© ASHRAE. Per international copyright law, additional reproduction, distribution, or transmission in either print or digital form is not permitted without ASHRAE's prior written permission.

CONTENTS
ANSI/ASHRAE Standard 514-2023
Risk Management for Building Water Systems: Physical, Chemical, and Microbial Hazards

SECTION	PAGE
Foreword	2
1 Purpose	2
2 Scope	2
3 Definitions	3
4 Compliance	7
5 General Requirements	8
6 Requirements for Building Water Systems	11
7 Requirements for Designing and Documenting Building Water Systems	12
8 Requirements for Health care Facilities	14
9 Normative References	16
Informative Appendix A: Building Water Systems Physical Hazards Guidance	17
Informative Appendix B: Building Water Systems Chemical Hazards Guidance	19
Informative Appendix C: Building Water Systems Microbial Hazards Guidance	27
Informative Appendix D: Guidance if Microbial Testing Is Utilized in the Absence of Suspected or Confirmed Facility-Associated Disease	32
Informative Appendix E: Potable and Process Building Water Systems Guidance	35
Informative Appendix F: Building Designer Guidance	39
Informative Appendix G: Health Care Facility Guidance	44
Informative Appendix H: Guidance for U.S. Regulations on Drinking Water Treatment and on Chemicals Used for Potable and Nonpotable Water Treatment	81
Informative Appendix I: Guidance on Personal Protective Equipment for Use When There Is Potential for Exposure to Physical, Chemical, and Microbial Hazards	82
Informative Appendix J: Informative References and Bibliography	83

NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

© 2023 ASHRAE

180 Technology Parkway · Peachtree Corners, GA 30092 · www.ashrae.org · All rights reserved.

ASHRAE is a registered trademark of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ANSI is a registered trademark of the American National Standards Institute.

Preview

© ASHRAE. Per international copyright law, additional reproduction, distribution, or transmission in either print or digital form is not permitted without ASHRAE's prior written permission.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

ANSI/ASHRAE Standard 514, Risk Management for Building Water Systems: Physical, Chemical, and Microbial Hazards, *was developed as a companion to ANSI/ASHRAE Standard 188*, Legionellosis: Risk Management for Building Water Systems, *and is consistent with its structure and methodology. Importantly*, *Standard 514 mandates the use of Standard 188 with regards to legionellosis risk management.*

Standard 514 provides minimum practices to manage overall risk from microbial hazards other than Legionella, *as well as risk from physical and chemical hazards associated with potable and nonpotable building water systems. Consistent with the provisions of Standard 188*, *Standard 514 provides a framework for the systematic development of water management programs*, *from design and construction to occupancy*, *including postoccupancy modifications and renovations.*

ASHRAE Standing Standard Project Committee (SSPC) 514 recognizes that the management of overall risk from hazards associated with building water systems requires careful consideration of possible control measures for any particular hazard in the context of possible unintended adverse consequences with regard to other hazards. Implementation of Standard 188 and Standard 514 is intended to address the need for management of overall risk from physical, *chemical*, *and microbial hazards associated with building water systems.*

The presence of microbial hazards in a building water system is not in itself sufficient to cause disease. Other necessary factors include transmission of the microbial hazards into an environment where people are exposed to sufficient numbers of the particular microbial hazard to cause infection, *taking into account the susceptibility of the exposed person. There also may be other*, *still unknown factors that contribute to infection.*

The physical hazard addressed by Standard 514 is the water itself, *when the temperature of the water to which building occupants may be exposed is sufficient to cause scalding. Some populations*, *such as infants*, *young children and the elderly are especially susceptible to scalding at lower water temperatures and shorter exposure than healthy young and middle-aged adults.*

The chemical hazards addressed by Standard 514 include disinfectants, *disinfection byproducts*, *corrosion products*, *and chemicals that leach from plumbing materials*, *and include both regulated and unregulated chemicals.*

Standard 514 is intended for use by owners and managers of human-occupied buildings and those involved in the design, *construction*, *installation*, *start-up*, *operation*, *maintenance*, *and service of centralized building water systems and components. Some buildings may not contain all of the components that may be associated with hazardous conditions. It is the responsibility of the water management team to understand the building's water systems*, *conduct a systematic analysis of those systems for potentially hazardous conditions*, *and implement controls as appropriate for the building's use and occupancy.*

Standard 514 consists of numbered normative sections followed by informative appendices. The normative sections contain the requirements that must be met in order to comply with this standard.

Building water systems vary substantially in their design, *use*, *and potential for exposure of occupants to hazards. The informative appendices contain additional useful information about the different hazards that could be present in a given building water system*, *and the conditions that make them dangerous.*

SSPC 514 has devoted considerable time and thought into writing this standard, *with the aim to protect public health from the overall risk of physical*, *chemical*, *and microbial hazards associated with building water systems. The committee is grateful to everyone who participated in its development of the standard.*

1. PURPOSE

The purpose of this standard is to establish minimum requirements to reduce illness and injury from physical, chemical, and *microbial hazards* from water systems in buildings.

2. SCOPE

2.1 This standard applies to the design, construction, *commissioning*, operation, maintenance, repair, replacement, and expansion of new and existing *building water systems* (*potable* and *nonpotable*) and components.

2.2 This standard applies to human-occupied commercial, institutional, multiunit residential, assembly, educational, and industrial buildings. This standard does not include single-family residential buildings.