

# Public Comments for TG-4

On the Development of the

## 2020 National Green Building Standard

December 3, 2018

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## Chapter 8: Water Efficiency

PC132 LogID 6130	801.0 Intent	Final Formal Action: TBD
<b>Submitter:</b>	Josh Hanson, self	
<b>Comment:</b>	Implement measures that reduce indoor and outdoor water usage. Implement measures <del>that include including but not limited to the collection of water, the treatment of water on-site and use of alternative sources of water. Implement measures that treat water on site.</del>	
<b>Reason:</b>	I just think it reads cleaner	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC133 LogID 6219	801.1 Mandatory requirements.	Final Formal Action: TBD
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Delete without substitution <b>Proposed Change:</b> <del>The building shall comply with Section 802 (Prescriptive Path) and 803 (Innovative Practices) or Section 804 (Performance Path). Points from Section 804 (Performance Path) shall not be combined with points from Section 802 (Prescriptive Path) or Section 803 (Innovative Practices). The mandatory provisions of Section 802 (Prescriptive Path) and Section 803 (Innovative Practices) are not required when using the Water Rating Index of Section 804 (Performance Path) for Chapter 8 Water Efficiency compliance.</del>	
<b>Reason:</b>	Mandatory measures are useful at ensuring user satisfaction, quality, and other benefits that serve the intent of the standard and are not adequately captured in simply measuring end-use efficiency via a performance path. The standard should not exclude all mandatory measures when the performance path of Section 804 is used. It would benefit the standard to clearly separate mandatory measures from point measures, to plainly identifying which of the provisions under 802 and 803 are actually MANDATORY.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC134 LogID 6260	801.1 Mandatory requirements	Final Formal Action: TBD
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	801.1 Mandatory requirements. The building shall comply with Section 802 (Prescriptive Path) and 803 (Innovative Practices) or Section 804 (Performance Path). Points from Section 804 (Performance Path) shall not be combined with points from Section 802 (Prescriptive Path) or Section 803 (Innovative Practices). The mandatory provisions of Section 802 (Prescriptive Path) and Section 803 (Innovative Practices) are not required when using <del>the Water Rating Index of</del> Section 804 (Performance Path) for Chapter 8 Water Efficiency compliance.	
<b>Reason:</b>	On August 3, 2018 RESNET published BSR/RESNET/ICC 1101-201x, draft PDS-01, Standard for the Calculation and Labeling of the Water Use Performance of One- and Two-Family Dwellings Using the Water Rating Index. RESNET recommends deleting the title for the performance path. No other section	

	within Chapter 8 has a specific title, so there's no reason the performance path section needs a separate title. In addition, having two ANSI standards with the same name, but different language will create market confusion.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC135 LogID BC39</b>	<b>802.5.1 Water-efficient (Lavatory faucets)</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Cambria McLeod; Kohler	
<b>Comment:</b>	Disapprove of the committee action to add the term 'or equivalent'. There is no way for someone in the field to determine equivalence to the WaterSense specification. The performance measures of the specification include a max flow rate of 1.5gpm at 80psi and a min flow rate of 0.8gpm at 20psi. How will someone in the field be able to confirm this? The EPA WaterSense program continues to be funded. It is heavily supported by over 180 national, regional, and local organizations, from environmental groups, to manufacturers, to utilities and cities. Removing the requirement for a lav faucet to be certified to the performance criteria of the EPA WaterSense Lavatory Faucet Specification is a disservice to the end-user of the faucet and creates a burden on the user of this standard.	
<b>Reason:</b>	<i>Secretariat Note: Comment on the following provision of the Draft Standard:</i>	
	<div style="border: 1px solid black; padding: 5px;"> <p><del>802.4.5.1</del> <del>W</del>Install water-efficient lavatory faucets with <del>a maximum</del> flow rates not more than of 1.5 <del>gpm</del> (5.68 L/m), tested <del>at 60 psi (414 kPa)</del> in <del>accordance</del> <del>compliance</del> with ASME A112.18.1/CSA B125.1 and meeting the performance criteria of the EPA WaterSense High-Efficiency Lavatory Faucet Specification, <del>are installed or equivalent.</del></p> </div>	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC136 LogID BC40</b>	<b>802.5.4 Water closets and urinals</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Thomas Pape; Alliance For Water Efficiency	
<b>Comment:</b>	The addition of mixed-use buildings presents a new problem with using "effective flush volume". While residential dual flush toilets are known to be used appropriately, commercial settings do not get the same results. It is well documented that people do rarely use the partial flush on dual flush toilets in public settings. Thus, dual flush toilets will average 1.6 GPF rather than 1.28.	
<b>Reason:</b>	<i>Secretariat Note: Comment on the following provision of the Draft Standard:</i>	

	<p><b>802.5.4 Water closets and urinals.</b> Water closets and urinals are in accordance with the following:</p> <p style="text-align: center;"><b>(Points awarded for 801.5(2) or 801.5(3), not both.)</b></p> <table border="1"> <tr> <td>(1)</td> <td>Gold and emerald levels: All water closets and urinals are in accordance with Section 801.5.</td> <td><b>Mandatory</b></td> </tr> <tr> <td>(2)</td> <td>A water closet is installed with an effective flush volume of 1.28 gallons (4.85 L) or less <del>and meets the flush performance criteria when tested in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.19.14 as applicable. Tank-type water closets shall be in accordance with the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets.</del></td> <td style="text-align: center;"><del>24</del> <b>126 Max</b></td> </tr> </table>	(1)	Gold and emerald levels: All water closets and urinals are in accordance with Section 801.5.	<b>Mandatory</b>	(2)	A water closet is installed with an effective flush volume of 1.28 gallons (4.85 L) or less <del>and meets the flush performance criteria when tested in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.19.14 as applicable. Tank-type water closets shall be in accordance with the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets.</del>	<del>24</del> <b>126 Max</b>	
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<b>Substantiating Documents:</b>	No							
<b>Task Group Recommendation:</b>								
<b>Modification of Comment:</b>								
<b>Task Group Reason:</b>								
<b>Task Group Vote:</b>								

<b>PC137 LogID BC41</b>	<b>802.5.4 Water closets and urinals</b>	<b>Final Formal Action: TBD</b>									
<b>Submitter:</b>	Cambria McLeod; Kohler										
<b>Comment:</b>	<p>Without proper certification to WaterSense, there is no way for the end-user of the product or the user of this standard to know if a product does indeed meet the performance criteria according to the specification. The EPA Water Sense program is a well-recognized program, heavily supported by over 180 national, regional, and local organizations, from environmental groups, to manufacturers, to utilities and cities. Products carrying a WaterSense label demonstrate that they not only save water, but they have been third-party certified to meet performance criteria. This allows consumers to easily identify water-efficient products that also perform. This program has widespread support and there are over 2,800 tank-type toilets currently labeled with WaterSense. Additionally, flushometer tank type toilets are also available with Water Sense certifications and with the expansion of this standard to include commercial properties, it would behoove us to also include these products.</p>										
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<b>Substantiating Documents:</b>	No										
<b>Task Group Recommendation:</b>											
<b>Modification of Comment:</b>											
<b>Task Group Reason:</b>											
<b>Task Group Vote:</b>											

<b>PC138 LogID 6351</b>	<b>802 Prescriptive Path &amp; 803 and Innovative Practices</b> <i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Nat Hodgson III, Southern Nevada Home Builders Association
<b>Comment:</b>	<p><b>Unique Greywater Requirements for the Southwest</b></p> <ul style="list-style-type: none"> <li>Sections 802 and 803 maintain an approach that does not penalize builders in areas where water collection and reuse is illegal and not the most environmentally effective approach to water conservation.</li> </ul>
<b>Reason:</b>	<p>As residential developers in a metropolitan area that is located in Climate Zone 3b and receives less than 4 inches of annual rainfall, we recognize that our needs are somewhat unique. That is why our members were encouraged to see several updates, including a performance path for outdoor water efficiency ratings in Section 803. We are also encouraged to see other areas where the 2020 NGBS provides for regional exceptions. Our hope is that similar opportunities to identify environmentally appropriate regional best practices to revegetation, landscaping and stormwater will be considered for the 2020 NGBS.</p> <p><b>Unique Greywater Requirements for the Southwest</b>  States in the Colorado River Compact have unique regulations regarding collection and use of rainwater and greywater. In fact, it is illegal in Colorado and Nevada to collect rainwater, unless water rights have been granted. Similarly, return flow credits are granted to our water purveyors for every gallon treated and returned to the Colorado River, so all codes and environmental programs are oriented to returning as close to 100% of indoor and outdoor water to a drain for treatment and reuse. It is large efficiency of water reuse that simply cannot be matched by a property owner or developer on a case-by-case basis. Similarly, xeriscaping provides the best combination of dust mitigation for air quality, stormwater control and water efficiency. Professionally designed and installed xeriscaping, along with rain detection equipment for drip irrigation systems are the best way to meet the unique needs of the arid Southwest. For this reason, SNHBA respectfully request that Section 503.4 give revegetation credit to builders in areas receiving less than 10 inches of annual rainfall when they utilize professionally designed and installed xeriscaping. We believe this change meets the intent of a performance-based regional approach to water conservation in Section 803. Similarly, we ask that Sections 802 and 803 maintain an approach that does not penalize builders in areas where water collection and reuse is illegal and not the most environmentally effective approach to water conservation.</p> <p>In closing, we appreciate the continued work to create a Green Building Standard that allows for use of regional best practices. Past versions of the standard not crediting builders in the arid West for best practices has resulted in minimal use of the standard. In this regard, the 2020 NGBS Draft represents significant improvement over the 2012 and 2015 Standard. Incorporation of the changes to Section 503, 802 and 803 to reflect best practices for arid areas in the West would result in a drastic increase in use of the standard in these areas, which is our shared goal.</p>
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC139 LogID 6221</b>	<b>802.1 Indoor hot water usage.</b> <i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency
<b>Comment:</b>	<p><b>Requested Action:</b> Revise</p> <p><b>Proposed Change:</b> (1) The maximum volume from the water heater to the termination of the fixture supply at furthest fixture is 128 ounces (1 gallon or 3.78 liters). <u>85</u> points</p>

<b>Reason:</b>	The points should have a spread that reflects the impact and difficulty of each measure. A system that stores less than 32 ounces between the water heater and the furthest fixture (3) is both extremely efficient and extremely difficult. It is likely both more efficient (when considering all factors) and more difficult than a demand controlled recirculation system with supply lines of the main loop of just 8 ounces less.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC140 LogID 6222</b>	<b>802.1 Indoor hot water usage</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Revise <b>Proposed Change:</b>  (3) The maximum volume from the water heater to the termination of the fixture supply at furthest fixture is 32 ounces (0.25 gallon or 0.945 liters). 2024 Points	
<b>Reason:</b>	The points should have a spread that reflects the impact and difficulty of each measure. A system that stores less than 32 ounces between the water heater and the furthest fixture (3) is both extremely efficient and extremely difficult. It is likely both more efficient (when considering all factors) and more difficult than a demand controlled recirculation system with supply lines of the main loop of just 8 ounces less.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC141 LogID 6223</b>	<b>802.1 Indoor hot water usage.</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Revise <b>Proposed Change:</b> A demand controlled hot water priming pump is installed on the main supply pipe of the circulation loop and the maximum volume from this supply pipe to the furthest fixture is 24 ounces (0.19 gallons or 0.71 liters). 2422 Points	
<b>Reason:</b>	The points should have a spread that reflects the impact and difficulty of each measure. A system that stores less than 32 ounces between the water heater and the furthest fixture (3) is both extremely efficient and extremely difficult. It is likely both more efficient (when considering all factors) and more difficult than a demand controlled recirculation system with supply lines of the main loop of just 8 ounces less.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		

<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC142 LogID 6297</b>	<b>802.2 Water-conserving appliances</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Paul Gay, self	
<b>Comment:</b>	<del>(1) dishwasher 2 points</del> (1) dishwasher 2 points	
<b>Reason:</b>	im not sure why this credit was dropped Per Energy Star.....A new ENERGY STAR certified dishwasher will save, on average, 3,870 gallons of water over its lifetime. ENERGY STAR certified dishwashers use advanced technology to get your dishes clean while using less water and energy. Dishwasher technology has improved dramatically over the last decade. New ENERGY STAR certified models include several innovations that reduce energy and water consumption and improve performance. Soil sensors test how dirty dishes are throughout the wash and adjust the cycle to achieve optimum cleaning with minimum water and energy use. Improved water filtration removes food soils from the wash water allowing efficient use of detergent and water throughout the cycle.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC143 LogID 6224</b>	<b>802.2 Water-conserving appliances</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Revise <b>Proposed Change:</b>  (1) <del>dishwasher</del> dishwasher	
<b>Reason:</b>	Object to removal of the dishwasher. It's unlikely this would lead to a choice to not have a dishwasher. If people are going to put in a dishwasher, we want to make sure they have an efficient fixture. While water use in modern dishwashers tends to be low, this is reflected in the relatively low number of points (2) being offered).	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC144 LogID 6286</b>	<b>802.2 Water-conserving appliances</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Aaron Gary, self	
<b>Comment:</b>	802.2 Water-conserving appliances. ENERGY STAR or equivalent water-conserving appliances are installed. (1) <u> dishwasher 2</u>  ( <del>1</del> ) clothes washer, or 13  ( <del>2</del> ) clothes washer with an Integrated Water Factor of 3.8 or less 24  Multifamily Building Note: Washing machines are installed in individual units or provided in common areas of multifamily buildings.	

<b>Reason:</b>	ENERGY STAR Dishwashers should not be removed for credit. While the savings for an individual dishwashers may not be as significant as a clothes washer, it still is environmentally beneficial. According to ENERGY STAR, a new ENERGY STAR certified dishwasher will save, on average, 3,870 gallons of water over its lifetime.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC145 LogID 6225</b>	<b>802.3 Water Usage Metering</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Add <b>Proposed Change:</b> <u>Maximum points available for section 802.3 is 10.</u>	
<b>Reason:</b>	Otherwise the use of multiple metering devices (in say multifamily) could have a very large number of points associated with it.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC146 LogID 6227</b>	<b>802.4 Showerheads</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Revise as follows. <b>Proposed Change:</b> The total maximum combined flow rate of all showerheads <u>in the maximum operating flow configuration</u> controlled by a single valve at any point in time in a shower compartment with floor area of <del>1800</del> 2800 square inches or less is 1.6 to equal or less than 2.5 0 gpm.	
<b>Reason:</b>	Many shower faucets are designed to allow one head or another to flow, but not both. For example, an overhead showerhead and a handheld could be configured to be operated together or to be operated only one at a time. The proposed language addresses this variation by testing the shower compartment at its maximum flow configuration, we can address this variation. It appears that the point of the size ranges is to prevent people from claiming a shower compartment is for more than one person (and justifies a second valve) unless it is large enough to accommodate more than one person. 1800 is a little small for this purpose. While there is no "standard", 2180 sq. in. is our best estimate of an "average" shower stall as well as the smallest likely ADA compliant stall.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC147 LogID 6229	802.4 Showerheads	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	Showerheads shall comply with ASME A112.18.1/CSA B125.1 and meeting the performance criteria of the U.S. EPA WaterSense Specification for showerheads.	
<b>Reason:</b>	WaterSense labeled showerheads also provide pressure compensations which maintain flow at the rated flow rate in the presence of high system pressure. If the committee is not willing to cite WaterSense then state that showerheads must comply with the High-efficiency requirements for showerheads in A112.18.1. Also, the citation for ASME A112.18.1 was incorrect.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC148 LogID 6233	802.4 Water closets and urinals	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Revise as follows.</p> <p><b>Proposed Change:</b> (c) One or more composting or waterless toilets and/or nonwater urinals. Nonwater urinals shall be tested in accordance with ASME A112.19.2/CSA B45.1.  <del>612</del> Points.</p>	
<b>Reason:</b>	There is no rational for valuing a composting toilet so highly.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC149 LogID 6230	802.5 Faucets	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Delete</p> <p><b>Proposed Change:</b></p> <p><del>(2) Flow rate = 1.20 gpm</del></p>	
<b>Reason:</b>	The point totals are excessive for the savings that will be realized. Recommend delete (3), (4), and (5). Mandatory is 1.5 gpm and they will get up to additional 6 points if they install fixtures that flow at 1.2 gpm. That is sufficient.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC150 LogID 6329	802.5 Water closets and urinals & 11.802.7.4	Final Formal Action: TBD
Submitter:	Craig Conner, self	
Comment:	Tank-type water closets shall be in accordance with the performance criteria of the U.S. EPA WaterSense Specification for Tank-Type Toilets <u>or equivalent</u> .  11.802.7.4  <b>(1) Irrigation controllers are labeled by EPA WaterSense program or equivalent</b>	
Reason:	Either put in the specific requirements (my preference) or put "or equivalent". For water closets this is "flush" performance criteria, so be specific.	
Substantiating Documents:	No	
Task Group Recommendation:		
Modification of Comment:		
Task Group Reason:		
Task Group Vote:		

PC151 LogID 6131	802.5.1 Install water-efficient lavatory faucets	Final Formal Action: TBD
Submitter:	Josh Hanson, self	
Comment:	<del>and meeting the performance criteria of the EPA WaterSense High-Efficiency Lavatory Faucet Specification, are installed or equivalent:</del>	
Reason:	Consider awarding points for EPA watersense fixtures vs making it an additional measure to be able to take points.	
Substantiating Documents:	No	
Task Group Recommendation:		
Modification of Comment:		
Task Group Reason:		
Task Group Vote:		

PC152 LogID 6196	802.5.2 Water-efficient kitchen faucets	Final Formal Action: TBD
Submitter:	Cambria McLeod, Kohler	
Comment:	802.5.2 Water-efficient <u>residential</u> kitchen faucets are installed in accordance with ASME A112.18.1/CSA B125.1. <u>Residential</u> kitchen faucets may temporarily increase the flow above the maximum rate but not to exceed 2.2 gpm. (1) All <u>residential</u> kitchen faucets have a maximum flow rate of 1.8 gpm (2) All residential kitchen faucets have a maximum flow rate of 1.5 gpm.	
Reason:	Because the standard is expanding to include non-residential spaces, we should be consistent in clarifying the exact faucet type that can earn points in this section.	
Substantiating Documents:	No	
Task Group Recommendation:		
Modification of Comment:		
Task Group Reason:		
Task Group Vote:		

PC153 LogID 6197	802.5.4 Water closets and urinals	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Cambria McLeod, Kohler	
<b>Comment:</b>	(4)(a) Water closets that have an effective flush volume of 1.2 gallons or less.	
<b>Reason:</b>	Adding the term effective allows for the use of water-saving dual-flush toilets and makes the requirements clearer to the specifier.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC154 LogID 6047	802.6 Irrigation Systems	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Gerald Coons, Greenscapes Alliance	
<b>Comment:</b>	802.6 (6.1 thru 6.5) – We support the changes in these sections.	
<b>Reason:</b>	Promotes the use of efficient irrigation systems	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC155 LogID 6234	802.6 Irrigation systems	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Add <b>Proposed Change:</b> <u>801.6.3 Where an irrigation system is installed, an irrigation plan and implementation are executed by a qualified professional certified by a WaterSense labeled program or equivalent program as approved by Adopting Entity. Mandatory.</u>	
<b>Reason:</b>	We understand the concept had been moved to 802.6.1, but they should maintain the “qualified professional certified by a WaterSense labeled program” as a backstop in case the Adopting Entity does not have an approval process.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC156 LogID 6232	802.6 Irrigation systems	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<b>Requested Action:</b> Delete  <b>Proposed Change:</b> <u>Irrigation sprinkler nozzles have a maximum precipitation rate of 1.20 inches per hour for turf or landscaping shall be tested according to ANSI standard ASABE/ICC 802-2014 Landscape Irrigation Sprinkler and Emitter Standard. Nozzle performance is tested by an accredited third party</u>	

	laboratory and results are posted on Smart Water Application Technologies manufacturers website or similar.
<b>Reason:</b>	This is not a common practice of manufacturers and based on conversations, none have any intention to start posting this information.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC157 LogID 6294</b>	<b>802.6.3 where an irrigation system...</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Paul Gay, self	
<b>Comment:</b>	<u>where an irrigation system is installed, an irrigation plan and implementation are executed by a professional certified by a water sense labeled program (3 points)</u>	
<b>Reason:</b>	encourages growth of the water sense irrigation certification	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC158 LogID 6133</b>	<b>802.6.5 Commissioning and Water...</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Josh Hanson, self	
<b>Comment:</b>	Add a note regarding what qualification are required in order to perform Cx on an irrigation system. Or consider changing Commissioning to another term ( <u>Verification</u> ) since the system wouldn't actually be commissioned.	
<b>Reason:</b>	Cx of this system leads me to believe there are certain certifications that must be held in order to Cx an irrigation system	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC159 LogID 6235</b>	<b>802.9 Water Treatment Devices</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	

<b>Comment:</b>	<p><b>Requested Action:</b> Delete</p> <p><b>Proposed Change:</b> <del>802.9.2 Reverse Osmosis (R/O) water treatment systems shall be listed to NSF 58 and shall include automatic shut-off valve to prevent water discharge when storage tank is full</del></p> <p>(1) <del>No R/O system</del></p> <p>(2) <del>Combined capacity of all R/O systems does not exceed 0.75 gallons</del></p>
<b>Reason:</b>	This would credit homes for NOT having RO systems, which most don't already. Additionally, extra credit should be given by efficiency of processing (i.e. useful water produced relative to reject), not based on capacity.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC160 LogID 6237</b>	<b>802.10 Pools and Spas</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Add as follows.</p> <p><b>Proposed Change:</b> 801.10.1 Pools and Spas with water surface area greater than 36 square feet and connected to a water supply shall have a dedicated meter to measure the amount of water supplied to the pool or spa.</p> <p>(1) <u>Manual pool covers that cover the entire surface of the pool. 5 points.</u></p> <p>(<del>2</del>) <u>Automated motorized non-permeable pool cover that covers the entire pool surface. 10 points.</u></p>	
<b>Reason:</b>	10 points for an automated motorized pool cover is low when compared to other items such as installation of composting toilets. These covers cost \$5,000- \$20,000 and are significantly more expensive than other covers with no evidence that they are used more. All solid pool covers save about 95% of evaporation when used. Automated covers may make it easier for them to be used but there is no evidence to support this claim. Source <a href="https://www.epa.gov/sites/production/files/2018-09/documents/ws-products-outdoor-poolcover-noi.pdf">https://www.epa.gov/sites/production/files/2018-09/documents/ws-products-outdoor-poolcover-noi.pdf</a> (Pg 6)	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC161 LogID 6009</b>	<b>804 Performance Path</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Thomas Pape, AWE	
<b>Comment:</b>	<p><del>804.1 Water Rating Index. Water Rating Index (WRI) score is calculated in accordance with Appendix F or equivalent methodology.</del></p> <p><del>804.2 Water Efficiency Rating Levels. In lieu of threshold levels for Chapter 8 in Table 303, rating levels for Section 804.1 are in accordance with Table 804.2.</del></p> <p>Note: Delete Table 804.2</p> <p><del>804.3 Water Efficiency NGBS Points Equivalency. The additional points for use with Table 303 from the Chapter 8 Water Efficiency Category are determined in accordance with equation</del></p>	

	<p><del>804.3 Equation</del>  <del><math>804.3NGBS = WRI \times (-2.29) + 181.7</math></del></p>
<b>Reason:</b>	<p>This WRI system is untested and has NOT been vetted through an ANSI process. The system has many known flaws, of which two examples are: The system assumes a dishwasher in the baseline home. Not all homes have dishwashers AND studies have proven that homes with dishwashers have no reduction in faucet use, thus even a highly efficient dishwasher use more water than if the dishes were cleaned manually. REUWS 2016 cites: "found use of a dishwasher did not result in less faucet use, which normally would be supposed. The 520 households in REU2016 that used dishwashers had an average faucet use of 26.3 gphd and the 241 homes that did not use dishwashers used an average of 26.4 gphd for faucets. These two values are not statistically different, which suggests that in this group, the use of dishwashers was not associated with less faucet use." The WRI system also gives credit for a "smart" controller installed for irrigation. There is no evidence smart controllers us irrigate more efficiently than non-smart controller. REUWS 2016: "Fifty-three homes reported having what they believe to be a "smart, weather-based" irrigation controller. This coefficient had a positive slope (0.096) indicating a rise in water use, but the p value was 0.644 indicating very low statistical significance. Consequently, the data set provides no indication that "smart" controller, or things that people believe to be smart controllers are affecting outdoor water use." Until the WRI system is tested and evaluated in various climates and regions across the country, it is irresponsible to use this system as a performance path. The reputation of the National Green Building Standard is at grave risk.</p>
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

PC162 LogID BC42	804 Performance Path	Final Formal Action: TBD
<b>Submitter:</b>	Thomas Pape; Alliance for Water Efficiency	
<b>Comment:</b>	<p>This alternate requirement is not ready for implementation. It does not provide the detailed and algorithms needed to verify compliance. Anyone could load up a spreadsheet and claim compliance. NAHB has no method to verify the claims of the rating are accurate and valid.</p> <p>This should not be implemented until a tool is software is developed, tested in wide geographic areas, and made available to ALL and any users. I have led the development of several water and energy analysis tools, and my experience tells me that NAHB is not ready to implement this compliance path in any verifiable and quality assured manner. In addition there needs to be training sessions developed on how to collect the data and use the tool.</p> <p>I applaud the concept, but it is incomplete.</p>	
<b>Reason:</b>		
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		

<b>Task Group Vote:</b>	
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<b>PC163 LogID 6261</b>	<b>804.1 Water Rating Index</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	804.1 Performance Path Water Rating Index P. Water Rating Index (WRI) The index score for the Performance Path shall be is-calculated in accordance with Appendix F or equivalent methodology.	
<b>Reason:</b>	On August 3, 2018 RESNET published BSR/RESNET/ICC 1101-201x, draft PDS-01, Standard for the Calculation and Labeling of the Water Use Performance of One- and Two-Family Dwellings Using the Water Rating Index for the first round of public comments. RESNET recommends deleting the title for the performance path. No other section within Chapter 8 has a specific title, so there's no reason the performance path section needs a separate title. In addition, having two ANSI standards with the same name, but different language will create market confusion	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC164 LogID 6239</b>	<b>804.3 Water Efficiency NGBS Points Equivalency</b>	<b>Final Formal Action: TBD</b>										
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency											
<b>Comment:</b>	<p><b>Section:</b> 804.3  <b>Requested Action:</b> Revise</p> <p>The additional points for use with Table 303 from the Chapter 8 Water Efficiency Category are determined in accordance with equation 804.3.</p> <p>Equation 804.3 NGBS = WRI x (- 2.29) + 181.7</p> <table border="1" data-bbox="386 1241 1531 1354"> <tr> <td><u>WRI Score</u></td> <td><u>70</u></td> <td><u>60</u></td> <td><u>50</u></td> <td><u>40</u></td> </tr> <tr> <td><u>Points</u></td> <td><u>22</u></td> <td><u>40</u></td> <td><u>67</u></td> <td><u>90</u></td> </tr> </table>		<u>WRI Score</u>	<u>70</u>	<u>60</u>	<u>50</u>	<u>40</u>	<u>Points</u>	<u>22</u>	<u>40</u>	<u>67</u>	<u>90</u>
<u>WRI Score</u>	<u>70</u>	<u>60</u>	<u>50</u>	<u>40</u>								
<u>Points</u>	<u>22</u>	<u>40</u>	<u>67</u>	<u>90</u>								
<b>Reason:</b>	It's unnecessarily complex to have an equation. As opposed to the performance path for energy where there is a variable target based on ENERGY STAR requirements (i.e. relative improvement over a moving target), the performance path for water is being determined based solely on how the predicted rating compares with the existing points structure not relative improvement. So, while the equation is informative for determining the right thresholds, it is more straight forward to simply state the number of points provided at different performance levels. There is no "value added" from the equation.											
<b>Substantiating Documents:</b>	No											
<b>Task Group Recommendation:</b>												
<b>Modification of Comment:</b>												
<b>Task Group Reason:</b>												
<b>Task Group Vote:</b>												

<b>PC165 LogID BC43</b>	<b>804 Performance Path</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Cambria McLeod; Kohler	

<b>Comment:</b>	The usage on showers is not consistent with research. Aquacraft Residential End use study shows 8 minutes and LEED has it at 6.15 minutes. The baseline assumption here appears to be low.									
<b>Reason:</b>	<p><b>Secretariat Note:</b> Comment on the following provision of the Draft Standard:</p> <p style="text-align: center;"><b>TABLE 1. WATER USE FOR BASELINE AND VERIFIED DEVICES</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th data-bbox="451 279 716 415"><u>Device</u></th> <th data-bbox="716 279 1081 415"><u>Baseline VolumePerOccupant gallons / day / occupant</u></th> <th data-bbox="1081 279 1482 415"><u>Uses for Verified Devices and units</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="451 415 716 449"><u>Toilet</u></td> <td data-bbox="716 415 1081 449" style="text-align: center;"><u>8</u></td> <td data-bbox="1081 415 1482 449"><u>5 uses / day / occupant</u></td> </tr> <tr> <td data-bbox="451 449 716 594"><u>Shower</u></td> <td data-bbox="716 449 1081 594" style="text-align: center;"><u>13.455</u></td> <td data-bbox="1081 449 1482 594"><u>5.382 or 4.7035 with TSVs minutes / day / occupant at device flow rate</u></td> </tr> </tbody> </table>	<u>Device</u>	<u>Baseline VolumePerOccupant gallons / day / occupant</u>	<u>Uses for Verified Devices and units</u>	<u>Toilet</u>	<u>8</u>	<u>5 uses / day / occupant</u>	<u>Shower</u>	<u>13.455</u>	<u>5.382 or 4.7035 with TSVs minutes / day / occupant at device flow rate</u>
<u>Device</u>	<u>Baseline VolumePerOccupant gallons / day / occupant</u>	<u>Uses for Verified Devices and units</u>								
<u>Toilet</u>	<u>8</u>	<u>5 uses / day / occupant</u>								
<u>Shower</u>	<u>13.455</u>	<u>5.382 or 4.7035 with TSVs minutes / day / occupant at device flow rate</u>								
<b>Substantiating Documents:</b>	No									
<b>Task Group Recommendation:</b>										
<b>Modification of Comment:</b>										
<b>Task Group Reason:</b>										
<b>Task Group Vote:</b>										

## Chapter 14: Referenced Documents

PC308	LogID 6205	1402 – Referenced Documents	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Cambria McLeod, Kohler		
<b>Comment:</b>	ASME A112.81.1/CSA B125.1 ASSE 1016/ASME A112.1016/CSA B125.16		
<b>Reason:</b>	Adding the appropriate harmonized standards.		
<b>Substantiating Documents:</b>	No		
<b>Task Group Recommendation:</b>			
<b>Modification of Comment:</b>			
<b>Task Group Reason:</b>			
<b>Task Group Vote:</b>			

## Appendices

PC313 LogID 6010	APPENDIX F: WATER RATING INDEX	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Thomas Pape, AWE	
<b>Comment:</b>	<p>APPENDIX F WATER RATING INDEX</p> <p>F101.1 Intent. Provide a flexible method to quantify home water use efficiency as a single number.</p> <p>F101.2 Scope. The Water Rating Index (WRI) is a performance calculation for water use efficiency, including both indoor and outdoor water use.</p> <p>Note: Delete Appendix F in its entirety</p>	
<b>Reason:</b>	The algorithms displayed in the WRI system have not been properly vetted through an ANSI process, nor is it even possible to vet the system. The displayed algorithms include many constants that have no explained source or reason for use. They might be correct, but maybe not. There is no possible way to know if there is a scientific basis for the value, or just a good guess. This performance path is premature. The fine reputation of NGBS is at great risk.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC314 LogID 6245	F101.3 Capabilities	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Revise</p> <p><b>Proposed Change:</b></p> <p>(1) Both new and existing construction.</p> <p>(2) The following building types:</p> <p>(a) One and two family dwellings.</p> <p>(b) Townhouses <del>not more than three stories above grade in height.</del></p> <p>(c) Multifamily buildings as a whole building; or individual dwelling units provided each unit has a separate water meter.</p>	
<b>Reason:</b>	There is no clear justification for limiting townhouses to three stories above grade. Single-family homes do not have height limits. Perhaps it's a holdover from the IRC but the presence of multifamily confuses the reason for this restriction.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC315 LogID 6077	F101.3 Capabilities	<i>Final Formal Action: TBD</i>
<b>Submitter:</b>	Greg Johnson, Outdoor Power Equipment Institute	

<b>Comment:</b>	<p><b>F101.3 Capabilities.</b> &lt; (1) through (3) omitted&gt;</p> <p>(4) Building water use shall be reduced based on the water capture and reuse. Where a specific type of water capture and reuse would violate local laws or ordinances, the amount of water capture and reuse for that specific type shall be zero.</p> <p>(a) The water types for capture and reuse shall be: &lt; (i) and (ii) omitted&gt;</p> <p style="padding-left: 40px;"><u>(iii) Foundation water, which is groundwater captured from the internal or external perimeter of the building foundation.</u></p> <p>&lt;renumber following subsections&gt;</p>
<b>Reason:</b>	: Harvested foundation groundwater is commonly used to irrigate landscaping in many areas of the country. Some of this water is ground sourced or not the result of precipitation so it would not qualify as "sitewater."
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC316 LogID 6262</b>	<b>F101.3 Capabilities</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	<p>F101.3 Capabilities. The WRI calculation shall include the following capabilities:</p> <p>(1) Both new and existing construction.</p> <p>(2) <u>One or more of the</u> following building types: (Remainder of section left unchanged)</p>	
<b>Reason:</b>	Is the original language implying that any program that calculates a WRI needs to be able to do all these building types? Why would it matter if an equivalent WRI calculation only could do single family dwellings or only multifamily dwellings? Builders will choose what works for their project. An equivalent calculation methodology may be capable of doing more than one building type, but should not be required to do more than one building type.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC317 LogID 6265</b>	<b>F101.3 Capabilities</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	F101.3 Capabilities. The <u>performance path WRI calculation program</u> shall include the following capabilities:	
<b>Reason:</b>	Given the inclusion of the types of reports listed within this section, it doesn't seem appropriate to simply say the "calculation" shall include the following. The WRI should not be considered just a	

	calculation. In fact, a true "rating" consists of many requirements beyond the calculation methodology. Rating reports would be one such "program" requirement, but should also include the type of information required on each report in order to provide standardization in the market.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

PC318 LogID 6270	F101.3 Capabilities	Final Formal Action: TBD
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	(Language not included, remains unchanged) (4) <u>For performance path programs that account for alternative water sources</u> , Building water use shall be reduced based on the water capture and reuse. Where a specific type of water capture and reuse would violate local laws or ordinances, the amount of water capture and reuse for that specific type shall be zero.	
<b>Reason:</b>	Although RESNET agrees that rainwater capture and greywater reuse are important to water efficiency, we disagree that it needs to be a minimum capability of a WRI calculation methodology. In 2017, there were over 800,000 homes built in the U.S. Of those homes, more than 325,000 were built by 200 builders. These builders are building anywhere from 175 to over 45,000 homes a year. The overwhelming majority of these homes do not make use of any alternative water sources. There is not sufficient data available to analyze the real impact that rainwater capture and greywater reuse have on offsetting the actual potable water use of a home. For that reason, this appendix is being short-sighted in throwing out programs that focus on efficiency just because they don't have a means to account for alternative water sources.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC319 LogID 6247	F101.3 Capabilities	Final Formal Action: TBD
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Delete as follows.  <b>Proposed Change:</b></p> <p>(4) Building water use shall be reduced based on the water capture and reuse. Where a specific type of water capture and reuse would violate local laws or ordinances, the amount of water capture and reuse for that specific type shall be zero.</p> <p>(a) <del>The water types for capture and reuse shall be:</del></p> <ul style="list-style-type: none"> <li><del>_____ (i) Rainwater, which is natural precipitation that falls on a structure.</del></li> <li><del>_____ (ii) Sitewater, which is natural precipitation that falls on the ground, softscapes, and hardscapes.</del></li> <li><del>_____ (iii) Greywater, which is untreated wastewater that has not come into contact with toilet waste, kitchen sink waste, dishwasher waste or similarly contaminated sources:</del></li> </ul> <p><del>_____ (1) Only wastewater from bathtubs, showers, lavatories, and clothes washers shall be used</del></p>	

	<p><del>in the greywater offset calculation.</del></p> <p><del>_____ (2) If no filtration/purification system and properly sized tank is present, then Greywater shall only be used outdoors as subsurface irrigation. _____</del></p> <p><del>_____ (iv) Blackwater, which is the liquid and waterborne waste that would be permitted without special treatment into either the public sewer or a private sewage disposal system. _____</del></p>
<b>Reason:</b>	The discussion of where different types of alternative water is permissible should be left to the health department/responsible party of the JHA. It is oddly credited/worded for performance path purposes.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC320 LogID 6282</b>	<b>F101.4 Process</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	<p>F101.4 Process. The following shall be required as part of a WRI implementation:</p> <p>(1) Trained WRI Verifiers shall provide field verifications, ratings and the associated reports</p> <p>(2) At minimum training shall include</p> <p>(a) <del>Review and understanding Confirmation</del> of contract documents including building drawings, site drawings, landscape drawings, specifications, cut sheets, and approved final submittals.</p> <p>(b) <del>How to verify that the Visual confirmation</del> of installed site material, fixtures, and equipment <u>match the construction documents.</u></p> <p>(c) <del>How to conduct Physical</del> field testing of installed fixtures and equipment.</p> <p>(d) <del>How to Ability to utilize use a tool and provide the proper inputs to calculate a building's index score. that incorporates this WRI calculation.</del></p>	
<b>Reason:</b>	This section is very vague on details and seems to open up WRI verification to just about anyone who wants to do it. What are the minimum qualifications to be a trainer? The minimum training requirements don't describe actual learning objectives or minimum skills or abilities. This lack of detail will lead to nearly anyone being able to offer a simple training and qualify people as WRI verifiers. Doing so will lead to inconsistency and eventually a mistrust of the entire performance path. What does "Confirmation of contract documents..." mean? It sounds like a verifier just needs to check a box to confirm that those documents have been submitted.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC321 LogID 6248</b>	<b>F101.6 Indoor Water</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	

<b>Comment:</b>	<p><b>Requested Action:</b> Delete as follows.  <b>Proposed Change:</b></p> <p>(5) Structural waste, which is the water volume in the pipe between the hot water source and the plumbing fixture or appliance plus the extra volume needed to heat the pipe as hot water is delivered to its use.          — (a) Verified Structural Waste (gallons), shall be field measured as the water volume collected until the temperature of the water equals 100°F at the furthest fixture for a domestic hot water system.          — (i) This test shall be performed before any other tests in order to avoid preheating the pipes. This test shall use an apparatus with a thermometer and water container.          — (ii) If there is more than one domestic hot water system, all systems shall be tested for structural waste with the worst performing system entered into the calculation.</p>
<b>Reason:</b>	<p>The term “furthest fixture” needs to be defined. Suggest adding “the fixture with the greatest amount of water stored in the distribution system between itself and the source”. In order for the appendix to be consistent, it’s important that in a home built to exact specifications of the Baseline Structural Waste has a Verified Structural Waste that is equal to the baseline. This isn’t possible in this instance because of the equation doesn’t account for heat loss in the distribution system or small amount of water stored in the fixtures themselves. Either an adjustment factor needs to be added to Baseline Structural Waste or the appendix should just use the Preliminary value directly with a non-temp field verification (i.e. layout confirmation).</p>
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC322 LogID 6249</b>	<b>F101.6 Indoor Water</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Delete as follows.  <b>Proposed Change:</b></p> <p>(7) Master bath adjustment. This item shall apply where there is a master bath. If the flow rate of the individual toilet, lavatory, or shower devices varies, then water use in the master bath and outside the master bath shall be computed separately          — (a) For each device type, average the device type flow rates. Compute two separate device type averages, one average for the master bath and one average for outside the master bath          — (b) Device type uses are divided as follows          — (i) For each device the total number of uses shall be as given in Table 1, with the uses divided between the master bath and outside the master bath          — (ii) For master bath toilets and lavatories assume 2 uses each for 2 occupants, for a total of 4uses per day. For master bath showers assume 1 use each for 2 occupants for a total of 2uses per day          — (iii) Assume the remaining uses in Table 1 are outside the master bath          — (c) For both the master bath and outside the master bath compute water use as the device type average times the number of uses          — (d) Add the device water use to Toilet Water, Lavatory Water and Shower Water as appropriate in the Indoor Use equation in item #1</p>	
<b>Reason:</b>	<p>“Master Bath” is not defined in the standard. Furthermore, this section seems to be based on people’s expectations of standard operating schedules rather than data. Without data to back it up, this specificity does more harm than good. Suggest deleting in its entirety.</p>	
<b>Substantiating Documents:</b>	No	

<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC323 LogID 6250</b>	<b>F101.7 Water Capture for Potential Reuse</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Revise as follows.</p> <p><b>Proposed Change:</b>                  (1) Rainwater Capture, Greywater Capture, and Blackwater Capture shall be computed for each month (a) Rainwater Capture(month) - <del>gallons/month</del> gallons/day for all days of the month, includes roof water and site water.= [(Roof water Area * Roof Surface Capture) + (Site water Area * Site Surface Capture)] * 0.623(gallons/sq ft of 1 in of rain) * <del>Days In Month(month)</del></p>	
<b>Reason:</b>	The actual availability of rainwater has many factors involved (rainfall, catchment area, capture ratio, storage capacity and treatment efficiency on one side with demand on the other), many of which are addressed here. However, because of all these factors, a daily calculation is really preferred to estimate availability at any point in time. Additionally, the available water needs to be discounted for treatment. Nothing will be 100% efficient.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC324 LogID 6283</b>	<b>F101.7 Water Capture for Potential Reuse</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	F101.7 Water Capture for Potential Reuse. This calculates the water available for reuse for each month.	
<b>Reason:</b>	Can builders capture water from multiple homes in a subdivision and use that for irrigation and get credit under this performance path? See this article: <a href="https://www.builderonline.com/products/green-products/recycled-rainwater-is-irrigating-more-atlanta-area-communities_o">https://www.builderonline.com/products/green-products/recycled-rainwater-is-irrigating-more-atlanta-area-communities_o</a> This would be an important option for production builders that are doing large subdivisions.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

<b>PC325 LogID 6251</b>	<b>F101.8 Outdoor Calculations</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	F101.8 Outdoor Calculations. The annual outdoor water use shall be calculated as follows ( <u>points can not be earned for this portion of the WR land section 403.6 or 503.5(4)</u> ).	
<b>Reason:</b>	This methodology is too close to points awarded in 403.6 and 503.5(4). There is of course, an inherent relationship between landscape design and water use, and credit should be given for both. But this essentially credits the same exact action twice (albeit calculated in slightly different ways). If credit is	

	claimed for 403.6 or 503.5(4) you should not be able to use this part of appendix F to claim credit under the performance path.
<b>Substantiating Documents:</b>	No
<b>Task Group Recommendation:</b>	
<b>Modification of Comment:</b>	
<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

PC326 LogID 6253	F101.8 Outdoor Calculations	Final Formal Action: TBD
<b>Submitter:</b>	Suzanne Boxman, U.S. Environmental Protection Agency	
<b>Comment:</b>	<p><b>Requested Action:</b> Delete section.</p> <p><b>Proposed Change:</b> F101.8 Outdoor Calculations--</p>	
<b>Reason:</b>	<p>As written, the formula will result in an error for any zone that has no irrigation as you cannot divide by 0. If the intent is to assign no water use to zones without irrigation, this is also an error as data tells us water use will still occur even without automatic irrigation. No irrigation method is 100% effective/efficient. Flood and direct injection will both lose some water to infiltration as well as evaporation (in the case of flood). It is only "100%" efficient if all the water is taken up by the plant's rootzone and made biologically available to the plant. This cannot happen. We are not aware of any data that helps inform an appropriate number for these efficiencies, but "1" is just absurd. The term "verified" is vague. "Approved" by whom. Almost all physical pool covers inhibit evaporation with relative effectiveness. The theory to the water savings potential of motorized pool covers is that they will be used more and therefore save more water. This makes sense, but we have looked and found no compelling field evidence that this is the case. If we are wrong, please share that data with us. If we're right and it's an unproven theory, delete the adjustment.</p>	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

PC327 LogID 6287	F101.9 Water Cost Calculations	Final Formal Action: TBD
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	F101.9 Water Cost Calculations. Where water costs are calculated the water cost shall be as provided by the <del>jurisdiction having authority</del> local water utility.	
<b>Reason:</b>	"Jurisdiction having authority" could be confused with the code official as this term is meant to imply in all other codes. I'm assuming the cost is not meant to come from the code official, but rather the water utility.	
<b>Substantiating Documents:</b>	No	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		

<b>Task Group Reason:</b>	
<b>Task Group Vote:</b>	

<b>PC328 LogID 6289</b>	<b>F101.9 Water Cost Calculations</b>	<b>Final Formal Action: TBD</b>
<b>Submitter:</b>	Ryan Meres, RESNET	
<b>Comment:</b>	(2) Water cost inputs shall include: (a) Billing unit (b) Straight or tiered costs per billing unit (c) Peak and off-peak costs if applicable (d) Indoor and outdoor costs, if separated (e) Service charges	
<b>Reason:</b>	More detailed description on how to perform this calculation is needed. Doing so will provide consistency in how the calculation is to be done and reported. A cost calculation methodology will give builders confidence in using the cost figures in their marketing. See section 6.1.2 of the preliminary draft standard for candidate ANSI standard 1101, attached, for language on performing cost calculations.	
<b>Substantiating Documents:</b>	Yes	
<b>Task Group Recommendation:</b>		
<b>Modification of Comment:</b>		
<b>Task Group Reason:</b>		
<b>Task Group Vote:</b>		

