



# Standard Guide for Water Stewardship in the Design, Construction, and Operation of Buildings<sup>1</sup>

This standard is issued under the fixed designation E2728; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This guide is intended to inform sustainable development in the building industry. It outlines ideal sustainability and applied sustainability for water management, consistent with Guide E2432. Both ideal sustainability and applied sustainability should inform decisions regarding water management.

1.1.1 Ideal sustainability is patterned on the hydrological cycle. This provides the concept goals and direction for continual improvement.

1.1.2 Applied sustainability outlines current best practices. This identifies available options considering environmental, economic, and social opportunities and challenges. The most appropriate option(s) are likely to vary depending on the location of the project.

1.2 Water management challenges differ enormously depending on the type of built environment and the available water resources.

1.2.1 The general demands of the built environment vary from very low density rural development to crowded urban development. Large cities present a particular challenge, with 400 cities worldwide housing over 1 million inhabitants.

1.2.2 Successfully meeting the challenges of uneven distribution of water around the world, depletion of groundwater, changing rainfall patterns, and other water industry trends requires sustainable solutions for the effective management of the entire water cycle.

1.2.3 Sustainable design, construction, and operation of water and wastewater services for the built environment are critical components of water stewardship and global sustainable water management.

1.3 Water stewardship encompasses both pollution prevention (quality issues) and conservation (quantity issues).

1.4 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee E60 on Sustainability and is the direct responsibility of Subcommittee E60.07 on Water Use and Conservation.

Current edition approved Jan. 1, 2011. Published March 2011. DOI: 10.1520/E2728-11.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

E2114 Terminology for Sustainability Relative to the Performance of Buildings

E2348 Guide for Framework for a Consensus-based Environmental Decision-making Process

E2432 Guide for General Principles of Sustainability Relative to Buildings

E2635 Practice for Water Conservation in Buildings Through In-Situ Water Reclamation

### 2.2 Other Reference Documents:

WaterSense<sup>3</sup>

WWAP World Water Assessment Programme<sup>4</sup>

## 3. Terminology

3.1 *Definitions*—For terms related to sustainability relative to the performance of buildings, refer to Terminology E2114.

### 3.2 Definitions of Terms Specific to This Standard:

3.2.1 *effluent, n*—wastewater, treated or untreated, that flows out of a treatment plant, sewer, industrial facility, or constructed source.

3.2.2 *emerging pollutant, n*—substances that have been recently discovered or determined to contaminate the environment.

3.2.2.1 *Discussion*—Emerging pollutants may include endocrine disruptors, persistent organic pollutants, and pharmaceuticals.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from United States Environmental Protection Agency (EPA), Ariel Rios Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, <http://www.epa.gov/watersense>.

<sup>4</sup> Programme Office for Global Water Assessment, UNESCO, Villa La Colombella - Località di Colombella Alta, 06134 Colombella (PERUGIA), Italy, <http://www.unesco.org/water/wwap>.