

# Commercial Proposed Changes

December 5, 2017

TG-1: Mixed-Use/Commercial Spaces ..... 1



## TG-1: Mixed-Use/Commercial Spaces

Proposal ID TBD	LogID 6590	101.2 Scope
<b>Submitter:</b>	Craig Conner, self	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p><u>101.2.1 Non-residential options. Non-residential portions of buildings shall comply with either the ANSI/ASHRAE/USGBC/IES Standard 189.1 or this standard.</u></p> <p><u>101.2.2 The authority having jurisdiction shall be permitted to deem another program, standard or code as an alternative for the non-residential portion of a specific building.</u></p>	
<b>Reason:</b>	<p>Some users may prefer to comply with, or already have experience complying with, ASHRAE 189.1 for commercial. This allows the ASHRAE 189.1 without requiring all users to deal with complexity of ASHRAE 189.1. For 101.2.1- A possible option for this change would be to specify that for items outside the building compliance shall be the same as for the residential. The parking lot, landscaping, ... will likely be used by both the residential and commercial portions of the building. For 101.2.2- There may be a few unusual types of non-residential spaces in a specific building where another criteria could better define green. For example an open air cafe, a small laboratory or a hot dog stand that was built into an outside wall. The ASHRAE 189.1 standard can be viewed at <a href="https://www.ashrae.org/standards-research--technology/standards--guidelines">https://www.ashrae.org/standards-research--technology/standards--guidelines</a> click on "Standard 189.1-2014"</p>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 6583	101.2 Scope
<b>Submitter:</b>	Steve Ferguson, ASHRAE	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<p>101.2 Scope.</p> <p><del>The provisions of this Standard shall apply to the design, and construction, alteration, enlargement, and renovation of (1) all residential buildings, (2) residential portions of mixed-use buildings, or (3) mixed-use buildings here the residential portion is greater than 50 percent of the gross floor area</del> <u>the residential portion(s) of any building, not classified as an institutional use, in all climate zones. This Standard shall also apply to subdivisions, building sites, building lots, and accessory structures, and the residential portions of alternations, additions, renovations, mixed-use buildings, and historic buildings.</u></p>	
<b>Reason:</b>	<p>ASHRAE is opposed to the revised and expanded scope of ICC 700, and also filed a PINS comment related to how the expanded scope is duplicative with ANSI/ASHRAE/USGBC/ICC/IES Standard 189.1, Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings. Previously only residential spaces were in the scope of this standard. As currently written, if 51% of the building is residential and 49% of the building is commercial, the entire building is within the scope of this standard. In accordance with ANSI Essential Requirements 2.4 and 2.4.2, HI and the consensus body responsible for ICC 700 are responsible for making good faith efforts to to resolve potential conflicts between and among existing American National Standards (ANS). HI and the consensus body responsible for writing ICC 700 are also responsible for making thorough and comprehensive efforts to harmonize a candidate ANS and existing ANSs. In our PINS comment, we requested " that the revised scope not be approved". Alternatively, ASHRAE would also be resolved, when the expanded scope applies, "if provisions be included in the standard to reference the appropriate technical content in ANSI/ASHRAE/USGBC/ICC/IES Standard 189.1."</p>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 6584	101.2 Scope
<b>Submitter:</b>	Thomas Culp, Aluminum Extruders Council	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>101.2.1 Residential Designation.</b> For the purpose of this standard, all Group R occupancies as defined by the International Building Code and all buildings within the scope of the International Residential Code shall be considered residential. <u>Dwelling units in a</u> Assisted living facilities, residential board and care facilities, and group homes classified as an I-1 occupancy as defined by the International Building Code shall also be considered residential.	
<b>Reason:</b>	With the expansion to include assisted living facilities, care facilities, and group homes, the residential designation should not include spaces such as patient examination rooms, cafeterias, industrial kitchens, industrial laundry facilities, recreation facilities, lobbies, assembly areas, and offices. This proposal clarifies that it is the dwelling units that should be considered residential spaces within these building types. Alternately, a list of excluded spaces could be added.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 6582	1302 Referenced Documents
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p><b><u>ASHRAE</u></b></p> <p><u>American Society of Heating, Refrigeration, and Air Conditioning Engineers</u>  <u>1791 Tullie Circle, N.E.</u>  <u>Atlanta, GA 30329</u>  <u><a href="http://www.ashrae.org">www.ashrae.org</a></u> (404) 636-8400</p> <p><u>189.1 2014 ANSI/ASHRAE/IES/USGBC Standard</u>  <u>189.1-2014, Standard for the Design of</u>  <u>High-Performance Green Buildings</u></p> <p><u>303.1.1, 304.1.1</u></p>	
<b>Reason:</b>	This new reference is aligned with proposed changes in Sections 303 and 304, which include a reference to Standard 189.1. The 2017 version of ASHRAE 189.1 has not been published as of the time this proposal was filed. The provisions of ASHRAE Standard 189.1-2017 will be incorporated into the next version of the International Green Construction Code, which has not been published yet.	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 6585	301.1 Environmental rating levels (Compliance Method, general)
<b>Submitter:</b>	Thomas Culp, Aluminum Extruders Council	
<b>Requested Action:</b>	Revise as follows	

<b>Proposed Change:</b>	<b>301.1 Environmental rating levels.</b> The building, project, site, and/or development environmental rating level shall consist of all mandatory requirements plus points assessed using the point system specified within this chapter. Threatening level shall be in accordance with Section 302, 303, 304, or 305.3, as applicable. The designation for remodeled functional areas shall be in accordance with Section 305.4. The designation for accessory structures shall be in accordance with Section 306. <u>Spaces in mixed-use buildings not designated as residential in Section 101.2.1 shall comply with Chapters 6-10 of the ICC International Green Construction Code (IgCC).</u>  (Add reference to 2018 International Green Construction Code in Chapter 13)
<b>Reason:</b>	With the scope expansion for multi-use buildings, this provides the appropriate pointer to use the 2018 International Green Construction Code for those nonresidential spaces not covered by the residential designation in Section 101.2.1. The 2018 IgCC is being combined with the technical content of ASHRAE 189.1-2017 with the cooperation of ICC, ASHRAE, USGBC, AIA, and IES. Chapters 6-10 refer to water use; energy efficiency; indoor environmental quality; impact on atmosphere, materials, and resources; and construction and plans for operation, respectively. Chapter 5 on site sustainability has not been included as ICC-700 / NGBS already addresses the overall project site
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

Proposal ID TBD	LogID 6579	303.1 Green Buildings
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>303.1.1 Commercial Spaces.</b> <u>Commercial spaces or areas within green buildings shall comply with ASHRAE Standard 189.1. All actions and practices taken within commercial spaces or areas shall not be eligible for points in Table 303 or points within Chapters 5 through 12.</u>	
<b>Reason:</b>	This addition will allow the standard to adapt to the new scope, and ensure that the original intent of the standard (for residential buildings) remains the primary focus of the standard. ASHRAE 189.1 is a consensus-based ANSI standard for green commercial buildings that is on continuous maintenance and updated every 3 years. The web site link to the standard is: <a href="https://www.ashrae.org/resources--publications/bookstore/standard-189-1">https://www.ashrae.org/resources--publications/bookstore/standard-189-1</a>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

Proposal ID TBD	LogID 6580	303.1 Green buildings
<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute	
<b>Requested Action:</b>	Revise as follows	
<b>Proposed Change:</b>	<b>Table 303</b>  <b>...Rating Level Points (a) (b) (c)</b>  .....  <u>(c) Commercial Spaces or Areas within green buildings are not eligible for points in this Table.</u>	
<b>Reason:</b>	This new footnote will correspond to a proposed change for Section 303.1, and will help to clarify that commercial sections of green buildings have to meet a separate standard (ASHRAE 189.1).	

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

<b>Proposal ID TBD</b>	<b>LogID 6581</b>	<b>304.1 Multifamily buildings</b>
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<b>Submitter:</b>	Steven Rosenstock, Edison Electric Institute
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	<b>304.1.1 Commercial Spaces.</b> <u>Commercial spaces or areas within green multifamily buildings shall comply with ASHRAE Standard 189.1. All actions and practices taken within commercial spaces or areas shall not be eligible for points in Table 303 or points within Chapters 5 through 12.</u>
<b>Reason:</b>	This addition allows the standard to adapt to the new scope, and ensure that the original intent of the standard (for residential buildings) remains the primary focus of the standard. ASHRAE 189.1 is a consensus-based ANSI standard for green commercial buildings that is on continuous maintenance and updated every 3 years. The web site link to the standard is: <a href="https://www.ashrae.org/resources--publications/bookstore/standard-189-1">https://www.ashrae.org/resources--publications/bookstore/standard-189-1</a> .
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

<b>Proposal ID TBD</b>	<b>LogID 6586</b>	<b>Other for Chapter 3</b>
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<b>Submitter:</b>	Thomas Culp, Aluminum Extruders Council
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	<b>304.2 Alternative IgCC Compliance.</b> <u>As an alternative, any multifamily or mixed-use building that complies with the ICC International Green Construction Code (IgCC) shall be designated as achieving the gold rating level.</u>  <u>(Add reference to 2018 International Green Construction Code in Chapter 13)</u>
<b>Reason:</b>	With the scope expansion to include multi-use buildings that combine nonresidential and multifamily spaces, there will be more overlap with projects that fall under the scope of the 2018 International Green Construction Code, which is now a joint development with the technical content of ASHRAE 189.1-2017 under cooperation of ICC, ASHRAE, USGBC, AIA, and IES. Separate proposals clarify how to use the IgCC for just those nonresidential spaces not covered by the residential designation in Section 101.2.1. In addition, if the project owner decides to use the 2018 IgCC for the entire building project, it should be provided the appropriate rating level under ICC-700 / NGBS.
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

<b>Proposal ID TBD</b>	<b>LogID 6588</b>	<b>701.1.4 Alternative bronze and silver level compliance</b>
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<b>Submitter:</b>	Thomas Culp, Aluminum Extruders Council
<b>Requested Action:</b>	Add new as follows

<b>Proposed Change:</b>	<p><b>701.1.4 Alternative bronze and silver level compliance.</b> As an alternative, any building that qualifies as an ENERGY STAR Version 3.0 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0 Rev. 02 03 building achieves the bronze level for Chapter 7. As an alternative, any building that qualifies as an ENERGY STAR Version 3.1 Certified Home or ENERGY STAR Multifamily High Rise Version 1.0Rev. 02 03 (with the baseline at ASHRAE 90.1-2010) building achieves the silver level for Chapter 7. As an alternative in the Tropical Climate Zone, any building that meets all of the requirements in IECC Section R401.2.1 (Tropical Zone) achieves the silver level for Chapter 7. <u>As an alternative, any multifamily building that complies with the base level Requirements section of the NBI Multifamily Guide achieves the silver level for Chapter 7.</u> The buildings achieving compliance under Section 701.1.4 are not eligible for achieving a rating level above silver.</p> <p><b>701.1.5 Alternative gold level compliance.</b> As an alternative, any multifamily building that complies <u>with both the base level and Additional Efficiency Package Requirements of the Requirements section of the NBI Multifamily Guide achieves the gold level for Chapter 7.</u></p> <p>Add under Chapter 13:</p> <table border="1" data-bbox="402 571 1357 802"> <tr> <td data-bbox="402 571 857 688">NBI</td> <td colspan="3" data-bbox="857 571 1357 688">New Buildings Institute. 503-761-7339. 623 SW Oak St., 3rd Floor Portland, OR 97205 www.newbuildings.org</td> </tr> <tr> <td data-bbox="402 688 682 793"><u>Multifamily Guide</u></td> <td data-bbox="682 688 857 793"><u>2017</u></td> <td data-bbox="857 688 1172 793"><u>Building Innovation – Multifamily.</u></td> <td data-bbox="1172 688 1357 793"><u>701.1.4, 701.1.5</u></td> </tr> </table>	NBI	New Buildings Institute. 503-761-7339. 623 SW Oak St., 3rd Floor Portland, OR 97205 www.newbuildings.org			<u>Multifamily Guide</u>	<u>2017</u>	<u>Building Innovation – Multifamily.</u>	<u>701.1.4, 701.1.5</u>
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<u>Multifamily Guide</u>	<u>2017</u>	<u>Building Innovation – Multifamily.</u>	<u>701.1.4, 701.1.5</u>						

**Reason:** The New Buildings Institute has published a new guide for advanced energy efficiency in multifamily buildings of all heights, providing 15-25% energy savings above the 2015 IECC. The guide may be downloaded for free from <https://newbuildings.org/product/multifamily-guide/> . Although titled as a guide, it includes a requirements section intended for use by standards with both base level requirements and additional efficiency package requirements for higher tier performance. Similar to the other advanced energy efficiency options listed for compliance, this proposal adds the NBI Multifamily Guide as an alternative for silver rating with base level compliance, and gold rating for higher tier compliance. With the scope expansion to include mixed-use buildings with both nonresidential and multifamily spaces, more multifamily buildings of all heights will be looking to use of ICC-700 / NGBS, so inclusion of this alternative is appropriate and beneficial.

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

<b>Proposal ID TBD</b>	<b>LogID 6589</b>	<b>703.2.5.2 Enhanced Fenestration Specifications</b>				
<b>Submitter:</b>	Thomas Culp, Aluminum Extruders Council					
<b>Requested Action:</b>	Add new as follows					
<b>Proposed Change:</b>	<p><b>703.2.5.2</b> The NFRC-certified (or equivalent) U-factor and SHGC of windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with Table 703.2.5.2(a), (b), or (c). Decorative fenestration elements with a combined total maximum area of 15 square feet (1.39 m2) or 10 percent of the total glazing area, whichever is less, are not required to comply with this practice. <u>Fenestration in multifamily buildings shall be considered in compliance with Table 703.2.5.2(a) if the U-factor and SHGC are in accordance with the prescriptive fenestration requirements of the NBI Multifamily Guide. Curtain wall, window wall, and storefront fenestration shall comply with the U-factor and SHGC requirements for Class AW fixed windows.</u></p> <p>Add to Chapter 13:</p> <table border="1" data-bbox="402 1759 1357 1894"> <tr> <td data-bbox="402 1759 857 1873"><u>NBI</u></td> <td colspan="3" data-bbox="857 1759 1357 1873">New Buildings Institute. 503-761-7339. 623 SW Oak St., 3rd Floor Portland, OR 97205 www.newbuildings.org</td> </tr> </table>		<u>NBI</u>	New Buildings Institute. 503-761-7339. 623 SW Oak St., 3rd Floor Portland, OR 97205 www.newbuildings.org		
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	<u>Multifamily Guide</u>	<u>2017</u>	<u>Building Innovation – Multifamily.</u>	<u>703.2.5.2</u>
<b>Reason:</b>	<p>The New Buildings Institute has published a new guide for advanced energy efficiency in multifamily buildings of all heights, providing 15-25% energy savings above the 2015 IECC. The guide may be downloaded for free from <a href="https://newbuildings.org/product/multifamily-guide/">https://newbuildings.org/product/multifamily-guide/</a>. Although titled as a guide, it includes a requirements section intended for use by standards. Previously, the committee has not separated window requirements for multifamily buildings by height (&lt;= 3 stories, 4+ stories) like IECC, IgCC, ASHRAE 90.1, ASHRAE 189.1, and Energy Star do. This provides an alternative approach as the NBI Multifamily Guide is specifically written to cover buildings of all heights, including recognition of the need for architectural grade (AW) windows in certain applications (highrise, high wind load, high use / durability). The window requirements are generally 3-16% more stringent than the base energy codes, match the U-factors of Table 703.2.5.2(a) for the main window requirement, exceed the SHGC requirements of Table 703.2.5.2(a), and match or exceed the U-factors of the 2018 IgCC for AW class windows. An additional clarification is added for curtain wall, window wall, and storefront fenestration which is sometimes used in highrise residential buildings. The NBI performance levels for AW fixed windows are also appropriate for these products, although they technically do not fall under the AW classification of AAMA/WDMA/CSA 101/I.S.2/A440. With the scope expansion to include mixed-use buildings with both nonresidential and multifamily spaces, more multifamily buildings of all heights will be looking to use of ICC-700 / NGBS, so inclusion of this alternative is appropriate and beneficial. NBI Multifamily Guide Window Requirements: CZ 1 CZ 2 CZ 3 CZ 4 CZ 5 CZ 6 CZ 7 CZ 8 U-factor 0.40 0.40 0.30 0.30 0.27 0.27 0.27 0.27 SHGC 0.25 0.25 0.25 0.35 0.35 0.35 NR NR For Class AW windows rated in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 Fixed Window U-factor 0.48 0.48 0.44 0.36 0.36 0.34 0.28 0.28 Operable Window U-factor 0.62 0.62 0.57 0.43 0.43 0.41 0.35 0.35</p>			
<b>TG Recommendation (AS or AM or D):</b>				
<b>Modification of Proposed Change:</b>				
<b>TG Reason:</b>				
<b>TG Vote:</b>				

<b>Proposal ID TBD</b>	<b>LogID 6587</b>	<b>Other for Chapter 7</b>
<b>Submitter:</b>	Thomas Culp, Aluminum Extruders Council	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p><b><u>701.1.5 Alternative gold level compliance.</u></b> As an alternative, any building that complies with Chapter 7 of the ICC International Green Construction Code (IgCC) achieves the gold level for Chapter 7.</p> <p><u>(Add reference to 2018 International Green Construction Code to Chapter 13)</u></p>	
<b>Reason:</b>	<p>With the scope expansion to include multi-use buildings that combine nonresidential and multifamily spaces, there will be more overlap with projects that fall under the scope of the 2018 International Green Construction Code, which is now a joint development with the technical content of ASHRAE 189.1-2017 under cooperation of ICC, ASHRAE, USGBC, AIA, and IES. A separate proposal clarifies in chapter 3 that the IgCC shall be used for just those nonresidential spaces not covered by the residential designation in Section 101.2.1. In addition, if the project owner decides to use the energy efficiency provisions of the 2018 IgCC for the entire building, it should be provided the appropriate rating level under ICC-700 / NGBS for chapter 7.</p>	
<b>TG Recommendation (AS or AM or D):</b>		
<b>Modification of Proposed Change:</b>		
<b>TG Reason:</b>		
<b>TG Vote:</b>		

<b>Proposal ID TBD</b>	<b>LogID 6592</b>	<b>New Section</b>
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<b>Submitter:</b>	Craig Conner, self
<b>Requested Action:</b>	Add new as follows
<b>Proposed Change:</b>	<p><b><u>CHAPTER 13</u></b></p> <p><b><u>NON-RESIDENTIAL NEW CONSTRUCTION</u></b></p> <p><b><u>1301.1 Intent.</u></b> This chapter provides green requirements for the non-residential portion of a building.</p> <p><b><u>1301.2 Scope.</u></b> This chapter shall apply to the non-residential portions of buildings. Unless specifically stated otherwise, references to the “building” shall mean the part of a building that is within the scope of this chapter. Occupancy classifications shall be determined in accordance with the <i>International Building Code</i>.</p> <p><b><u>1301.2.1 Exempt buildings and systems.</u></b> This chapter shall not apply to temporary structures approved under Section 108 or Section 3103 of the <i>International Building Code</i>.</p> <p><b><u>1301.3 Incomplete spaces.</u></b> Specific requirements inside the building envelope shall be satisfied if the requirements that are stated in the construction documents, even if the non-residential inside construction is not complete provided:</p> <ol style="list-style-type: none"> <li><u>1) The residential space in the building has received occupancy permit(s) or has progressed to the point to receive an ICC 700 certification.</u></li> <li><u>2) The authority having jurisdiction deems it impractical to implement that specific requirement prior to the residential building receiving occupancy permit(s) or ICC 700 certification.</u></li> <li><u>3) There is adequate space to meet the possible requirements at a future date.</u></li> </ol> <p><u>A specific requirement applying to some, but not all, the non-residential occupancies that could be in the incomplete spaces is a valid reason for that specific requirement being listed in the construction documents but not completed.</u></p> <p><u>The requirements for the thermal envelop and items outside the building shall be met before certification of the building.</u></p> <p><b><u>1301.4 Approved programs and standards.</u></b> The authority having jurisdiction shall be permitted to deem a national, state or local program or standard to meet or exceed this chapter. Approval for a specified application, limited scope or specific locale shall be permitted. Buildings approved in writing under such a program or standard shall be considered in compliance with this chapter.</p> <p><b><u>1302 SITE DEVELOPMENT AND LAND USE</u></b></p> <p><b><u>1302.1 Intent.</u></b> Develop building sites to minimize negative environmental impacts and to protect, restore and enhance the natural features and environmental quality of the site.</p> <p><b><u>1302.2 Protected areas.</u></b> Construction shall comply with jurisdictional, state and Federal regulation concerning park lands, agricultural lands, flood hazard areas, conservation areas, greenfields, brownfields, sites adjacent to surface water bodies and wetlands. Construction documents shall show the location of the protected areas on, or adjacent to the building site. Construction documents shall show required buffer zones around protected areas.</p> <p><b><u>1302.2.1 Flood hazard areas.</u></b> New construction shall not be permitted in <i>flood hazard areas</i>. Where the authority having jurisdiction makes an exception, this chapter shall apply.</p> <p><b><u>1302.2.2 Surface water protection.</u></b> Construction and site improvements shall not occur within the ordinary high-water mark of seas, lakes, rivers and streams.</p> <p><b><u>Exceptions:</u></b></p> <ol style="list-style-type: none"> <li><u>1. Construction and site improvements related to the use of the associated body of water.</u></li> <li><u>2. Construction and site improvements permitted under an approved wetlands permitting program.</u></li> </ol> <p><b><u>1302.3 Vegetation and soil protection.</u></b> <i>Construction documents</i> shall identify existing vegetation and soils on a <i>building site</i> to be preserved and protected. Protected areas and plants with undisturbed soils shall be provided a physical barrier, such as temporary fencing or other physical barrier. Perimeters around trees shall be a circle with a radius of not less than 1 foot (305 mm) for every inch (25.4 mm) of tree diameter, with a minimum radius of 5 feet (1524 mm). Perimeters around shrubs shall be not less than twice the radius of the shrub.</p> <p><b><u>Exception:</u></b> <i>Approved</i> alternative perimeters appropriate to the location and the species of the trees and shrubs shall be permitted.</p>

**1302.4. Topsoil protection.** Topsoil that could be damaged by construction or equipment shall be removed and stockpiled for future reuse. Topsoil stockpiles shall be protected with temporary or permanent soil stabilization measures to prevent erosion or compaction.

**1302.5 Soil reuse and restoration.** Soils that are being reused shall be prepared, amended and placed to establish or restore the ability of the soil to support the planned vegetation.

**1302.6 Pervious and permeable pavement.** Pervious and permeable pavements including open grid paving systems and open-graded aggregate systems shall be permitted where they do not interfere with access and egress of fire and emergency vehicles or personnel; utilities; or telecommunications lines.

**1302.6 Stormwater.** Stormwater management for the building site shall address the potential increase in runoff that would occur resulting from construction. Stormwater shall be permitted to be managed for a group of building sites, such as the building sites within a development or the development as a whole. Where approved, stormwater shall be permitted to flow into adjunct areas designed to accept the stormwater. Stormwater management shall either:

1. Manage rainfall on-site to retain, use or infiltrate at a minimum, the volume of a single storm which is equal to the 95th percentile rainfall event; or
2. Improve, maintain or restore the pre-development stable runoff of the site in an approved manner. Runoff rate and volume shall not exceed predevelopment rates.

**1302.6.1. Rainwater catchment.** Where allowed by the jurisdiction, rainwater catchment shall be permitted to be used as part of stormwater management.

**1302.6.2. Site infiltration.** Infiltration into the site or development shall be permitted to be used as part of stormwater management. Site infiltration includes drainage of impermeable surfaces onto vegetated areas, rain gardens, permeable hardscapes, swales, ponds, or other approved areas.

**1302.6.3. Adjoining lots.** The stormwater management system shall not cause increased erosion or other drainage related damage to adjoining areas or public property.

**1302.8 Building site waste management.** Land-clearing debris shall be reused or otherwise diverted from landfill or other disposal. Land-clearing debris includes rock, trees, stumps and associated vegetation. Land-clearing debris may be temporarily stockpiled on the site until reused. Storage of site waste shall be in compliance with the combustible waste material requirements of Section 304 of the International Fire Code.

**Exception:** Section 1302.8 shall not be required where it is in conflict with jurisdictional, state or Federal regulation.

**1303.1 Walkways and bicycle paths.** Walkways and bicycle paths shall connect to existing paths or sidewalks, or shall be designed to connect to planned future paths, or both. Walkways and bicycle paths shall be designed to support stormwater management. Walkways and bicycle paths shall not interfere with fire and emergency apparatus, vehicle or personnel access.

**1303.2 Bicycle parking.** Bicycle parking shall comply with 1303.2.1 through 1303.2.3.

**1303.2.1 Minimum number of spaces.** Bicycle parking spaces shall be at least four per hundred-occupant load, with a minimum of four bicycle parking spaces. Occupant load shall be determined based on Section 1004 of the International Building Code. Accessory occupancy areas shall be included in the calculation of primary occupancy area.

**Exceptions:**

1. Bicycle parking shall not be required where the total non-residential conditioned space in the building is less than 1,000 square feet (232 m<sup>2</sup>).

2. The minimum number of spaces shall be permitted to be reduced by the authority having jurisdiction based on the occupants expected use of public transit or walking to the building.

Bicycle parking spaces for multiple buildings shall be permitted to be combined, provided that the spaces are sufficient for the combined occupant load of the buildings.

**1303.2.2 Description of spaces.** Bicycle parking spaces shall comply with the following:

1. shall be provided with illumination of not less than 1 footcandle at the parking surface,
2. shall have an area of not less than 18 inches (457 mm) by 60 inches (1524 mm) per bicycle, and
3. shall be provided with a rack or other facility for locking or securing each bicycle.

**1303.2.3 Location of spaces.** The location of bicycle parking shall be designated on the site plan.

Vehicle parking spaces, other than those required for local zoning requirements and the accessible parking required by the International Building Code, shall be permitted to be used for the installation of bicycle parking spaces. Bicycle parking shall comply with both of the following:

1. Bicycle parking spaces shall be located within 100 feet of the main building entrance and visible from the main entrance.  
2. Bicycle parking shall be located at the same grade as the sidewalk, or at a location reachable by ramp or accessible route.  
**Exception:** Provided there is signage at the main *building* entrances giving the location of bicycle parking, *bicycle parking* shall be permitted to be located inside a *building* or other locations on the site that are not visible from the main entrance.

**1304.1 Site Hardscape.** In climate zones 1 through 4 not less than 50 percent of the site *hardscape* shall have a minimum initial *Solar Reflectance* of 0.30 when determined in accordance with the *CRRC-1 Standard*. Alternately shading shall be provided by structures or trees based on the projected peak sun angle on the summer solstice. Construction documents shall show solar reflectance and shading used to comply with this section.

**1304.2.2 Shading structures.** Shading shall be permitted to be provided by elements of a building or structure. Shading includes areas covered by *solar photovoltaic* arrays, *solar thermal* or solar water heating collectors. Open trellis-type freestanding structures with vegetation shall be permitted to provide shading based on the coverage of mature vegetation.

**1304.2.3 Shade by trees.** Where trees provide shading, *construction documents* shall show the planting location and anticipated ten-year canopy growth of the trees. Shading by existing trees to be retained shall be permitted to be included in the shading provided by trees. The contribution to hardscape shading by trees shall include only the *hardscape* areas beneath the tree canopy.

### **1303 MATERIAL RESOURCE CONSERVATION AND EFFICIENCY**

**1303.1 Intent.** Materials are conserved, resources are used efficiently and negative environmental impacts are reduced.

**1303.2 Construction waste amount.** Construction waste shall meet one of the following criteria:  
1) Construction waste sent to disposal shall not exceed 3 lb/ft<sup>2</sup> of *gross floor area*. The materials sent to disposal shall be documented.  
2) Not less than fifty percent of the construction waste shall be diverted from disposal by reuse, recycle, salvage, donation, or sale. The fifty percent shall be determined by weight or volume, but not both. The materials diverted from disposal and the materials sent to disposal shall be documented. Both sorting and diversion on site and storage of waste materials for sorting and diversion at another location shall be permitted.

**1303.3 Hazardous waste.** Hazardous waste shall be handled in accordance with laws, rules and ordinances applicable in the *jurisdiction*.

**1303.4 Waste storage.** Storage of construction waste shall be in compliance with the combustible waste material requirements of Section 304 of the *International Fire Code*.

**1303.5 Used materials and components.** Salvaged or reused materials and components shall comply with the provisions for such materials in accordance with the applicable code, or shall be approved. Reuse of materials and components from other projects shall be treated as a reduction in the construction waste of this project.

**1303.5.1 Concrete, asphalt and base materials.** The use of aggregate, fly ash, slag, and the like in concrete; reuse of asphalt and aggregate to make asphalt; and the reuse of recovered materials as base materials shall be treated as a reduction in the construction waste of this project.

**1303.5.2 Materials and components from other sources.** Salvage and reuse of materials and components from other projects shall be treated as a reduction in the construction waste of this project.

**1303.6 Construction phase moisture control.** Porous or fibrous materials and other materials subject to moisture damage shall be protected from moisture during the construction. Material damaged by moisture or visibly colonized by fungi either prior to delivery or during the construction shall be cleaned and dried, or where damage cannot be corrected, shall be removed and replaced.

### **1304 ENERGY EFFICIENCY AND RENEWABLES**

**1304.1 Intent.** This section promotes the effective use of energy and on-site renewable generation.

**1304.2 Energy calculations.** Energy costs shall be calculated in accordance with Section C407 of the *International Energy Conservation Code*.

**1304.2.1 Alternative energy calculations.** The energy costs shall be permitted to be calculated in accordance with Appendix G to ASHRAE Standard 90.1. Energy costs shall not include plug loads.

**1304.2.2 End uses and renewables.** The energy costs shall include only the following specific end uses: heating, cooling, service water heating, ventilation including fans, and lighting. On-site energy production from renewable, waste, and recovered energy shall be permitted to be included as a reduction in energy use. On-site energy production from renewable, waste, and recovered energy for the residential portion of the building shall not be also included as a reduction in the non-residential building energy use.

**1304.4 Electric vehicle charging.** Plug-in electric vehicle charging capability shall be provided for at least 4 percent of the parking stalls. The number of charging stations shall be rounded to the nearest even number. A post with multiple charging outlets shall be counted as the number of charging outlets. Electrical capacity in main electric panels shall support Level 2 charging (208/240V-40 amp).

A level 3 charger with 208V with 3 phase AC shall be permitted to substitute for 4 Level 2 chargers.

**1304 Energy compliance alternatives.**

**1304.1 Compliance options.** Buildings shall comply with Section 1304.2, prescriptive options; Section 1304.3, 15% energy savings; or Section 1304.4, prescriptive.

**1304.2 Prescriptive options.** Buildings in compliance with at least 3 items in Table 1304.2 shall be deemed to be in compliance with this section. Items used to comply with the International Energy Conservation Code shall not be counted towards the 3 required items.

**TABLE 1304.2 PRESCRIPTIVE OPTIONS**

Measure	Description
Heating and cooling equipment efficiency	-heating equipment rated with an AFUE shall be at least an AFUE of 95 in zones 5 through 8; at least an AFUE of 92 in zones 1 through 4; at least an AFUE of 85 if oil. If rated with an HSPF shall be at least an HSPF of 9. -cooling equipment rated with a SEER shall be at least a SEER 18 in zones 1 through 4; at least a SEER 15 in zones 5 through 8. Or -Exceed the equipment efficiency requirements listed in Tables C403.2.3(1) through C403.2.3(7) of the IECC by 10%. -Equipment shall be sized. HVAC design loads shall be determined in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent procedure. -Equipment shall be commissioned.
Lighting efficiency	Meet lighting power density (LPD) maximum of 90 percent of the lighting power values specified in IECC Table C405.4.2(1). Or 90% of lighting fixtures or lamps over 15w have an efficacy of at least 70 lumens/watt.
Renewable energy	Provide at least 0.5 watts per ft <sup>2</sup> (5.4 W/m <sup>2</sup> ) of conditioned floor area as renewable energy. Renewables shall be assigned to residential or non-residential, but not both.
UA reduction	Reduce the total building UA by 15% from that specified in the IECC. The total building UA shall be computed as sum of the U-factor times the area for each building thermal envelope component for which a U-factor is specified in IECC Tables C402.1.2 and C402.3. The areas of the envelope components, including windows, shall be as in the building constructed.
Day lighting	Provide day lighting with automated controls for at least 70% of the floor area.
Increased water heating efficiency	For buildings in the <i>water intensive use group</i> , water heating efficiency that complies with Sections 1304.5 and 1304.6. Hot water supply is within 10 feet of hot water use, or pipes are insulated with at least R6.
Other energy savings	Decrease energy costs by 4% using any approved energy saving measure(s) beyond IECC compliance. The additional 4% shall not count other items selected from this table, or any mandatory requirements in this chapter.

**1304.3 Compliance based on 15% energy savings.** Buildings with projected energy costs at least 15% less than a building complying with the International Energy Conservation Code shall be deemed to be in compliance with this section.

**1304.4 Prescriptive.**

**1304.4.1 HVAC Equipment efficiency.** HVAC equipment shall meet the following:

- 1 a) heating equipment shall

if rated with an AFUE be at least an AFUE of 95 in zones 5 through 8; at least an AFUE of 92 in zones 1 through 4; at least an AFUE of 85 if oil.

If rated with an HSPF shall be at least an HSPF of 9.

Or

exceed the efficiency requirements in IECC Tables C403.2.3(1) through C403.2.3(7) by at least 10%.

Or

be ground source heat pump shall meet this requirement.

b) cooling equipment rated with a SEER shall be at least a SEER 18 in zones 1 through 4; at least a SEER 15 in zones 5 through 8.

2) Equipment shall be sized based on HVAC design loads determined in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent computational procedure.

3) Heating, cooling and ventilation equipment shall be commissioned.

**1304.4.2 Air barriers.** The air barrier requirements in IECC Section C402.5.1 shall be met.

**1304.4.3 Lighting.** 90% of the lighting fixtures or lamps over 15w shall have an efficacy of at least 70 lumens/watt. Alternately, the building shall meet the lighting power density (LPD) maximum of 90 percent of the lighting power values specified in IECC Section C405.3.2.

**1304.5 Service water heating equipment efficiency.** Service water heating for *water intensive use group* shall be provided by one of the following:

1. Natural gas, propane, or oil water heater with a minimum of an 0.80 energy factor, or with a minimum of an 0.90 thermal efficiency;

2. Electric water heater with a minimum of a 2.0 energy factor;

3. Ground source heat pump;

4. Desuperheater on a vapor compression air conditioner, heat pump, or ground source heat pump projected to supply a minimum of 30% of the energy required for service hot water.

5. On-site renewable energy water-heating systems projected to supply a minimum of 30% of the service hot water energy use.

6. Tankless coil with a boiler with a minimum of 85 AFUE.

7. Waste heat recovery projected to provide a minimum of 30% of the energy required by water heating.

8. Any combination of the above projected to provide at least 30% of the service water heating energy.

**1304.6 Drain water heat exchangers.** The specified functions shall be provided with drain water heat exchangers that are projected to recover at least 25 percent of the temperature difference between the incoming cold water and the drain water.

1. Group F, Laundries, washing machines;

2. Group A-3, Health Clubs and Spas; showers, washing machines that use both hot and cold water.

3. Group I-2, Hospitals, Mental hospitals and Nursing homes; washing machines that use both hot and cold water, staff showers, patient showers if long-term care

**Exceptions:** The following shall not require drain water heat exchangers:

1. Where the functions are located on the lowest floor of the building and the authority having jurisdiction determines it is not practical to install a drain water heat exchanger.

2. Where washing machines are piped only with cold water and space is provided to add a future drain water heat exchanger.

3. In applications that produce *grease-laden waste* or are required to have grease or oil separators in accordance with Section 1003 of the *International Plumbing Code*.

4. Where the function is located in a private area.

**1304.7 Circulating hot water system controls.** Controls that allow continuous, timer, or water temperature-initiated (aquastat) operation of a circulating pump are prohibited. Gravity or thermosyphon circulation loops are prohibited. Pumps on circulating hot and tempered water systems shall be activated on demand by either a hard-wired or wireless activation control of one of the following types:

A normally-open, momentary contact switch.

Motion sensors that make contact when motion is sensed. After the signal is sent, the sensor shall go into a lock out mode for not less than 5 minutes to prevent sending a signal to the electronic controls while the circulation loop is still hot.

A flow switch.

A door switch.

The controls for the pump shall shut off the pump with a rise in temperature. The controls shall have a lock-out to prevent operation exceeding 105°F degrees in the event of failure of the device that senses temperature rise. The controls shall have a lock out mode for not more than 5 minutes that prevents extended operation of the pump if the sensor fails or is damaged.

## **1305 WATER CONSERVATION AND EFFICIENCY**

**1305.1 Intent.** This section is intended to conserve water, protect water quality, provide for safe water consumption and protect water resources.

**1305.1 Fitting and fixture consumption.** Plumbing fixtures and fixture fittings shall comply with the maximum flow rates specified in Table 1305.1. Plumbing fixtures and fixture fittings in Table 1305.1 shall have a manufacturer's designation for flow rate.

**Exceptions:** The following fixtures and devices shall not be required to comply with the reduced flow rates in Table 1305.1.

Clinical sinks having a maximum water consumption of 4.5 gallons (17 L) per flush.

Service sinks, bath valves, pot fillers, laboratory faucets, utility faucets, and other fittings designed primarily for filling operations.

Fixtures, fittings, and devices whose primary purpose is safety.

**TABLE 1305.1 MAXIMUM FLOW RATES AND FLUSH VOLUMES**

<b><u>FIXTURE OR FIXTURE FITTING TYPE</u></b>	<b><u>MAXIMUM FLOW RATE OR FLUSH VOLUME</u></b>
Showerhead <sup>a</sup>	2.0 gpm at 80 psi
Lavatory faucet and bar sink-private	1.5 gpm at 60 psi
Lavatory faucet-public (metering)	0.25 gpc <sup>b</sup> at 60 psi
Lavatory faucet-public (non-metering)	0.5 gpm at 60 psi
Kitchen faucet-private	1.8 gpm at 60 psi <sup>f</sup>
Kitchen and bar sink faucets in other than dwelling units and guest rooms	2.2 gpm at 60 psi
Urinal	0.5 gpf or nonwater urinal
Water closet	1.28 gpf <sup>c,d</sup>
Prerinse Spray Valves	1.3 gpm
Drinking Fountains (manual)	0.7 gpm <sup>e</sup>
Drinking Fountains (metered)	0.25 gpc <sup>b,e</sup>

a. Includes hand showers, body sprays, rainfall panels and jets.

b. Gallons per cycle.

c. Dual flush water closets in public bathrooms shall have a maximum full flush of 1.28.

d. The flush volume for water closets that are located at least 30 feet upstream of other drain line connections or fixtures and having less than 1.5 fixture units upstream of the water closet's connection to the drain line shall be not more than 1.5 gpf.

e. Bottle filling stations associated with drinking fountains shall not have limitations for flow rate.

f. Where a faucet has a pot filler mode, the flow shall not exceed 2.2 gpm at 60 psi. Such faucets shall automatically return to 1.8 gpm when the pot filler mode activation mechanism is released or when the faucet flow is turned off.

**1305.2 Multiple water outlet showers.** For showers with multiple water outlets, the maximum shower flow rate shall apply to the combined flow of all water outlets that are capable of being operated simultaneously. Multiple water outlet showers shall comply with at least one of the following flow rate limits:

Shower compartment - 2.0 gpm, or 2.0 gpm per 2600 in<sup>2</sup> of shower compartment floor area.

Gang shower - 2.0 gpm per shower position

Shower compartment complying with Chapter 11 of *International Building Code* - 4.0 gpm or 4.0 gpm / 2600 in<sup>2</sup> of shower compartment floor area.

**1305.6.1 Once-through cooling for appliances and equipment.** Once-through or single-pass cooling with potable or municipal reclaimed water is prohibited.

**1305.6.2 Clothes washers.** Clothes washers rated with an IWF (integrated water factor), MEF (modified energy factor), or IMEF (integrated modified energy factor), shall be rated as follows:

Residential Clothes Washers, Front-loading, > 2.5 cu-ft  
maximum IWF 3.2 minimum IMEF 2.76

Residential Clothes Washers, Top-loading, > 2.5 cu-ft  
maximum 4.3 IWF, minimum IMEF 2.06

Residential Clothes Washers (≤ 2.5 cu-ft)  
maximum 4.2 IWF, minimum IMEF 2.07

Commercial Clothes Washers

maximum 4.0 IWF, minimum MEF 2.20

### **1305.6.3 Food Service.**

**1305.6.3.1 Dipper wells.** The water supply to a dipper well shall have a shutoff valve and flow control valve. The maximum flow shall not exceed 1 gpm (3.78 lpm) at a supply pressure of 60 psi (413.7 kPa). The dipper well shall have a manufacturer's designation of flow rate.

**1305.6.3.2 Food waste disposal.** The disposal of food wastes that are collected as part of preparing ware for one or more of the following shall accomplish washing:

A food strainer (scrapper) basket that is emptied into a trash can.

A garbage grinder where the water flow into the food waste disposer is controlled by a load sensing device such that the water flow does not exceed 1 gpm under no-load operating conditions and 8 gpm under full-load operating conditions

A pulper or mechanical strainer that uses not more than 2 gpm of potable water.

**1305.6.3.3 Pre-rinse spray heads.** Food service pre-rinse spray heads shall have a manufacturer's designation of flow rate, shall comply with the maximum flow rate in Table 1305.1, and shall shut off *automatically* when released.

**1305.6.3.4 Hand washing faucets.** Faucets for hand washing sinks in food service preparation and serving areas shall be of the self-closing type.

**1305.1 Heat exchangers.** Once-through or single-pass cooling with potable or municipal reclaimed water is prohibited. Heat exchangers shall be connected to a recirculating water system such as a chilled water loop, cooling tower loop, or similar recirculating system.

**1305.2 Humidification systems.** Except where greater humidity is required for medical, agricultural, archival or scientific research purposes, humidification systems shall be capable of limiting humidification to times when the relative humidity in the space is less than 55 percent.

**1305.1 Water softeners.** Water softeners shall comply with Sections 1305.1.1 through 1305.1.3.

**1305.1.1 Demand initiated regeneration.** Water softeners shall be equipped with demand- initiated regeneration control systems. Such control systems shall automatically initiate the regeneration cycle after determining the depletion, or impending depletion of softening capacity.

**1305.1.2 Water consumption.** Water softeners shall have a maximum water consumption during regeneration of 5 gal (18.9 L) per 1000 grains of hardness removed as measured in accordance with NSF 44.

**1305.1.3 Waste connections.** Waste water from water softener regeneration shall not discharge to reclaimed, gray water or rainwater water collection systems and shall discharge in accordance with the *International Plumbing Code*.

## **1306 INDOOR ENVIRONMENTAL QUALITY AND COMFORT**

**1306.1 Intent.** Improve the interior environment's impact on human health and well-being.

**1306.2 Duct protection during construction.** Duct and other air distribution component openings shall be covered with tape, plastic, sheet metal or by another *approved* method from the time of rough-in installation until startup of the heating and cooling equipment. Dust and debris shall be cleaned from duct openings prior to *building occupancy*.

**1306.3 Sealed air handler.** Air handlers with a flow rate less than 3000 cfm shall have a manufacturer's designation of air leakage. The air handler air leakage shall be not more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.

**1306.4 Air handling system access.** Air handlers, air filters, fans, coils and condensate pans shall be provided with access for purposes of cleaning, *repair*, and replacement.

**1306.5 Filters.** Filters for air conditioning systems shall be rated at MERV 11 or higher and system equipment shall be designed to be compatible. The air handling system design shall account for the pressure drop across the filter. The pressure drop across clean MERV 11 filters shall be not greater than 0.45 in. wc. at 500 FPM filter face velocity. Filter performance shall be shown on the filter manufacturer's data sheet.

**1306.6 Venting and combustion air.** *Fireplaces* and fuel-burning appliances shall be vented to the outdoors and shall be provided with combustion air from the outdoors in accordance with the *International Mechanical Code and the International Fuel Gas Code*. Solid-fuel-burning *fireplaces* shall be provided with combustion air directly from the outdoors and shall be provided with a means to tightly close off the chimney flue and combustion air outlets when the *fireplace* is not in use.

	<p><b>1306.7 Unvented combustion.</b> Permanently installed unvented combustion devices fueled by gas, alcohol or kerosene shall be prohibited.</p> <p><b>1306.3.1 Radon testing.</b> Radon testing is Mandatory for Zone 1.</p> <p><b>Exceptions:</b></p> <p>1) testing is not mandatory where the authority having jurisdiction has defined the radon zone as Zone 2 or 3.</p> <p>2) testing is not mandatory where the occupied space is located above an open space</p> <p><b>1306.3.1.1 Testing specification.</b></p> <p>Testing is performed as specified in (a) through (k).</p> <p>(a) Testing is performed after the building passes its airtightness test.</p> <p>(b) Testing is performed after the radon control system installation is complete and operating (if an active system)</p> <p>(c) Testing is performed at the lowest level which will be occupied, even if the space is not finished. Spaces that are physically separated and severed by different HVAC systems shall be tested separately.</p> <p>(d) Testing is not performed in a closet, hallway, stairway, laundry room, furnace room or bathroom or kitchen.</p> <p>(e) Testing is performed with a commercially available test kit or with a continuous radon monitor that can be calibrated. Testing with test kits shall include two tests, which are averaged. Testing shall be in accordance with the manufacturer's instructions.</p> <p>(f) Testing can be performed by the builder or a third party.</p> <p>(g) Testing shall extend at least 48 hours or to the minimum specified by the manufacturer, which ever is longer. This initial testing can extend past occupancy.</p> <p>(h) Test results shall be provided directly to the owner by the test lab or testing party. The test results may be delivered before or after occupancy.</p> <p>(i) An additional pre-paid test kit shall be provided to the owner to use when they choose. The test kit shall include mailing, or emailing the results from the testing lab to the owner. The builder may also receive the test results.</p> <p>(j) This section does not require a specific test result, rather it requires the test be performed and the results provided to the owner.</p> <p>(k) The owner shall be informed prior to occupancy and in writing that "A radon test result of 4 pCi/L or above is the 'action level' set by EPA." EPA suggests radon reduction measures to lower radon levels below 4 pCi/L." Or "For a radon test result of 4 pCi/L or above [name of builder or jurisdiction having authority] suggests radon reduction measures to lower radon levels below 4 pCi/L."</p> <p><b>202 Definitions</b></p> <p><b>WATER INTENSIVE USE GROUPS.</b></p> <p>1. Group R-1: Boarding houses, hotels or motels.</p> <p>2. Group I-2: Hospitals, psychiatric hospitals and nursing homes.</p> <p>3. Group A-2: Restaurants and banquet halls or buildings containing food preparation areas.</p> <p>4. Group F: Laundries.</p> <p>5. Group R-2</p> <p>6. Group A-3: Health clubs and spas.</p>
<p><b>Reason:</b></p>	<p>This new chapter would apply to the new non-residential portion of a building. The non-residential portion of the building would inherit the rating of the residential portion.</p> <p>Taken in total, these items have substance and will produce a better building. What has the most impact in a particular building will vary greatly with the type of business. If during the NGBS consideration of this proposal an item or two on this list is deemed impractical then that item should simply be removed. There is likely plenty of substance in the remaining requirements.</p> <p>NGBS non-residential needs to be practical and straightforward to use. NGBS will retain its focus on residential. NGBS needs requirements that the verifies can use and enforce.</p> <p>Green opportunities will vary greatly with business type. For example, the opportunities in a health club are much different from a jewelry store. The non-residential section should be a leap forward in green, but should not try to balance the areas to match the residential NGBS. Lets take the "green" where we can get it.</p> <p>Should NGBS have a point system for non-residential? No, separate points for non-residential would be too complex. What if the non-residential space was tiny? Or if it is big? Calculating points for residential and non-residential and merging the two based on floor area? Not practical.</p>



	<p>Being outside the envelope, the site requirements could be removed based on the argument that the residential NGBS has covered them. However, I'd suggest retaining these, which will become a way to differentiate the NGBS from other programs. This means things outside the building would have both residential and non-residential requirements to meet.</p> <p>The definition for "water intensive use groups" names the groups named in IECC Section C406.7.</p> <p>The clothes washer criteria are from Energy Star Version 8, which will be required beginning February 2018.</p> <p>I am not silly enough to suggest this will be taken as written. This is only one proposal. I look forward to working towards an NGBS that can accommodate multifamily buildings that have non-residential spaces on the ground floor(s).</p>
<b>TG Recommendation (AS or AM or D):</b>	
<b>Modification of Proposed Change:</b>	
<b>TG Reason:</b>	
<b>TG Vote:</b>	

Proposal ID TBD	LogID 6593	New Section
<b>Submitter:</b>	Craig Conner, self	
<b>Requested Action:</b>	Add new as follows	
<b>Proposed Change:</b>	<p><b><u>Chapter 14</u></b></p> <p><b><u>NON-RESIDENTIAL EXISTING BUILDINGS</u></b></p> <p><b><u>1401.1 Scope.</u></b> This chapter shall apply to the <i>alteration, addition, and change of occupancy</i> of non-residential portion of existing <i>buildings and structures</i>. Existing relocatable modular buildings shall comply with this chapter.</p> <p><b><u>1401.2 Building materials, assemblies and systems.</u></b> <i>Building materials shall comply with the requirements of this Chapter.</i></p> <p><b><u>1401.2.1 Existing systems.</u></b> Except where specifically noted in this chapter, materials, assemblies, and systems already in use in a <i>building</i> in conformance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined to be dangerous to life, health or safety. Where determined to be dangerous, existing systems shall be mitigated or made safe.</p> <p><b><u>1401.2.2 New and replacement systems.</u></b> Except as otherwise required or permitted by code, materials, assemblies and systems permitted by the applicable code for new construction shall be used. Like materials shall be permitted for <i>repairs and alterations</i> provided that a hazard to life, health or property is not created. Hazardous materials shall not be used where the code for new construction would not permit their use in a similar occupancy, purpose and location.</p> <p><b><u>1401.3 Waste.</u></b> Site development and construction waste shall be as specified in Sections 1303.2 through 1303.5 of Chapter 13, Non-residential New Construction.</p> <p><b><u>1401.4 Approved programs and standards.</u></b> The authority having jurisdiction shall be permitted to deem a national, state or local program or standard to meet or exceed this chapter. Approval for a specified application, limited scope or specific locale shall be permitted. Buildings approved in writing under such a program or standard shall be considered in compliance with this chapter.</p> <p><b><u>1402.1 Flood hazard areas.</u></b> <i>Additions shall not be permitted to buildings and structures that are located in flood hazard areas.</i></p> <p><b><u>Exception:</u></b> <i>Where an existing building or structure is located such that all habitable space is located not less than 1 foot above the flood elevation, additions located not less than 1 foot above the flood elevation shall be permitted.</i></p>	

**1403.1 Energy, HVAC and water equipment.** Energy, HVAC and water equipment shall comply with the following:

**Exception:** Where the requirements are determined by the AHJ to be infeasible based upon the existing configuration of spaces, unless those spaces will be reconfigured as part of the alteration project.

Non-functioning thermostats shall be repaired or replaced.

Leaking accessible supply air and return ducts shall be sealed. Although existing duct tape shall not be deemed in noncompliance where a duct is not leaking, duct tape shall not be an acceptable seal.

Outside air dampers, damper controls and linkages controlled by HVAC units shall be in good repair and adjustment.

Leaks of hot water and steam leaks, defective steam traps and radiator control, relief, and vent valves in accessible piping shall be repaired or replaced.

Leaking accessible chilled water lines and equipment shall be repaired or replaced.

Furnace combustion units shall have been cleaned and tuned within one year prior to the alteration, or shall be cleaned and tuned. Filters shall be replaced in accordance with the furnace manufacturer's recommendations.

Chiller and boiler systems shall have been cleaned and tuned within one year prior to the alteration, or shall be cleaned and tuned.

For motor-driven systems and equipment, filters shall be cleaned or replaced, and belts and other coupling systems shall be repaired.

HVAC piping and ducts outside conditioned space or located above suspended ceilings, shall be insulated to R-values in accordance with the IECC.

**Exceptions:** Additional insulation shall not be required:

1) for piping that is already insulated provided the insulation is in good condition

2) where the insulation cannot be installed without structural alteration.

10. Replacement cooling or heat pump equipment rated with a SEER shall be at least a SEER 18 in zones 1 through 4; at least a SEER 15 in zones 5 through 8.

11. Replacement heating equipment rated with an AFUE shall be at least an AFUE of 95 in zones 5 through 8; at least an AFUE of 92 in zones 1 through 4; at least an AFUE of 85 if oil.

12. Replacement heating equipment rated with an HSPF shall be at least an HSPF of 9.

13. Heating and cooling equipment replaced with a ground source heat pump meets the heating and cooling efficiency requirements.

Where a building cavity or framing space is too small to accommodate the duct or pipe insulation, the minimum insulation thickness shall be the thickness that cavity or framing can accommodate, but shall not be less than 1/2-inch thick.

**1403.2 Service water systems.** Defective hot- and cold-water piping and equipment within service water systems shall be repaired or replaced.

**1403.3 Motor-driven equipment.** Leaks in compressed air or pumped water systems shall be repaired or the equipment replaced.

**1403.4 Energy audit.** An approved party shall conduct a building energy audit. The energy audit shall indicate the improvements that the auditor recommends. The audit report shall be completed prior to certification of the building.

**Exception:** An energy audit and report shall not be required where an energy audit and report was completed within 24 months prior to the alteration.

**1403.5 Energy upgrade.** The energy used by the building shall be reduced by 15%. Alternately the energy recommendations of a verifier or an approved energy auditor shall be implemented.

**1403.6 Water audit.** For buildings in the *water intensive use group* a water audit shall be performed. The water audit shall indicate the improvements that the auditor recommends. The report shall be completed prior to certification of the building.

**Exception:** A water audit and report shall not be required where a water audit and report was done within 24 months prior to the alteration

**1403.7 Water upgrade.** The potable water used by buildings in the *water intensive use group* shall be reduced by 20%. Alternately, the water recommendations of a verifier or an approved water auditor shall be implemented.

**1403.8 Service water systems.** Service water systems and equipment shall be in accordance with the following:

1. Accessible hot supply and *distribution pipes* shall be insulated to R-values as specified in the IECC.

2. In Seismic Design Categories D, E and F, as established in accordance with the *International Building Code*, water heater and water *storage tanks* with a tank capacity of thirty gallons or greater shall be strapped or otherwise secured to a wall, floor, ceiling, or other object that itself is secured to a wall, floor, or ceiling. Water, gas and overflow pipes connected to water tanks shall be similarly secured.

3. Gas water heaters shall have a flexible gas line entering the appliance.

4. Showerhead and faucet flow rates shall be in accordance with Table 1305.1 of Chapter 13.

5. Replacement toilet and urinal flow rates shall be in accordance with Table 1305.1 of Chapter 13.

6. Replacement water heaters with an EF rating shall be at least a 2.0 EF if electric and 0.77 EF if gas.

**1403.9 Replacement lighting.** 90% of the replacement lighting fixtures or lamps over 15w shall have an efficacy of at least 70 lumens/watt. Alternately, the building shall meet the lighting power density (LPD) maximum specified in IECC Table C405.3.2(1) or C405.3.2(2).

**1403.10 Commercial refrigeration equipment.** Commercial refrigeration equipment shall be cleaned and tuned for efficiency, including, but not limited to, cleaning of condenser coils and evaporators, and replacement of defective or worn door gaskets and seals.

**1403.11 Swimming pools and spas.** Swimming pools and spas and their equipment shall be in accordance with the following:  
Heated swimming pools and spas shall be equipped with a cover for unoccupied hours.  
Swimming pools shall have an automated mechanical cover.  
Pool and spa recirculation pumps shall be under time clock control.  
**Exception:** Filtration pumps where the public health standard requires 24-hour pump operation.  
Heaters shall be cleaned and tuned for efficiency, or such cleaning shall have occurred within one year prior to certification.

**1404.1 Change of occupancy.** Where a change in occupancy of a *building* or tenant space places it in a different division of the same group of occupancy or in a different group of occupancies, as determined in accordance with the *International Building Code*, compliance with this chapter shall be required.

**1405.1 Historic buildings.** Individual provisions of this chapter shall not be mandatory for *historic buildings* for the following conditions:  
Where a provision requires a visible change not consistent with the *building's* historic nature, or  
2. Where a provision conflicts with a function fundamental with the historic nature of the *building*.

**1406.1 Changes to hardscapes and parking.** Where existing *hardscapes* and outdoor parking is altered, the *alterations* shall comply with the applicable provisions of Section 1303 in Chapter 13, *New Non-residential construction*.  
**Exception:** Where less than 20% of the hardscape and surface parking is altered, materials and assemblies shall be at least the equivalent of those being replaced.

**1407.1 Deconstruction and demolition.** Where *buildings, structures* or portions thereof are *deconstructed* or demolished, a minimum of 50 percent of materials shall be diverted from disposal and incineration. Documentation of the total materials in *buildings, structures* and portions thereof to be *deconstructed* or demolished and materials to be diverted, and evidence of diversion, shall be provided. Material quantities shall be indicated and calculated by weight or volume, but not by both.  
**Exception:** As an alternative to Section 1407.1, an approved deconstruction plan shall be implemented.

**Reason:**

This chapter covers requirements for improvement to the non-residential portion of existing buildings. The existing non-residential portion of a building would inherit the same rating as the residential portion.

The principle is to require maintenance and improvements where it is practical and straightforward, but not require things that are difficult and probably not cost effective. The goal is to make substantive and real improvements, but not break the bank.

This is primarily a list of tune-ups, fixes and a few practical improvements. Existing non-residential spaces vary considerably. Where a specific item did not exist in a building, that item would not apply for that specific building.

Greening needs to consider energy and water. There is a requirement for an energy audit and upgrade. There is also a requirement for a water audit and upgrade for the water intensive use groups. New heating, cooling and water heating equipment is required to be efficient.

This proposed Chapter 14 makes a few references to Chapter 13 (Non-Residential New Construction). Chapter 13 was submitted as a separate proposal. Chapter 13 does not reference this chapter.

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