ASSE CRITERIA

Leonard Application	ASSE Standard	Title	Description	Example	Types	Range (°F)	Minimum Flow (GPM)	Output Temperature Flow Test	Life Cycle Test	Pressure &/or Temperature Variation
Showers, Tub/Shower Combos	1016-2017	Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations	"Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations (herein referred to as the 'device') are intended to control the water temperature to wall-mounted showerheads either in individual shower or tub/shower combination fixtures in order to reduce the risk of scalding and thermal shock."	A thermostatic or pressure-balanced valve in a shower.	Type T, Type P, Type T/P	100 - 120	2.5 GPM or Manufacturer's minimum rated flow, whichever is less	2.25 GPM or Manufacturer's minimum rated flow ±10%	✓	Type P => With pressure variation of 50% to hot or cold inlet, must maintain +/-3.6°F of set output temperature, at all times. Type T=> Within the first five seconds after varying pressure 20% to a hot or cold inlet, temperature can exceed +5.4°F/-9°F, but it cannot last longer than 1.5s/1.0s respectively. After 5 seconds, must maintain +-3.6°F from the set point. Must meet parameters with hot water temperature increase of 25°F. Type T/P => Must meet both Type P & Type T test conditions.
Master Mixers	1017-2009	Temperature Actuated Mixing Valves for Hot Water Distribution Systems	"Temperature Actuated Mixing Valves for Hot Water Distribution Systems are used for controlling in-line water temperatures in domestic hot water systems and shall be installed at the hot water source."	A thermostatic mixing valve located in a mechanical room with a hot water source supplying tempered water to the rooms and lavatories within a hotel.	Thermostatic	105 – 120	Specific to device	NA	NA	Permissible temperature variation is based on flow at 10 psi +/- 0.5 psi. 3.0 – 5.0 GPM => Allowed +/-3°F Over 5.0 – 40.0 GPM => Allowed +/-5°F Over 40.0 GPM => Allowed +/-7°F
Gang Shower, Hydro-therapy	1069-2005	Automatic Temperature Control Mixing Valves	"These devices are intended to control water temperature to individual or multiple fixtures to reduce the risk of scalding and thermal shock. These devices are intended to be installed where the bather has no access to the temperature adjustment means, and where no further mixing occurs downstream of the device."	A thermostatic mixing valve located remotely from the mechanical room and supplying tempered water to shower room with push button metering valves.	Thermostatic	100 – 115, 120 max	2.5	Maintain 90% Manufacturer's published flow rate	✓	Within the first 5 seconds after varying pressure 20% to the inlets, temperature can exceed +5.4°F/-9°F, but it cannot last longer than 1.5s/1.0s respectively. After 5 seconds, must maintain +/-3.6°F from the set point. Must meet same parameters with hot water temperature increase of 25°F.
Lavs/Sinks	1070-2015	Water Temperature Limiting Devices	"Water Temperature Limiting Devices shall control and limit the hot or tempered water temperature to fittings or fixtures such as sinks, lavatories or bathtubs and are intended to reduce the risk of scalding."	A thermostatic mixing valve (a.k.a. point of use) located remotely from the mechanical room and supplying tempered water to bank of lavatories with single lever faucets.	Thermostatic	105 – 110	Specific to device		✓	Increase and decrease supply pressures 20% and increase inlet hot +25°F, the valve outlet shall remain < 120°F at all times; tested at flow equal to Manufacturer's stated minimum flow.
Safety Equipment	1071-2012	Temperature Actuated Mixing Valves for Plumbed Emergency Equipment	"Temperature Actuated Mixing Valves for Plumbed Emergency Equipment (herein referred to as 'device'), including eyewash, eye/face wash, drench showers, and combination units are intended to be installed in systems that comply with ANSI Z358.1."	A thermostatic mixing valve located after the heat source and before a piece of emergency equipment and supply tepid water.	Thermostatic	65 – 95, 100 max	Specific to device	NA	NA	Permissible temperature variation is based on flow at 30 psi. 1.5<7.0 GPM => Allowed +3°F/-5°F 7.0<20.0 GPM => Allowed +5°F/- 8.0°F 20.0<40.0 GPM => Allowed +7°F/- 12°F 40.0 GPM and over => Allowed +7°F/-15°F Device can net allow 100° F outlet.

LEONARD SOLUTIONS

Cold Water Failure	Hot Water Failure	Distribution	Shower	Emergency	Point of Use
Must reduce discharge to 0.5 GPM or 30% of minimum flow, whichever is less, before outlet water temperature reaches 120°F and within 5 seconds of pressure loss.	Must reduce discharge to 0.5 GPM or 30% of minimum flow, whichever is less, within 5 seconds.		Surfashower Type P or T p.16  PAM-II-ST-F Type P p.16  7600 Showermaster Type T p.16  6700 Advantage Type P p.16  4500 Aquatrol Type P p.16 		
NA	NA	Next Generation High-Low Systems p.6  LEAD-FREE High Capacity Systems p.6  LEAD-FREE Megatron p.6  LEAD-FREE TM-26-LF p.10 LEAD-FREE LV-Series p.10  LEAD-FREE XL-Series p.8  LEAD-FREE Nucleus Series p.4 	XL-690-LF p.14  LEAD-FREE		270-LF p.12  370-LF p.12 
Must reduce discharge to 0.5 GPM or less within 5 seconds to ensure output temperature does not exceed 120°F for devices 3/4" and smaller, or 1.0 GPM for devices 3/4" and larger.	NA	Megatron XL-690-LF pg. 14	XL-690-LF p.14  LEAD-FREE 269-LF p.14  369-LF p.14 		
Must reduce discharge to 0.2 GPM or 20% of Manufacturer's suggested minimum flow, whichever is greater, before outlet temperature reaches 120°F or Manufacturer's stated maximum temperature, whichever is lower.	NA	Megatron p.6  LEAD-FREE			170A-LF p. 12  170-LF p. 12  270-LF p.12  370-LF p. 12 
Upon cold water failure, and based on flow at 30 psi, the hot water shall continue to flow at a rate not to exceed the following conditions: 1.5<7.0 GPM => < 0.5 GPM 7.0<20.0 GPM => <1.0 GPM 20.0<40.0 GPM => <1.0 GPM 40.0 GPM and over => <1.0 GPM The output temperature shall not exceed 100°F prior to the reduction of flow to the device's maximum allowable flow rate, as stated above.	Must achieve Manufacturer's stated by-pass flow rate at 30 psi.			TA-300-LF p.18  TM-800-LF p.18  TM-600-LF p.18  TM-850-LF p.18