

**INTERNATIONAL ASSOCIATION OF PLUMBING
AND MECHANICAL OFFICIALS**

IAPMO GUIDE CRITERIA

FOR

**WATER MIXING SYSTEMS for
EMERGENCY SHOWERS and EYEWASHES**

IAPMO IGC 179-2002 (R2014)

1. PURPOSE

- 1.1** The purpose of this standard is to establish a generally accepted standard for any water mixing system that delivers tempered water to emergency showers and eyewashes. It also serves as a guide for distributors, architects, engineers, contractors, installers, inspectors and users to promote understanding of performance and safety features.
- 1.2** The provisions of this standard are not intended to prevent the use of any alternate method of construction provided any such alternate meets the intent of this standard.

2. SCOPE

- 2.1** This standard references the ANSI standard Z358.1 that stipulates the delivered flushing fluid to safety equipment shall be tepid.
- 2.2** This standard covers the minimum standards for performance of the mixing valve when operating a safety shower or eyewash, and to establish the testing requirements for the performance of the mixing valve station.

3. REFERENCE STANDARDS

- 3.1** The standards referenced herein shall be the current edition of the standards, as published in Table 14-1 of the Uniform Plumbing Code.

ANSI Z358.1	Emergency Eyewash and Shower Equipment
ASME B16.18	Cast Copper Alloy Solder Joint Pressure Fittings
ASME B16.22	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
ASSE 1017	Temperature Actuated Mixing Valves for Hot Water Distribution Systems
ASTM A 351	Castings, Austenitic, Austenitic-Ferritic (Duplex), for Pressure-Containing Parts
ASTM B 13	Seamless Copper Boiler Tubes
ASTM B 16	Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines
ASTM B 32	Solder Metal
ASTM B 88	Seamless Copper Water Tube
ASTM B 584	Copper Alloy Sand Casting for General Applications

Copyright © 2002 by International Association of Plumbing and Mechanical Officials. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in an electronic retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

4. GENERAL REQUIREMENTS

- 4.1 Mixing Valves covered under this standard shall meet the requirements of ASSE 1017, temperature actuated mixing valves for hot water distribution systems.
- 4.2 **Temperature Adjustment.** When producing tempered water for safety showers and eyewashes, the mixing station shall be capable of temperature adjustment from cold to hot. The hot temperature point shall not be so hot that it produces temperatures in excess of 100°F (38°C).
- 4.3 **Hot Water Supply Shut-off.** Should the outlet temperature reach a temperature of 100°F or higher, a device shall be included that stops all hot water flow to the mixing station. This device shall operate independently to the main mixing valve, but sense the outlet temperature of the main mixing valve.
- 4.4 **Cold Water Bypass:** In the event the main mixing valve becomes clogged and the outlet flow is reduced, a device shall be included to allow cold water to bypass the main mixing valve. This device shall be pressure actuated in that if the outlet flow from the main mixing valve is reduced the device will open at a preset pressure differential and allow cold water to flow to the safety equipment. The pressure-bypass device shall be separate from the main mixing valve, but connected to the warm water outlet and cold-water inlet of the main mixing valve. The pressure bypass device shall also be adequately sized to fully supply the safety equipment it is servicing per ANSI Z358.1.
- 4.5 A temperature gauge is to be included that shows the outlet water temperature to the safety equipment.
- 4.6 The water mixing station should be hydrostatically to 180 psi to ensure a watertight assembly.
- 4.7 Cast Bronze materials shall comply with the requirements of ASTM B 584.
- 4.8 Brass materials shall comply with the requirements of ASTM B 16.
- 4.9 Cast stainless steel materials shall comply with the requirements of ASTM A 351.
- 4.10 Seamless copper pipe shall comply with the requirements of ASTM B 88 and be type K.
- 4.11 Wrought solder fittings shall comply with the requirements of ASME B16.22
- 4.12 Cast copper alloy solder fittings shall comply with the requirements of ASME B16.18.
- 4.13 Solder fluxes shall comply with the requirements of ASTM B 13 or ASTM B 32.

5. TESTING REQUIREMENTS

- 5.1 Safety equipment mixing stations shall meet the following physical test requirements while connected to emergency shower and eyewash equipment.

Copyright © 2002 by International Association of Plumbing and Mechanical Officials. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in an electronic retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.