Landscape Irrigation
Sprinkler & Emitter Standard

Overview and Update of the ASABE/ICC Standard 802-2014
What we’ll cover

- Project Background
- Overview of Standards
- Overview of Draft Standard
- Implications for the Industry

Timothy Malooy CIC, CLIA, CID
Water in Motion, Inc.

2008 EPA WaterSense® Partner of the Year

Chair, ASABE/ICC Irrigation and Emission Devices Committee (IS-IEDC)
Project Background

- ICC initiated projects in May, 2010 to develop ANSI consensus product standards for landscape irrigation sprinklers and emitters.

- Done in response to several industry issues:
  - Need for standards for reference in new green codes & standards with sections relating specifically to irrigation.
  - Increasing involvement of code officials in the inspection of landscape irrigation systems in some parts of the country.
  - Lack of basic minimum product design and performance requirements.
Project Preparation

ICC Conducted a roundtable discussion on the projects with industry stakeholders at WSI 2010 and the 2010 Irrigation Show. Results included:

• Invited ASABE to partner on the standard. An excellent partnership that has helped to ensure consistency with existing standards and terminology.

• Decided to retain microirrigation in its own section within the document.

• Extended the application period for standard committee volunteers to ensure the widest possible participation pool.
Standard Development Timeline

- **5/2010**: Filed ANSI PINS (Project Notification System)
- **12/2010**: Deadline for Committee Applications
- **8/2011**: Meeting #1
- **12/2012**: Meeting #5
- **11/2012**: Public Comment #1 Draft
- **10/2013**: Public Comment #1 Committee Action Report
- **1/2014**: Public Comment #2 (estimated)
- **3/2014**: 2015 IgCC Code Hearing
- **4/2014**: Standard Final
A Brief Overview of Standards
What’s in a Product Standard?

- Provisions for the design, construction, performance and testing of products.
  - Must allow for innovation.
  - Emphasis on (minimum) performance provisions, not prescriptive design.

- Assure function of components within systems.

- Supports certification assessment (product testing and labeling)
Who is involved?

- ANSI
  - PINS (Project Notification System)
  - Process Maintenance
  - Appeals
  - Final Approval

- Public Stakeholders
  - Subcommittees
  - Comments
  - Hearings

- Standard Development Organizations (ASABE & ICC)
  - Standards Governing Bodies
  - Secretariat
  - Technical Staff

- Consensus Committee
  - Chair
  - Vice Chair
  - Task Groups

Development of a Standard
ANSI Process - an Overview

- **Openness**
  - All stakeholders may participate; no single interest may dominate
  - Committee determines content (not ICC, ASABE or ANSI)

- **Transparency**
  - Nothing is hidden: Records, processes, deliberations are open and publicly available

- **Due Process**
  - Appeals mechanism
  - Process based on ANSI requirements.

- **Consensus**
  - Decisions require more than a majority but not unanimity; all viewpoints are considered
Consensus Committee Roster

• Leadership

  • Michael Dukes, PhD, University of Florida (Sprinkler Task Group Chair)
  • Travis Tsunemori, ASABE (Admin, Packaging & Marking Task Group Chair)
  • Brent Mecham, Irrigation Association (Vice Chair and Microirrigation Task Group Chair)
  • Tim Malooly, Water in Motion, inc. (Chair)

• Other Represented Organizations

  • Rain Bird Corporation
  • Hunter Industries
  • U.S. EPA WaterSense Program
  • Tampa Bay Water
  • Southern Nevada Water Authority
  • Alliance for Water Efficiency
  • City of Phoenix
  • CA Department of Water Resources
  • Iredell County, NC
  • City of Carrollton, TX
Additional Participants Included

- Dow Chemical
- The Toro Company
- QAI Laboratory
- Underwriters Laboratories
- ASIC members
- PLANET
- Irrigation Mart
- Consultants, designers and other practitioners

All meetings were open to the public and an extensive Interested Parties List is updated on all project developments.

Project website located at: www.iccsafe.org/is-iedc
Overview of the ASABE/ICC Landscape Irrigation Sprinkler and Emitter Standard
Applicability – What Devices are Included?

- Sprinklers and emitters designed for use within landscape irrigation systems.
  - Excludes exclusively agricultural sprinklers and emitters and valve-in-head devices.
- Sprinklers
  - Sprays
  - Rotors, including MSMT
  - Bubblers
- Microirrigation
  - Drip emitters (point source, drip line, multiple outlet)
  - Microsprays
Public Comment Draft

1 Outline

- CHAPTER 1 ADMINISTRATIVE PROVISIONS
- CHAPTER 2 DEFINITIONS
- CHAPTER 3 REQUIREMENTS FOR SPRINKLERS AND BUBBLERS
  - General
  - Materials
  - Sprinkler and Bubbler Design Requirements
  - Sprinkler and Bubbler Performance Requirements and Test Methods
  - Sprinkler and Bubbler Product Marking
- CHAPTER 4 REQUIREMENTS FOR MICROIRRIGATION EMITTERS AND MICROSPRAYS
  - General
  - Materials
  - Microirrigation Emission Device Design Requirements
  - Microirrigation Emission Device Performance Requirements and Test Methods
  - Microirrigation Emission Device Product Marking
- CHAPTER 5 REFERENCED STANDARDS
Minimum Requirements

- Ambient Air Temperature: -40 to 140°F (-40 to 60°C)
- Operating Air Temperature: 40 to 140°F (5 to 60 °C)
- Dynamic Water Temperature: 40 to 85°F (5 to 36.4 °C)
- Integral pressure regulation for sprays.
- Resistance to UV degradation and oxidation (without impacting performance)
- Provide specific information by some publicly available means.
Test Specifications

• Sprinklers
  • Flow rate
  • Distance of throw
  • Uniformity: Calculated using data from distance of throw.
  • Hydrostatic burst pressure.
  • Pressure regulation (mandated on sprays, optional elsewhere)
  • Check valve head (if included)

• Microirrigation Devices
  • Uniformity of flow rate
  • Emitter flow rate as a function of pressure
  • Deviation of mean flow rate from nominal flow rate
  • Microspray distance of throw
  • Emitter pull-out
  • Water-tightness
  • Coefficient of variation
  • Check valve head
## Sprinklers – Tests & Performance Requirements

<table>
<thead>
<tr>
<th></th>
<th>Sprays</th>
<th>Rotors</th>
<th>Bubblers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Rate</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Distance of Throw</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Uniformity (calculated)</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Burst Pressure</td>
<td>1.5xMax/150psi</td>
<td>1.5xMax/150psi</td>
<td>1.5xMax/150psi</td>
</tr>
<tr>
<td>Check Valve* Head</td>
<td>7’ head</td>
<td>7’ head</td>
<td>X</td>
</tr>
<tr>
<td>Pressure Regulation*</td>
<td>X (required)</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Check valve head, pressure regulation test only required when feature is present.*
## Microirrigation – Tests and Performance

<table>
<thead>
<tr>
<th></th>
<th>Point-Source</th>
<th>Line-Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniformity of Flow rate</td>
<td>+/- 7% deviation of mean from nominal published</td>
<td>+/- 7% deviation of mean from nominal published</td>
</tr>
<tr>
<td>Flow rate as a Function of Pressure</td>
<td>+/- 7% published</td>
<td>+/- 7% published</td>
</tr>
<tr>
<td>Emitter Pullout</td>
<td>&gt; 9 pounds</td>
<td></td>
</tr>
<tr>
<td>Water-tightness</td>
<td>No Leakage</td>
<td>No Leakage</td>
</tr>
<tr>
<td>Emitter exponent*</td>
<td>&lt; 0.2</td>
<td>&lt; 0.2</td>
</tr>
<tr>
<td>Coefficient of Variation</td>
<td>&lt; 7%</td>
<td>&lt; 7%</td>
</tr>
<tr>
<td>Check valve head**</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

*Emitter exponent only required for pressure-compensating emitters.

** Check valve head test only required when the feature is present.
**Microsprays**

<table>
<thead>
<tr>
<th>Test &amp; Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microspray Flow Rate</strong></td>
</tr>
<tr>
<td><strong>Uniformity of Flow Rate</strong></td>
</tr>
<tr>
<td><strong>Microspray Distance of Throw</strong></td>
</tr>
<tr>
<td><strong>Check Valve Function</strong></td>
</tr>
<tr>
<td><strong>Coefficient of Variation</strong></td>
</tr>
</tbody>
</table>
What are some of the implications of the standard on the industry?
Marking and Labeling

• All information to be provided in some publicly available location.
• Specific list of information to be provided, test method (if applicable) and units for each device type.
• Manufacturer name
• Connector type and size
• Pop-up height
• Presence of an integral flow shut-off, check valve and/or pressure regulating feature
• Instructions for installation and servicing
Benefits for Water Efficiency

- Integral pressure regulation required
- Consistent, more accurate test results
- Better information for designers and installers enabling better designs and product choices
- Sets the groundwork for additional standards and performance specifications
- Improves durability, reduces likelihood of leakage failures
- Provides a means for inspection, verification and quality control in the field
Thank You!

Timothy Malooly CIC, CLIA, CID
Water in Motion, inc.

TimM@watermotion.com

www.watermotion.com