



**Part B: Product group definition | Public lavatory faucets**

<b>Initiators</b>	<b>TOTO USA</b> Visit an SM Transparency Report for lavatory faucets: <a href="http://www.sustainableminds.com/showroom/toto/">http://www.sustainableminds.com/showroom/toto/</a>
<b>Other company(s) and organization(s) involved</b>	<b>TOTO USA, T&amp;S Brass and Bronze Works, Sloan, and Kohler</b>

**Product group**

<b>Name</b>	<b>Public metering, self-closing, and manual lavatory faucets</b>	<b>CSI MasterFormat® #(s) or UNCPC(s)</b>	22 42 39
<b>Description</b> Define the types of products included under this Part B	Metering faucets designed for discharge of a specific volume of water into a lavatory that is turned on mechanically or electronically, and intended to be installed in non-residential bathrooms that are exposed to walk-in traffic, where the volume or cycle duration can be fixed or adjustable; self-closing faucets designed for discharge into a lavatory that closes itself after the actuation or control mechanism is deactivated and intended to be installed in non-residential bathrooms that are exposed to walk-in traffic; and manual faucets designed for discharge into a lavatory, that requires the user to control the flow water, and intended to be installed in non-residential bathrooms that are exposed to walk-in traffic.		
<b>New Part B request?</b> Yes / No	No	<b>Is this an update to an existing Part B?</b> Yes / No	Yes
<b>Validity date</b>	07/03/2018 – 07/03/2023		
<b>Existing PCRs, EPDs, SM TRs or LCAs</b> This information will be used to identify additional rules for comparability and to substantiate the rationale for creating a Part B.	<p>This Part B is an update to: <a href="http://www.sustainableminds.com/files/transparency/pgds/Part_B_Product_Group_Definition_Commercial_Lavatory_Faucets_09132017.pdf">http://www.sustainableminds.com/files/transparency/pgds/Part_B_Product_Group_Definition_Commercial_Lavatory_Faucets_09132017.pdf</a></p> <p><b>Institut Bauen und Umwelt e.V.: PCR Guidance-Texts for Building-Related Products and Service From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU), Part B: Requirements on the EPD for Bathroom fittings and showers. October 2013 <a href="http://www.bau-umwelt.de">www.bau-umwelt.de</a></b></p> <p>This European guidance document applies to bathroom fittings and showers. It does not contain any relevant additional rules specific to this product group.</p>		
<b>Any relevant literature and/or published material</b>	Updated according to new product category nomenclature, cleaning assumptions, and use phase data provided in the new PMI Product Category Rule (PCR) Guidance for Kitchen and Bath Fixture Fittings [1].		

**Functional performance**

Standard/certification	URL
Functional performance - <b>ASME A112.18.1</b>	<a href="https://www.asme.org/products/codes-standards/a112181csa-b1251-2012-plumbing-supply-fittings">https://www.asme.org/products/codes-standards/a112181csa-b1251-2012-plumbing-supply-fittings</a>
Flow Rate - <b>EPA 1992</b>	<a href="http://www.ferc.gov/legal/maj-ord-reg/epa.pdf">http://www.ferc.gov/legal/maj-ord-reg/epa.pdf</a>

**Functional / declared unit**

<b>Unit</b>	<b>10 years of use of a faucet in an average US public lavatory environment</b>
<b>Rationale</b>	<ul style="list-style-type: none"> <li>Product available and used in US market</li> <li>10 years is an industry accepted average lifespan that is based on the economic lifespan of a product; this is more limited due to changes in consumer preferences and innovations in water usage than the technical lifespan of the product. The economical lifespan of commercial applications can be longer or shorter due to aesthetic replacements or more intense use. Electrical and other hardware components, especially those related to rubbers for water tight connections and moving parts, will require replacement beyond this timeframe as part of the proper maintenance.</li> </ul>

### Additional rules for comparability

<b>1. Clarification</b> More product group specificity as needed	None																				
<b>2. Additional rules to Part A</b>	<ul style="list-style-type: none"> <li>Water and wastewater infrastructure are excluded</li> <li>Water use is assumed to be a mix of 70% hot water and 30% cold water.</li> </ul>																				
<b>3. Default life cycle stage scenario(s)</b>	<p><b><u>Default use phase scenario:</u></b>                  The faucet is assumed to be used in an average US public lavatory environment over a 10-year time period with an average of 90 uses per day, 260 days per year [1]. The faucet is assumed to be cleaned daily, 7 days a week, 52 weeks per year, with 10mL of a 1% sodium lauryl sulfate solution [1]. Any electricity used in faucet operation is included. Unless otherwise specified by the product specifications, metering and self-closing faucets are assumed to be used for 15 seconds per use [1]. Manual faucets are assumed to be used for 10 seconds per use [1]. The volume of water per use varies and depends on the specific manual, self-closing, or metering faucet to which this Part B applies.</p> <p><b><u>Transportation assumptions:</u></b>                  Primary data should be used for the transportation distances between the manufacturer and the distributor. Unless otherwise known, assume transportation distances of 500km from the distributor to the installation site and 100km from the installation site to waste processing, via diesel-powered truck/trailer [1].</p> <p><b><u>Electricity and natural gas consumption for water heating:</u></b>                  Water heating consumes 0.1765 kWh of electricity per gallon or 0.8784 Mcf of natural gas per 1,000 gallons [1]. Assuming a hot water usage of 70% and a heating method mix of 41.7% electricity and 58.3% natural gas [1], this equates to 0.05152 kWh of electricity and 0.0003585 Mcf of natural gas consumed per gallon of total (hot and cold) water supplied by the faucet.</p> <p><b><u>Electricity consumption for water supply and treatment:</u></b>                  Water usage in a commercial facility would also include electricity usage for acquisition, treatment, and distribution of water to facilities and collection, conveyance and wastewater treatment of domestic wastewater. The Electric Power Research Institute (EPRI) published this type of data in a study on water and sustainability. Data from the U.S. Environmental Protection Agency (EPA) were used to establish weighted average composite factors, to obtain an electricity usage per gallon of water consumed. Use this table to calculate the electricity used for water supply and treatment:</p> <p><b>Table: Average National Electricity Usage Factors</b></p> <table border="1" data-bbox="500 1396 1450 1957"> <thead> <tr> <th>Activity</th> <th>EPRI factors: kWh / MMgal<sup>Note 1</sup></th> <th>Weighted avg composite factors: kWh / MMgal</th> </tr> </thead> <tbody> <tr> <td>Acquisition, treatment and distribution of surface water by a Public Water System (PWS)</td> <td>1,406</td> <td rowspan="2">1,540<sup>Note 2</sup></td> </tr> <tr> <td>Acquisition, treatment and distribution of ground water by a PWS</td> <td>1,824</td> </tr> <tr> <td>Self-supply of drinking water (typically pumping from private wells)</td> <td>700</td> <td>700</td> </tr> <tr> <td>Collection, conveyance and &lt; secondary treatment of domestic wastewater</td> <td>661</td> <td rowspan="4">1,399<sup>Note 3</sup></td> </tr> <tr> <td>Collection, conveyance and secondary treatment of domestic wastewater</td> <td>1,212</td> </tr> <tr> <td>Collection, conveyance and advanced treatment of domestic wastewater</td> <td>1,726</td> </tr> <tr> <td>Collection, conveyance and zero discharge/other</td> <td>400</td> </tr> </tbody> </table>	Activity	EPRI factors: kWh / MMgal <sup>Note 1</sup>	Weighted avg composite factors: kWh / MMgal	Acquisition, treatment and distribution of surface water by a Public Water System (PWS)	1,406	1,540 <sup>Note 2</sup>	Acquisition, treatment and distribution of ground water by a PWS	1,824	Self-supply of drinking water (typically pumping from private wells)	700	700	Collection, conveyance and < secondary treatment of domestic wastewater	661	1,399 <sup>Note 3</sup>	Collection, conveyance and secondary treatment of domestic wastewater	1,212	Collection, conveyance and advanced treatment of domestic wastewater	1,726	Collection, conveyance and zero discharge/other	400
Activity	EPRI factors: kWh / MMgal <sup>Note 1</sup>	Weighted avg composite factors: kWh / MMgal																			
Acquisition, treatment and distribution of surface water by a Public Water System (PWS)	1,406	1,540 <sup>Note 2</sup>																			
Acquisition, treatment and distribution of ground water by a PWS	1,824																				
Self-supply of drinking water (typically pumping from private wells)	700	700																			
Collection, conveyance and < secondary treatment of domestic wastewater	661	1,399 <sup>Note 3</sup>																			
Collection, conveyance and secondary treatment of domestic wastewater	1,212																				
Collection, conveyance and advanced treatment of domestic wastewater	1,726																				
Collection, conveyance and zero discharge/other	400																				

	treatment of domestic wastewater		
	Total electricity per million gallons →		3,639
	<b>Total kWh electricity per 1 gallon →</b>		<b>0.0036</b>
	<p><u>Note 1</u>: Source: EPRI, Water &amp; Sustainability (Volume 4): U.S. Electricity Consumption for Water Supply &amp; Treatment -- The Next Half Century, March 2002.</p> <p><u>Note 2</u>: Source: U.S. Environmental Protection Agency (EPA), Office of Water (4606) Drinking Water Treatment, June 2004  <a href="http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_treatment_w eb.pdf">http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_treatment_w eb.pdf</a>. This document cites 68% of population served by PWSs relies on surface water while 32% relies on ground water.</p> <p><u>Note 3</u>: Source: U.S. Environmental Protection Agency (EPA), Clean Watersheds Needs Survey 2008 Report to Congress  <a href="http://water.epa.gov/scitech/datait/databases/cwns/upload/cwns2008rtc.pdf">http://water.epa.gov/scitech/datait/databases/cwns/upload/cwns2008rtc.pdf</a>. This report cites 1.7% of POTW-served population receives &lt; secondary treatment, 40.9% receives secondary treatment, 49.9% receives advanced treatment, and 7.5% receives zero discharge or other treatment.</p> <p>[1] Plumbing Manufacturers International (PMI), Product Category Rule (PCR) Guidance for Kitchen and Bath Fixture Fittings  <a href="https://www.safeplumbing.org/files/safeplumbing.org/documents/resources/PMI-Kitchen-and-Bath-Fixture-Fitting-PCR-Guidance-Document.pdf">https://www.safeplumbing.org/files/safeplumbing.org/documents/resources/PMI-Kitchen-and-Bath-Fixture-Fitting-PCR-Guidance-Document.pdf</a>.</p>		

### Additional LCA calculation rules

N/A	Optional	Required	Indicate whether conformance is the manufacturer's choice or required for EPD/TR. Refer to Part A: Compatibility appendices for content requirements.
	X		<b>ISO 21930</b>