

MiAPPA Winter Conference

The Codes and Standards Industry

Richard W. Robben PE CEFP

Michael Anthony PE

The Codes and Standards Industry Agenda

- History of Standards
 - ANSI and ISO Beginnings thru Current Methods and Structure
 - Standards development organizations
 - Codes and Authorities Having Jurisdiction (AHJ)
- Issues
- Accomplishments and an Update on MiAPPA Issues
- What You Can Do

History of Standards

[ANSI History](#)



US Standards Industry

- ANSI facilitates the development of American National Standards (ANS) by accrediting the procedures of standards developing organizations (SDOs).
- Accreditation by ANSI signifies that the procedures meet the Institute's essential requirements for openness, balance, consensus and due process.
- Today there are over 200 SDOs with the 20 largest SDOs producing 90% of the standards - and hundreds more "non-traditional" standards development bodies, such as consortia.
- The level of U.S. participation is quite expansive as the SDOs are comprised of individual committees of experts addressing the technical requirements of standards within their specific area of expertise.

US Standards Industry

- In order to maintain ANSI accreditation, standards developers are required to:
 - adhere to a set of requirements or procedures known as the “ANSI Essential Requirements”, that govern the consensus development process.
 - Due process ensures standards are equitable, accessible and responsive to the requirements of various stakeholders.
 - The open and fair process ensures interested and affected parties have an opportunity to participate in a standard’s development.
 - This protects the public interest since SDOs must meet the Institute’s requirements for openness, balance, consensus and other due process safeguards.
- That is why American National Standards are usually referred to as “open” standards

US Standards Industry

- In its role as the only accreditor of U.S. voluntary consensus standards developing organizations, ANSI helps to ensure the integrity of the standards that developers create via ANSI Essential Requirements
- The hallmarks of this process include:
 - Consensus must be reached by representatives from materially affected and interested parties
 - Standards are required to undergo public reviews where any member of the public may submit comments
 - Comments from the consensus body and public review commenters must be responded to in good faith
 - An appeals process is required

US Standards Industry

Consensus must be reached by representatives from materially affected and interested parties

Three equally represented parties must comprise the technical committee make up. These are:

1. Manufacturers
2. End Users
3. Special Interests (Insurance companies, contractors, unions, engineering firms, vendors etc..)

US Standards Industry

- National Technology Transfer and Advancement Act -1996
- Provisions
 - The Act requires that all Federal agencies use cooperatively developed standards, particularly those developed by standards developing organizations.

The History of International Standards

- First formed as the ISA in 1926 and later reorganized under its current name in 1946
- ISO is a Voluntary Organization whose membership is comprised of the recognized Standards Authority of each member country.
- Mission:
 - Standards are important in international trade because incongruent standards can be barriers to trade.
 - Standards provide clear identifiable references that are recognized internationally and encourage fair competition in free-market economies.
 - Standards facilitate trade through enhanced product quality and reliability, greater interoperability and compatibility, greater ease of maintenance and reduced costs
- There are over 2700 technical committees that prepare standards.

Codes and Authorities Having Jurisdiction (AHJ)

- There are multiple types of documents that comprise the standards landscape
- In and of themselves they carry no weight unless they are adopted by a code authority
- Some significant codes are the ICC, and IBC

Codes

- State Building Codes (Local variants of IBC)
- National Electrical Code (NFPA 70)
- Safety Code for Elevators and Escalators (ASME A17.1)
- International Property Maintenance Code (ICC)

Standards

- Energy Standard for Buildings Except Low-Rise Residential Buildings (ASHRAE 90.1)
- Underwriters Laboratories Standard for Electric Generators (UL 1004)
- A Risk Analysis Standard for Natural and Man-Made Hazards to Higher Education Institutions (ASME-ITI)
- ANSI Standard for Eyewash & Emergency Showers (ISEA Z358)

Recommended Practice

- Design of Reliable Commercial and Industrial Power Systems (IEEE 400)
- Construction Contract Administration (American Institute of Architects)
- Backflow Prevention (American Water Works Association)

Guides & Handbooks

- The Lighting Handbook (Illumination Engineering Society)
- Property Loss Prevention Data Sheets (FM Global)
- Guide to Evaluating Water-Damaged Electrical Equipment (NEMA)
- Guide for Safe Confined Space Entry and Work (NFPA 350)

Specifications

- Standard Specification for Poly Vinyl Chloride Pipe (ASTM D1785)
- Specification for Fluorocarbon Refrigerants (AHR 700)
- HVAC Air-Duct Leakage Specification (SMACNA)

ANSI Accredited documents are **voluntary and typically written so that they may be referenced and/or incorporated into public law**

Codes and Authorities Having Jurisdiction (AHJ)

- Codes can have their own language, but mainly incorporate language from other standards by reference.
- **This creates the situation where changes made at very low levels in standards can become law without notice or appropriate scrutiny.**
- This is called incorporation by reference

Codes and Authorities Having Jurisdiction (AHJ)

- Virtually all construction must adhere to comprehensive building codes and standards governed by local and state laws.
- Because of the cost and complexity of developing and maintaining such codes, state and local governments typically adopt nationally recognized model codes, **often amending them to reflect local construction practices, climate and geography.**
- Most U.S. communities adopt the International Code Council's Code for this purpose.

Current Issues

Balance



2.3 Balance

Historically the criteria for balance are that a) no single interest category constitutes more than one-third of the membership of a consensus body dealing with safety-related standards or b) no single interest category constitutes a majority of the membership of a consensus body dealing with other than safety-related standards.

The interest categories appropriate to the development of consensus in any given standards activity are a function of the nature of the standards being developed. Interest categories shall be discretely defined, cover all materially affected parties and differentiate each category from the other categories. Such definitions shall be available upon request. In defining the interest categories appropriate to a standards activity, consideration shall be given to at least the following:

- a) producer;
- b) user;
- c) general interest.

Where appropriate, additional interest categories should be considered.²

PRODUCER—GENERAL INTEREST—USER



**ANSI Essential Requirements:
Due process requirements for American
National Standards**

Current Issues Balance

Incumbent producers and general interests
– hold a strong market position – relative
to the comparative sparseness of the
user interest, especially from the public
sector.

- **Standardization processes are the most efficient way to reconcile the competing requirements of safety versus economy through consensus.**
- **However the User/owner is not at these consensus meetings because in part they cannot afford to be present at the scale of the incumbents.**

Current Issues

- **A survey of global standards development bodies revealed almost all were short on user/owner participation.**
- **NSF International, Underwriters Laboratories and the National Fire Protection Association – pay travel costs of users, but only for user/enforcers, i.e. the conformity assessment professionals who will be using their documents.**

Of the 18 possible votes on this committee 2 are cast by Users -- i.e. Owners actually paying for facilities construction and O&M. (Note that Committee Chairperson cannot vote.)

Educational and Day-Care Occupancies (SAF-END)		Ron Cote	
Technical Committee Members			
Aleky L. Szaechowicz	U 10/4/1997	Ron Cote	1/17/1997
Chair Anne Arundel County Public Schools 2644 Riva Road Annapolis, MD 21401 USA	SAF-END	Secretary (SAF-Nonvoting) National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471 USA	SAF-END
Steven D. Adrems	M 10/4/2007	Judy Biddle	U 10/20/2012
Principal Communication Concepts 101 Saint Louis Fort Worth, TX 76104 USA	SAF-END	Principal AFCECA 7328 Rodgers Drive Panama City, FL 32404 USA	SAF-END
Samuel S. Damroney	SE 7/24/1997	Victor L. Dubrowski	SE 3/17/1997
Principal S. S. Damroney Associates, Inc. 720 Indian Road, Suite 412 Honolulu, HI 96817-5316 USA	SAF-END	Principal Code Consultants, Inc. 2043 Woodland Parkway St. Louis, MO 63146-4235 USA Alternate: Richard M. DIMISA	SAF-END
Keith S. Frangarone	SE 10/4/2007	Domenick G. Koneskous	M 13/3/2002
Principal Fire Safety Consultants, Inc. 2422 Hill Lane, Suite 109 Eggen, IL 65124 USA	SAF-END	Principal National Fire Sprinkler Association, Inc. 1408 Moreland Avenue, Suite 147 Robertson, NY 12203 USA National Fire Sprinkler Association Alternate: Terry L. Phillips	SAF-END
Alfred J. Longhtano	SE 7/23/2009	Maria S. Marks	M 3/5/2012
Principal Alfred J. Longhtano, P.E., LLC 30 Salem Road Chappaqua, NY 10514 USA	SAF-END	Principal Siemens Industry 9 Fernwood Road Parkton Park, NJ 07652 USA National Electrical Manufacturers Association Alternate: Richard Jay Roberts	SAF-END
Vern L. Martindale	U 1/17/1997	Richard P. Merck	F 3/10/2008
Principal Church of Jesus Christ of Latter-day Saints 30 East North Temple, 10th Floor Salt Lake City, UT 84150 USA Alternate: Max L. Gandy	SAF-END	Principal Montgomery County Fire & Rescue Service 255 Rockville Pike, 3rd Floor Rockville, MD 20850 USA	SAF-END

Matthew J. Mertens	E 3/10/2011	Kurt A. Roeper	M 7/28/2007
Principal North Shore Fire Department 665 East Brown Deer Road Bayville, WI 53217 USA International Fire Marshals Association	SAF-END	Principal ACSA ADJOY 110 Sargent Drive New Haven, CT 06511 USA Steel Door Institute	SAF-END
Michael L. Savage, Sr.	E 10/4/2007	Michael L. Sinsigall	E 7/17/1998
Principal Middle Department Inspection Agency, Inc. 12136 Holly Road Rigely, MD 21860 USA	SAF-END	Principal West Hartford Fire Department 65 Raymond Road West Hartford, CT 06107 USA Alternate: Carmen A. Rao	SAF-END
Catherine L. Staskak	E 1/17/1997	Billy E. Upton	SE 7/28/2007
Principal Office of the Illinois State Fire Marshal James R. Thompson Center 100 West Randolph Street, 8th-9th Chicago, IL 60601 USA Office of the Illinois State Fire Marshal Alternate: Kenneth Wood	SAF-END	Principal Ballou Justice Upton Architects 2402 North Parkway Road Roanoke, VA 24029 USA	SAF-END
Ann Marie A. Wolf	SE 3/6/2012	Richard M. DIMISA	SE 3/4/2008
Principal Sonos Environmental Research Institute, Inc. 3202 East Grant Road Tucson, AZ 85710 USA Alternate: Daniel W. Urbe	SAF-END	Alternate Code Consultants, Inc. 2043 Woodland Parkway, Suite 300 St. Louis, MO 63146-4235 USA Principal: Victor L. Dubrowski	SAF-END
Max L. Gandy	U 10/29/2012	Terry L. Phillips	M 7/25/2007
Alternate Church of Jesus Christ of Latter-day Saints 50 East North Temple Salt Lake City, UT 84150 USA Principal: Vern L. Martindale	SAF-END	Alternate National Fire Sprinkler Association, Inc. 1828 Meadow Drive Cherryvale, WY 82001 USA National Fire Sprinkler Association Principal: Domenick G. Koneskous	SAF-END
Carmen A. Rao	E 3/5/2012	Richard Jay Roberts	M 3/1/2011
Alternate Wallingford Fire Prevention Bureau 75 Masonic Avenue Wallingford, CT 06493 USA Principal: Michael L. Sinsigall	SAF-END	Alternate Honeywell Life Safety 3225 Ohio Avenue St. Charles, IL 60174 USA National Electrical Manufacturers Association Principal: Maria S. Marks	SAF-END

NFPA 101 | Life Safety Code

Current Issues Funding

Manufacturers, insurance and labor organizations - weave the cost of their engagement in standards development activities into the product and/or service they provide to their “customer.

Current Issues

Current State

- **Very little end user participation in the standards development process**
- **Process governed by Manufacturers/vendors and special interest groups**
- **The ANSI concept of a balanced of interests in standards development is being challenged**

Accomplishments

- APPA becomes SDO for a total cost of ownership
- APPA Codes council and sub committees for tracking key code areas
- U of M member on NEC advisory committee to NFPA 101 representing APPA gets major changes in tables governing building transformer sizing. Large first cost savings in /electrical costs.
- U of M aggressive efforts to advocate for end user See Chart

ANNUAL AVOIDED COST OPPORTUNITIES IN \$ BILLIONS (no scale)



Accomplishments

- U of M Places member on ASME Elevator committee
- U of M places member on ASME Boiler water treatment committee
- U of M Engages the State of Michigan to place Higher ED membership on Advisory Boards
- U of M places member on the Board of Directors of NFPA research Council
- U of M together with MIAPPA ,the Big 10, ETON corp to fund an NFPA phase one research project on determination of Building Branch Circuit sizing

Accomplishments

- Simon Institute becomes an SDO for custodial matters and issues its first three standards for review.
- U of M sponsors eye wash water study to determine testing intervals. Northwestern is now tacking a lead in getting testing interval changed.

What Can We Do?

- Advocate for Increased End User Participation in the US National Standards arena
- Greater representation on technical committees of ANSI approved Standards Development Organizations - SDOs
- Review and comment on the continuous flow of new proposals appearing before SDOs

What Can We Do?



- Develop new proposals to SDOs for inclusion into standards
- Strongly support APPAs efforts as a SDOs that will create a new standard on the concept of Total Cost of Ownership – TCO
- Participate in APPAs Codes Counsel and its sub committees
- Support the Simon Institutes efforts as an SDO that will create a new standards for custodial stewardship

What Can We Do?

- Educate the higher Ed community and other sectors of the issues.
- Collaborate with other universities and trade organizations to multiply our efforts.
- Place university representation on the building Code Advisory committees for the State of Michigan to Influence the code development process at the state levels.

What Can You Do?

Code Advocacy Goals

- Serve the public user interest
- Positively impact competitiveness among global manufacturers
- Drive value creation
for the End User
- Safer, Cheaper, More
Reliable, Longer Lasting
should be our mantra



Q&A

Standards Michigan Presentation site

<http://standardsmichigan.com/>



- **Success in changing the 2014 National Electrical Code so that less electrical energy is brought into every building.**
- **Drives down the first cost of constructing the entire electrical power chain and reduces operational hazards significantly.**

Importance of Standards to Higher Education

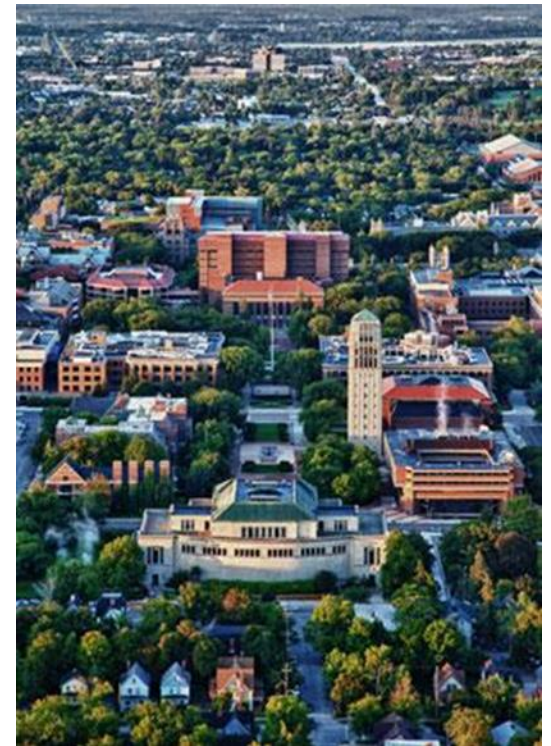
- **Universities need standards to operate properly.**
- **Standards for buildings, technology, teaching, and health & safety.**
- **Most industries rely on sector-specific standards, education requires a whole string of standards – spanning business, government and society.**



US campuses – particularly land-grant institutions – have real footprints of many square kilometers with their own energy production, telecommunications, water management and road systems.

Importance of Standards to Higher Education

Campuses are “city within a city” This characteristic makes them fertile ground For application of a wide Array standards. They are Also ideal study units for cities of the future.



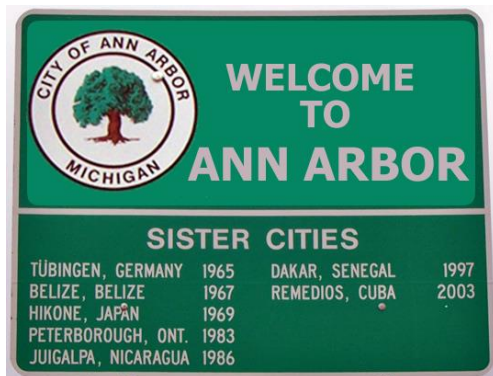
Importance of Standards to Higher Education

The creation of new ANSI accredited standards development organizations,



And the operation SDOs, if not properly administered will directly bear on the rising cost of ownership of our campus buildings, and impact on the rising cost of tuition at Brick and Mortar Institutions

At the opposite end of the spectrum, the public sector user interest – cities, counties, states, commercial interests and large universities such as our own – face a much greater challenge.



Since our industry has many interest groups an understanding of how a vote is informed is necessary

IES Illuminating ENGINEERING SOCIETY

About Education Bookstore

Members

- Membership Services
- Membership Application
- Sustaining Members
- Committees
- Emerging Professionals

N.B. Of the 20 people on this committee only 3 are employed by an educational institution that is a purchaser or maintainer of lighting technology:
Loomis - Cornell
Anabathula - University of Virginia
Mahaney - Syracuse
All others are manufacturers, installer/maintainers/labor/special interest/designers/

Announcements

- 2011-12 IES Roadshow Schedule [Click Here >](#)
- The Lighting Handbook, 10th Edition [PDF version >](#) [Print version >](#)
- Standard 189.1 Design of High-Performance Green Buildings [>](#)
- Advanced Energy Design Guides: Free Download [>](#)
- TM-23-11 - Lighting Control Protocols: Free Download [>](#)
- Model Lighting Ordinance - 2011:

Educational Facilities!

To study the application of light and lighting to the spaces a

Chairman:	Chad Loomis (607) 255-8039
Co-Chair:	None
Sub Chairman:	Position Available
Vice Chairman:	Position Available
Secretary:	Position Available
Treasurer:	Position Available
Staff Contact:	Position Available
Members:	Robert Altman Sathish Anabathula Wanda Barchard Timothy Hill Dawn Kack Craig Kohring Becky Kuebler Ed. Lusk Paul Mahaney Chad McSpadden David Orgish <u>Kevin Reticl</u> Anjan Sarkar Turquoise Shaw Aleah Thompson Al Uszynski
Advisory Members:	James Ashmore Scott Padios Adolfo Reyes
Honorary Members:	None

ASME A112 COMMITTEE

Standardization of Plumbing Materials and Equipment

(The following is the roster of the Committee at the time of approval of this Standard.)

STANDARDS COMMITTEE OFFICERS

D. W. Viola, *Chair*
S. Rawalpindiwala, *Vice Chair*
A. L. Guzman, *Secretary*

STANDARDS COMMITTEE PERSONNEL

R. K. Adler, *City of San Jose*
S. F. Aridi, *NSF International*
D. Orton, *Alternate, NSF International*
J. A. Ballanco, *JB Engineering and Code Consulting*
J. E. Bertrand, *Moen Inc.*
L. A. Mercer, *Alternate, Moen Inc.*
M. N. Burgess, *Burgess Group, Inc.*
M. Campos, *ICC Evaluation Service, LLC*
S. L. Cavanaugh, *Cavanaugh Consulting*
W. E. Chapin, *Webstone Company*
P. V. DeMarco, *IAPMO*
D. E. Holloway, *Alternate, IAPMO*
N. E. Dickey, *CSA International*
G. S. Duren, *Code Compliance, Inc.*
T. Eberhardy, *Bradley Fixtures Corporation*
D. W. Gallmann, *Alternate, Bradley Corporation*
R. Emmerson, *Consultant*
R. L. George, *Plumb_Tech Design and Consulting Services LLC*
A. L. Guzman, *The American Society of Mechanical Engineers*
G. W. Harrison, *Consultant*
C. A. Hernandez, *Contributing Member, Spears Manufacturing*
L. Himmelblau, *Chicago Faucet*
J. Kendzel, *American Society of Plumbing Engineers*
J. M. Koeller, *Koeller and Co.*
N. M. Kummerlen, *Consultant*
C. J. Lagan, *American Standard*
M. Malatesta, *Alternate, American Standard*
J. W. Lauer, *Sloan Valve Company*
D. Gleiberman, *Alternate, Sloan Valve Company*
W. Levan, *Cast Iron Soil Pipe Institute*
S. Rawalpindiwala, *Kohler Co.*
S. A. Remedios, *Consultant*
G. L. Simmons, *Charlotte Pipe & Foundry*
W. B. Morris, *Alternate, Charlotte Pipe & Foundry*
L. J. Swatkowski Jr., *Plumbing Manufacturers International*
D. Viola, *IAPMO*
A. Murra, *Alternate, IAPMO*

ASME A112.19.14 Draft_Rev 2013-07
(Revision of ASME A112.19.14-2009 [A112.1])

A112.19.14
Six-Liter Water Closets Equipped With a Dual Flushing Device

TENTATIVE
SUBJECT TO REVISION OR WITHDRAWAL
Specific Authorization Required for Reproduction or Quotation
ASME Codes and Standards

PUBLIC REVIEW ENDS:

September 24, 2013

Facilities Management Organizations are Stewards of the University or College assets, tasked with leaving our campuses in better shape than we found them.

Expected to “act like a business”.

In the Standards world we lack one important resource: leverage.



Current Issues Marketing

Most manufacturers see standards development as a means to effect the company's bottom line through aggressive product positioning

Our Focus Should Be

- **Safer, Simpler, Lower Cost, Longer Lasting**
- **Leading (Best) Practice Discovery**
- **Standardization among suppliers**
- **Strong End-user participation**

Noteworthy

- Ferris State University business school students won the ANSI Student Paper competition
- The University of Michigan secured a NIST grant to advance standards education; specially autonomous vehicle standards
- Mike Anthony was selected by NFPA to advise development of its products for education facility managers.