accordance with the specifications of Appendix B.	
(1) exhaust or supply fan(s) ready for continuous operation and with appropriately labeled controls	**8**
(2) balanced exhaust and supply fans with supply intakes located in accordance with the manufacturer's guidelines so as to not introduce polluted air back into the building	**10**
(3) heat-recovery ventilator	**15**
(4) energy-recovery ventilator	**17**
11.902.2.2 Ventilation airflow is tested to achieve the design fan airflow at point of exhaust in accordance with Section 11.902.2.1.	**8**
11.902.2.3 MERV filters 8 or greater are installed on central forced air systems and are accessible. Designer or installer is to verify that the HVAC equipment is able to accommodate the greater pressure drop of MERV 8 filters.	**3**

11.902.3 Radon control. Radon control measures are in accordance with ICC IRC Appendix F. Zones are defined in Figure 9(1). **Exception: This practice is not mandatory for existing structure that have been tested for radon and found to be below federal and local acceptable limits.**	
(1) Buildings located in Zone 1	**Mandatory**
(a) a passive radon system is installed	**10**
(b) an active radon system is installed	**18**
(2) Buildings located in Zone 2 or Zone 3	
(a) a passive or active radon system is installed	**10**

11.902.4 HVAC system protection. One of the following HVAC system protection measures is performed.	**3**
(1) HVAC supply registers (boots), return grilles, and rough-ins are covered during construction activities to prevent dust and other pollutants from entering the system.	
(2) Prior to owner occupancy, HVAC supply registers (boots), return grilles, and duct terminations are inspected and vacuumed. In addition, the coils are inspected and cleaned and the filter is replaced if necessary.	

11.902.5 Central vacuum systems. Central vacuum system is installed and vented to the outside.	**5**
11.902.6 Living space contaminants. The living space is sealed to prevent unwanted contaminants.	

GREEN BUILDING PRACTICES	POINTS
(1) Attic access, knee wall door, or drop down stair is caulked, gasketed, or otherwise sealed.	**2**
(2) All new penetrations or penetrations exposed during the remodel (e.g., top plates, HVAC register boots, recessed can lights) are sealed in the following areas:	
(a) attic/ceiling	**2**
(b) wall	**2**
(c) floors	**2**

11.903 MOISTURE MANAGEMENT: VAPOR, RAINWATER, PLUMBING, HVAC

11.903.0 Intent. Moisture and moisture effects are controlled.

11.903.1 Plumbing	
11.903.1.1 Cold water pipes in unconditioned spaces are insulated to a minimum of R-4 with pipe insulation or other covering that adequately prevents condensation.	**2**
11.903.1.2 Plumbing is not installed in unconditioned spaces.	**5**

11.903.2 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. **Exception: This practice is not mandatory for existing ducts that are not exposed or accessible during the remodel.**	
(1) insulated to a minimum of R-6	**Mandatory**
(2) insulated to a minimum of R-8	**2**

11.903.3 Relative humidity. In climate zones 1A, 2A, 3A, 4A, and 5A as defined by Figure 6(1), equipment is installed to maintain relative humidity (RH) at or below 60 percent using one of the following: **(Points not awarded in remaining climate zones.)**	**8**
(1) additional dehumidification system(s)	
(2) central HVAC system equipped with additional controls to operate in dehumidification mode	

11.904 INNOVATIVE PRACTICES

11.904.1 Humidity monitoring system. A humidity monitoring system is installed with a mobile base unit that displays a reading of temperature and relative humidity at the base unit with a minimum of two remote units. One remote unit is placed permanently inside the conditioned space in a central location, excluding attachment to exterior walls, and another remote unit is placed permanently outside of the conditioned space.	**2**

11.904.2 Kitchen exhaust. A kitchen exhaust unit(s) that equals or exceeds 400 cfm (189 L/s) is installed, and makeup air is provided.	**2**

GREEN BUILDING PRACTICES	POINTS

11.1001
BUILDING OWNERS' MANUAL FOR ONE- AND TWO-FAMILY DWELLINGS

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

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

GREEN BUILDING PRACTICES	POINTS
(15) Information on organic pest control, fertilizers, deicers, and cleaning products. **(16)** Information on native landscape materials and/or those that have low-water requirements. **(17)** Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent. **(18)** Instructions for inspecting the building for termite infestation. **(19)** Instructions for maintaining gutters and downspouts and importance of diverting water a minimum of 5 feet away from foundation. **(20)** A narrative detailing the importance of maintenance and operation in retaining the attributes of a green-built building. **(21)** Where storm water management measures are installed on the lot, information on the location, purpose, and upkeep of these measures. 22 For buildings originally built before 1978, the EPA publications "Reducign Lad Hazards When Remodeling Your Home" and "Abestos in Your Home: A Homeowners Guide"	

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

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

11.1003
CONSTRUCTION, OPERATION, AND MAINTENANCE MANUALS AND TRAINING FOR MULTI-UNIT BUILDINGS

11.1003.0 Intent. Manuals are provided to the responsible parties (owner, management, tenant, and/or maintenance team) regarding the construction, operation, and maintenance of the building. Paper or digital format manuals are to include information regarding those aspects of the building's construction, maintenance, and operation that are within the area of responsibilities of the respective recipient. One or more responsible parties are to receive a copy of all documentation for archival purposes.

GREEN BUILDING PRACTICES	POINTS
11.1003.1 Building construction manual. A building construction manual, including five or more of the following, is compiled and distributed in accordance with Section 11.1003.0. **(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)**	**1**
(1) A narrative detailing the importance of constructing a green building, including a list of green building attributes included in the building. This narrative is included in all responsible parties' manuals.	**Mandatory**
(2) A local green building program certificate as well as a copy of the *National Green Building Standard™*, as adopted by the Adopting Entity, and the individual measures achieved by the building.	**Mandatory**
(3) Warranty, operation, and maintenance instructions for all equipment, fixtures, appliances, and finishes.	**Mandatory**
(4) Record drawings of the building. **(5)** A record drawing of the site including stormwater management plans, utility lines, landscaping with common name and genus/species of plantings. **(6)** A diagram showing the location of safety valves and controls for major building systems. **(7)** A list of the type and wattage of light bulbs installed in light fixtures. **(8)** A photo record of framing with utilities installed. Photos are taken prior to installing insulation and clearly labeled.	

11.1003.2 Operations manual. Operations manuals are created and distributed to the responsible parties in accordance with Section 11.1003.0. Between all of the operation manuals, five or more of the following options are included. ***(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)***	**1**
(1) A narrative detailing the importance of operating and living in a green building. This narrative is included in all responsible parties' manuals.	**Mandatory**
(2) A list of practices to conserve water and energy (e.g., turning off lights when not in use, switching the rotation of ceiling fans in changing seasons, purchasing ENERGY STAR appliances and electronics).	**Mandatory**
(3) Information on methods of maintaining the building's relative humidity in the range of 30 percent to 60 percent.	**Mandatory**
(4) Information on opportunities to purchase renewable energy from local utilities or national green power providers and information on utility and tax incentives for the installation of on-site renewable energy systems. **(5)** Information on local and on-site recycling and hazardous waste disposal programs and, if applicable, building recycling and hazardous waste handling and disposal procedures. **(6)** Local public transportation options.	

GREEN BUILDING PRACTICES	POINTS
(7) Explanation of the benefits of using compact fluorescent light bulbs, LEDs, or other high-efficiency lighting. **(8)** Information on native landscape materials and/or those that have low water requirements. **(9)** Information on the radon mitigation system, where applicable. **(10)** A procedure for educating tenants in rental properties on the proper use, benefits, and maintenance of green building systems including a maintenance staff notification process for improperly functioning equipment.	

11.1003.3 Maintenance manual. Maintenance manuals are created and distributed to the responsible parties in accordance with Section 11.1003.0. Between all of the maintenance manuals, five or more of the following options are included. ***(Points awarded per two items. Points awarded for both mandatory and non-mandatory items.)***	**1**
(1) A narrative detailing the importance of maintaining a green building. This narrative is included in all responsible parties' manuals.	**Mandatory**
(2) A list of local service providers that offer regularly scheduled service and maintenance contracts to ensure proper performance of equipment and the structure (e.g., HVAC, water-heating equipment, sealants, caulks, gutter and downspout system, shower and/or tub surrounds, irrigation system). **(3)** User-friendly maintenance checklist that includes: **(a)** HVAC filters **(b)** thermostat operation and programming **(c)** lighting controls **(d)** appliances and settings **(e)** water heater settings **(f)** fan controls **(4)** List of common hazardous materials often used around the building and instructions for proper handling and disposal of these materials. **(5)** Information on organic pest control, fertilizers, deicers, and cleaning products.	
(6) Instructions for maintaining gutters and downspouts and the importance of diverting water a minimum of 5 feet away from foundation. **(7)** Instructions for inspecting the building for termite infestation. **(8)** A procedure for rental tenant occupancy turnover that preserves the green features. **(9)** An outline of a formal green building training program for maintenance staff.	

11.**1004**
INNOVATIVE PRACTICES

11.1004.1 (Reserved)	

PC159 / PC162 / PC185 / PC208

CHAPTER 12

Action: Replace entire chapter 12 with new chapter 12
Reason: Task group chairs met with Research Center and developed a new approach to this part of the standard which creates all mandatory items and eliminates scoring of these small projects.

NOTE: The language is NOT underlined for clarity.

12.0 This chapter sets forth the mandatory GREEN BUILDING PRACTICES for all Small Remodeling Projects.

12.0.1 Each applicable practice below must be met for any of the four Small Projects. Additionally the requirements that are specific to each of the four Small Projects must be met in order to qualify.

12.1.601.2 Material usage. Structural systems, as required for the remodel, are designed or construction techniques are implemented that reduce and optimize material usage using at least one of the following methods.

(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.

12.1.602.1.7.1 Moisture control measures are in accordance with the following:

(1) Building materials with visible mold are not installed or are cleaned or encapsulated prior to concealment and closing.

(2) Insulation in cavities is dry in accordance with manufacturer's installation instructions when enclosed (e.g., with drywall).

12.1.602.1.7.2 Moisture content of subfloor, substrate, or concrete slabs is in accordance with the appropriate industry standard for the finish flooring to be applied.

12.1.602.1.11 Tile backing materials. Tile backing materials installed during the remodel under tiled surfaces in wet areas are in accordance with ASTM C1178, C1278, C1288, or C1325.

12.1.603.0 Intent. Environmentally friendly materials are used.. At least two types of materials chosen from 12.1.603.1, 12.1.604.1, 12.1.606.1 or 12.1.606.2 are used during the remodel.

12.1.603.1 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 remodeling cost.

12.1.604.1 Recycled content. Newly installed Building materials with at least 25% recycled content are used for two components of the remodel. The total cost of materials with recycle content exceed 1% of the remodeling cost.

12.1.606.1 Biobased products. The following biobased products are used. The total cost of bio-based materials exceed 1% of the remodeling cost.

(a) certified solid wood in accordance with Section 606.2
(b) engineered wood
(c) bamboo
(d) cotton
(e) cork
(f) straw

(g) natural fiber products made from crops (soy-based, corn-based)
(h) products with the minimum biobased contents of the USDA 7 CFR Part 2902
(i) other biobased materials with a minimum of 50 percent biobased content (by weight or volume)

12.1.606.2 Wood-based products. Wood or wood-based products are certified to the requirements of one of the following recognized product programs: The total cost of certified wood materials exceed 1% of the remodeling cost.

(a) American Forest Foundation's American Tree Farm System® (ATFS)
(b) Canadian Standards Association's Sustainable Forest Management System Standards (CSA Z809)
(c) Forest Stewardship Council (FSC)
(d) Program for Endorsement of Forest Certification Systems (PEFC)
(e) Sustainable Forestry Initiative Program (SFI)
(f) other product programs mutually recognized by PEFC

12.1.605.05 All hazardous materials exposed during the remodel are removed or comply with federal and local regulations. All waste classified as hazardous shall be properly handled and disposed.

12.1.701.3 Adopting Entity review. A review by the Adopting Entity or designated third party shall be conducted to verify that the appropriate design will be implemented with respect to energy usage after the remodel.

12.1.701.4.1.1 HVAC system sizing. Newly installed or modified space heating and cooling system is sized according to heating and cooling loads calculated using ACCA Manual J, or equivalent. New Equipment is selected using ACCA Manual S or equivalent. When existing equipment is used, Manual J is used to verify the capacity is appropriate for the remodel.

12.1.701.4.2.1 Duct air sealing. Newly installed, modified, or ducts that are exposed during the remodel are air sealed. All duct sealing materials are rated to UL 181A or UL 181B specifications and are used in accordance with manufacturer's instructions.

12.1.701.4.2.2 Supply ducts. Building cavities are not used as supply ducts. Existing building cavities currently used as supply ducts exposed during the remodel are lined.

12.1.701.4.2.3 Duct system sizing. New or modified duct system is sized and designed in accordance with ACCA Manual D or equivalent.

12.1.701.4.3.1 Building Thermal Envelope. The building thermal envelope exposed or created during the remodel is durably sealed to limit infiltration. The sealing methods between dissimilar materials allow for differential expansion and contraction. The following are caulked, gasketed, weather-stripped or otherwise sealed with an air barrier material, suitable film or solid material:

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

12.1.701.4.3.2 Air sealing and insulation. The compliance of the building envelope exposed or created during the remodel for air tightness and insulation installation is demonstrated via Visual inspection. 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 12.1.701.4.3.2(2)
Air Barrier and Insulation Inspection Component Criteria

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

12.1.701.4.3.3 Fenestration air leakage. Newly installed windows, skylights and sliding glass doors have an air infiltration rate of no more than 0.3 cfm per square foot (1.5 L/s/m2), and swinging doors no more than 0.5 cfm per square foot (2.6 L/s/ m2), when tested according to NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory and listed and labeled by the manufacturer.

Exception: Site built windows, skylights and doors.

12.1.701.4.3.4 Recessed lighting. Newly installed recessed luminaires installed in the building thermal envelope are sealed to limit air leakage between conditioned and unconditioned spaces. All recessed luminaires are IC-rated and labeled as meeting ASTM E 283 when tested at 1.57 psf (75 Pa) pressure differential with no more than 2.0 cfm (0.944 L/s) of air movement from the conditioned space to the ceiling cavity. All recessed luminaires are sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

12.1.701.4.4 High-efficacy lighting. A minimum of 50 percent of the installed hard-wired lighting fixtures in the remodeled portion of the building, or the bulbs in those fixtures, qualify as high efficacy or equivalent.

12.1.701.4.5 Boiler supply piping. Boiler supply piping is insulated in unconditioned spaces accessible during the remodel.

12.1.703.5.3 Appliances. All major appliances in the remodeled portion of the building are ENERGY STAR or equivalent:

12.1.901.1.4 Gas-fired fireplaces and direct heating equipment in the remodeled portion of the building 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.

12.1.901.2.1 Solid fuel-burning fireplaces, inserts, stoves and heaters in the remodeled portion of the building are code compliant and are in accordance with the following requirements:

(1) Site-built masonry wood-burning fireplaces are 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.

(2) Factory-built, wood-burning fireplaces are in accordance with the certification requirements of UL 127 and are EPA certified.

(3) 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).

(4) Pellet (biomass) stoves and furnaces are in accordance with the requirements of ASTM E1509 or are EPA certified

(5) Masonry heaters are in accordance with the definitions in ASTM E1602 and ICC IBC, Section 2112.1.

12.1.901.3 Garages. Garages adjacent to the remodeled portion of the building are in accordance with the following:

(1) Attached garage

(a) Where installed in the common wall between the attached garage and conditioned space, the door is tightly sealed and gasketed.
(b) A continuous air barrier is provided between walls and ceilings separating the garage space from the conditioned living spaces.

12.1.901.4 Wood materials. A minimum of 85 percent of newly installed structural wood panels is compliant with DOC PS 1 and/or DOC PS 2. OSB used for floor, wall, and/or roof sheathing is compliant with DOC PS 2. The panels are made with moisture-resistant adhesives. The trademark indicates these adhesives as follows: Exposure 1 or Exterior for plywood, and Exposure 1 for OSB. Mandatory

12.1.901.5 Cabinets. A minimum of 85 percent of newly installed kitchen and bath vanity cabinets are in accordance with KCMA ESP 04 (or equivalent) or CARB Composite Wood Air Toxic Contaminant Measure Standard.

12.1.901.6 Carpets. Carpets in the remodeled portion of the building 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 85 percent 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.

Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).

12.1.901.7 Hard-surface flooring. At least 85 percent of all prefinished installed hard-surface flooring in the remodeled portion of the building is in accordance with the emission concentration limits 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. Where post-manufacture coatings or surface applications have not been applied, the following hard surface flooring types are deemed to comply with the emission requirements of this section:

Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).

(a) Ceramic tile flooring
(b) Organic-free, mineral-based flooring
(c) Clay masonry flooring
(d) Concrete masonry flooring
(e) Concrete flooring
(f) Metal flooring
(g) Glass

12.1.901.8 Wall coverings. At least 85 percent of wall coverings in the remodeled portion of the building are in accordance with the emission concentration limits 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. 4

Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).

12.1.901.9 Architectural coatings. A minimum of 85 percent of newly applied architectural coatings in the remodeled portion of the building are in accordance with either Section 12.1.901.9.1 or Section 12.1.901.9.2,

901.9.1 Site-applied interior architectural coatings, which are inside the water proofing envelope, are in accordance with one or more of the following:

(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) CARB Suggested Control Measure for Architectural Coatings (see Table 901.9.1).

Table 12.1.901.9.1
VOC Content Limits For Architectural Coatingsc,d,e

Coating Category	LIMITa (g/l)
Flat Coatings	50
Non-flat Coatings	100
Non-flat - High Gloss Coatings	150
Specialty Coatings:	
Aluminum Roof Coatings	400
Basement Specialty Coatings	400
Bituminous Roof Coatings	50
Bituminous Roof Primers	350
Bond Breakers	350
Concrete Curing Compounds	350
Concrete/Masonry Sealers	100
Driveway Sealers	50
Dry Fog Coatings	150
Faux Finishing Coatings	350
Fire Resistive Coatings	350
Floor Coatings	100
Form-Release Compounds	250
Graphic Arts Coatings (Sign Paints)	500
High Temperature Coatings	420
Industrial Maintenance Coatings	250
Low Solids Coatings	120b
Magnesite Cement Coatings	450
Mastic Texture Coatings	100
Metallic Pigmented Coatings	500
Multi-Color Coatings	250
Pre-Treatment Wash Primers	420
Primers, Sealers, and Undercoaters	100
Reactive Penetrating Sealers	350
Recycled Coatings	250
Roof Coatings	50
Rust Preventative Coatings	250
Shellacs, Clear	730
Shellacs, Opaque	550
Specialty Primers, Sealers, and Undercoaters	100
Stains	250
Stone Consolidants	450
Swimming Pool Coatings	340
Traffic Marking Coatings	100
Tub and Tile Refinish Coatings	420
Waterproofing Membranes	250
Wood Coatings	275
Wood Preservatives	350
Zinc-Rich Primers	340

a. Limits are expressed as VOC Regulatory (except as noted), thinned to the manufacturer's maximum thinning recommendation, excluding any colorant added to tint bases.
b. Limit is expressed as VOC actual.
c. The specified limits remain in effect unless revised limits are listed in subsequent columns in the table.
d. Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008.
e. Table 806.3(1) architectural coating regulatory category and VOC content compliance determination shall conform to the California Air Resources Board Suggested Control Measure for Architectural Coatings dated February 1, 2008.

12.1.901.9.2 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.

Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).

12.1.901.10 Adhesives and sealants. Interior low-VOC adhesives and sealants located inside the water proofing envelope: A minimum of 85 percent of newly applied site-applied adhesive and sealant products used within the interior of the building are in accordance with one of the following, as applicable.

(1) 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.

Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).

(2) GreenSeal GS-36 Adhesives for Commercial Use

OR

(3) SCAQMD Rule 1168 (see Table 901.10.2), excluding products that are purchased in containers that are less than 16 ounces

Table 12.1.901.10.2
Site Applied Adhesive And Sealants Voc Limitsa,b

ADHESIVE	VOC LIMIT (g/l)
Indoor carpet adhesives	50
Carpet pad adhesives	50
Outdoor carpet adhesives	150
Wood flooring adhesive	100
Rubber floor adhesives	60
Subfloor adhesives	50
Ceramic tile adhesives	65
VCT and asphalt tile adhesives	50
Dry wall and panel adhesives	50
Cove base adhesives	50
Multipurpose construction adhesives	70
Structural glazing adhesives	100
Single ply roof membrane adhesives	250
Architectural Sealants	250
Architectural Sealant Primer Non Porous Porous	 250 775
Modified Bituminous Sealant Primer	500
Other Sealant Primers	750
CPVC solvent cement	490
PVC solvent cement	510
ABS solvent cement	325
Plastic Cement Welding	250
Adhesive Primer for Plastic	550

Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140
a. VOC limit less water and less exempt compounds in grams/liter b. For low-solid adhesives and sealants, the VOC limit is expressed in grams/liter of material as specified in Rule 1168. For all other adhesives and sealants, the VOC limits are expressed as grams of VOC per liter of adhesive or sealant less water and less exempt compounds as specified in Rule 1168.	

12.1.901.11 Insulation. Emissions of newly installed wall, ceiling, and floor insulation materials 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. 4

Exception: Footnote b in Table 4.1 of CDPH/EHLB Standard Method v1.1 does not apply. Formaldehyde maximum allowable concentration is 16.5 µg/m3 (13.5 ppb).

12.1.901.15 For buildings constructed before 1978, lead safe work practices are used during the remodeling.

12.1.902.1.1 Spot ventilation is in accordance with the following:

(1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.

(2) Clothes dryers are vented to the outdoors.

12.1.902.4 HVAC system protection. One of the following HVAC system protection measures is performed.

(1) HVAC supply registers (boots), return grilles, and rough-ins are covered during construction activities to prevent dust and other pollutants from entering the system.

(2) Prior to owner occupancy, HVAC supply registers (boots), return grilles, and duct terminations are inspected and vacuumed. In addition, the coils are inspected and cleaned and the filter is replaced if necessary.

12.1.903.2 Duct insulation. All HVAC ducts, plenums, and trunks in unconditioned attics, basements, and crawl spaces and exposed or modified during the remodel are insulated to a minimum of R-6. Outdoor air supplies to ventilation systems are insulated to a minimum of R-6.

12.2.0 **Kitchen Remodels**

In addition to the practices listed in section 12.1, the following practices are mandatory for all kitchen remodel projects.

12.2.607.1 Recycling. Recycling by the occupants with a built-in collection space in each kitchen and an aggregation/pick-up space in a garage, covered outdoor space, or other area for recycling containers

12.2.611.3 Universal Design Elements. Dwelling incorporates a Minimum 36-inch wide accessible no step route from the building into the kitchen.

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

12.3.0 Bathroom Remodels

In addition to the practices listed in section 12.1, the following practices are mandatory for all bathroom remodel projects.

12.3.611.3 Universal Design Elements. The bathroom incorporates Blocking or equivalent installed in the accessible bathroom walls for future installation of grab bars at commode and bathing fixture, if applicable.

12.3.801.4 Showerheads. The maximum combined flow rate of all showerheads installed in the remodeled bathroom 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.

12.3.801.5.1 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:

12.3.801.6 Water closets. All water closets installed in the remodeled bathroom have 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.

12.3.901.5 Cabinets. A minimum of 85 percent of newly installed kitchen and bath vanity cabinets are in accordance with KCMA ESP 04 (or equivalent) or CARB Composite Wood Air Toxic Contaminant Measure Standard.

12.3.902.1.1 Spot ventilation is in accordance with the following:

(1) Bathrooms are vented to the outdoors. The minimum ventilation rate is 50 cfm (23.6 L/s) for intermittent operation or 20 cfm (9.4 L/s) for continuous operation in bathrooms.

(2) Clothes dryers are vented to the outdoors.

12.4.0 Basement Remodel

In addition to the practices listed in section 12.1, the following practices are mandatory for all basement remodel projects.

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

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

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

12.5 Additions

In addition to the practices listed in section 12.1, the following practices are mandatory for all room addition remodel projects.

12.5.1 When the addition includes a kitchen, the remodel shall also comply with the practices in section 12.2.

12.5.2 When the addition includes a bathroom, the remodel shall also comply with the practices in section 12.3.

12.5.503.5 Landscape plan. When the addition disturbs more than 1000 square feet of the lot, a landscape plan for the lot is developed to limit water and energy use while preserving or enhancing the natural environment. Landscaping is phased to coincide with achievement of final grades to ensure denuded areas are quickly vegetated.

12.5.602.1.1.1 A capillary break and vapor retarder are installed at all concrete slabs adjoining living space in the addition in accordance with Sections 12.5.602.1.1.1(1) or 12.5.602.1.1.1(2), as modified by Section 12.5.602.1.1.1(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.

12.5.602.1.3.1 Where required by the ICC IRC or IBC for habitable and usable spaces of the addition below grade, exterior drain tile is installed.

12.5.602.1.4.1 Crawlspace vapor retarder for the addition 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 crawlspace floor and extended up the wall sufficient to allow the material to be affixed with glue and furring strips.

(2) Walls. Damp-proof walls are provided below finished grade.

12.5.602.1.8 Water-resistive barrier. Where required by the ICC IRC or IBC, a water-resistive barrier and/or drainage plane system is installed behind exterior veneer and/or siding of the addition.

12.5.602.1.9 Flashing. Flashing is provided for the addition and for the intersection where the addition joins the existing building 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:

(a) around exterior fenestrations, skylights and doors
(b) at roof valleys
(c) at deck, balcony, porch or stair to building intersections
(d) at roof-to-wall intersections, at roof-to-chimney intersections, at wall-to-chimney intersections, and at parapets.
(e) at ends of and under masonry, wood, or metal copings and sills
(f) above projecting wood trim
(g) at built-in roof gutters
(h) drip edge is installed at eaves and rake edges.

12.5.602.1.14 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water, an ice barrier is installed on the addition in accordance with the ICC IRC or IBC at roof eaves of pitched roofs and extends at a minimum of 24 inches (610 mm) inside the exterior wall line of the building.

12.5.602.1.15 Architectural features. New Architectural features that increase the potential for the water intrusion are avoided:

(1) No roof configurations that create horizontal valleys in roof design.

(2) No recessed windows and architectural features that trap water on horizontal surfaces.

(3) All horizontal ledgers are sloped away to provide gravity drainage as appropriate for the application.

12.5.602.4.1 Finished grade at all sides of the addition is sloped to provide a minimum of 6 inches (150 mm) of fall within 10 feet (3048 mm) of the edge of the building. Where lot lines, walls, slopes, or other physical barriers prohibit 6 inches (152 mm) of fall within 10 feet (3048 mm), the final grade is sloped away from the edge of the building at a minimum slope of 2 percent.