CODE DEVELOPMENT REVIEW AD-HOC COMMITTEE
Final Report

This report represents the work of the Code Development Review Ad-hoc Committee (CDRAC). Nothing in this report should be considered final or a policy change by the ICC unless or until approved by the ICC Board of Directors.
**ICC Code Development Review**  
**Ad Hoc Committee**

### ICC Board Representatives

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<td>Senior VP – Construction, Codes &amp; Standards</td>
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Acknowledgements

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David deCourcy, General Counsel
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<td>OMB</td>
<td>Office of Management and Budget</td>
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<td>PMG</td>
<td>Plumbing, Mechanical, and Fuel Gas</td>
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Introduction and Background

The ICC Code Development Governmental Consensus Process (CDP) is at the core of ICC’s mission and is the responsibility of the Board of Directors, as specified in Article X of the association’s bylaws. The Code Council considers the ongoing health and confidence in the CDP as critical to the ability of jurisdictions to adopt and enforce codes designed to promote safe and sustainable communities. The CDP has been revised periodically since the first set of hearings establishing the family of I-Codes, including a recent revision to the hearings schedule designed to shorten the overall duration and daily hours of the hearings. Other relevant revisions have included new provisions regarding ethics and appropriate sources of reimbursement for governmental voting member travel.

In recent years, the combination of recession-era impacts on governmental travel budgets, the increase in voter organization around single-issue topics, the time demands placed upon hearing attendees and the advent of technological tools have contributed to the Board’s interest in conducting further review of the viability of existing protocols and procedures utilized in the CDP.

It is with this backdrop that the Board of Directors created the Code Development Review Ad Hoc Committee (CDRAC) in Baltimore after the 2010 Annual Conference. The Committee was composed of seven members of the Board of Directors and seven industry stakeholders, and directed to seek feedback from stakeholders, assess workable options that would protect and promote the CDP core values, and deliver recommended actions. The Committee was chaired by Director Cindy Davis, Building Official and Zoning Officer for Butler Township, Pennsylvania. The Committee commissioned a stakeholder survey, managed a feedback page on the ICC web site, solicited input through electronic notices, and conducted a series of five meetings over a 12-month period in order to take an exhaustive look at the CDP. As part of this process, the Committee was also asked to take into consideration the review and recommendations from an ICC staff working group that was currently looking at the process.

Committee Charge

The Board framed the mission of the Committee by establishing objectives to assess the health of the CDP, exploring how to ensure that overall confidence in the process remains high and provide for the long-term sustainability of the effort. As a first step, the Committee reviewed and identified the principles, goals, and objectives that underlie the code development process. The Committee established that the following subjects were included in its review:

2. The implications of the new code development schedule.
3. The possibility of conducting a “ratification” vote after the final action code development hearing.
4. The possible use of remote web voting.
5. Look at the issues and ideas surrounding the designation, the number of votes per jurisdiction and the eligibility criteria of all members who vote during code development hearings and final action hearings.
6. Development of other recommendations that assist in securing the objective of the committee; namely, to ensure that overall confidence in the code development process remains high.

Executive Summary

The Committee developed a series of 33 recommendations to improve the CDP in the short term. In addition, based on the body of new staff research, a recommendation on remote participation was developed to address the long-term viability of the process.

The Committee's work was supported by research, including a survey of code officials, inspectors, fire officials, architects, engineers, contractors and other industry professionals. Key findings show:

- A solid majority support remote participation and embrace the notion of evolving the CDP;
- Cost, lack of employer support and time out of the office are the primary barriers to participation;
- Other associations cite considerable benefits in moving to a technology-enabled process; and
- A wide range of considerations must be addressed to evolve toward remote participation and Internet voting.

The CDRAC recommends that ICC staff present a work plan during 2011 to put into practice changes to the code development process which use new and emerging technologies to increase member and stakeholder participation, consistent with the ICC mission. The work plan will have new processes in place by the start of the code development cycle that will end with the publication of the 2018 International Codes.

Process for Recommendation and Implementation

The Committee constructed a simple model to illustrate how the committee’s recommendations would be developed and, if approved, used in the CDP.
The Committee focused special attention on obtaining input from ICC Members and stakeholders. Hundreds of comments and recommendations have been processed and considered by the Committee. The Committee’s recommendations are built on the basic principles of the Council’s Government Consensus Process.

**Background**

The I-Codes are the principal model codes used in the United States of America and in 14 other countries as the most functional set of model codes governing the building of commercial and residential construction. They are used in all 50 states, Puerto Rico, Jamaica, Virgin Islands, Guam, Saudi Arabia, and referenced in Federal regulations and enforced by various Federal agencies including the US Departments of Defense, State, Housing, Energy; the General Services Administration, FEMA, National Parks Service, the US Capitol and others.

Developed through the ICC Governmental Consensus Process the I-Codes are written to safeguard public health, safety and welfare and enhance economic development through the use of state-of-the-art technology, the latest in materials research, design and construction practices, and risks/hazards to the public in buildings and structures. The work of ICC and its members has resulted in a streamlined building regulatory system that has provided uniformity, consistency and compatibility to multiple layers of requirements existing at the international, Federal, state and local levels.

These accomplishments are based on the success of a proven system of code development that incorporates the expertise from a broad-based coalition of stakeholders and users, ensuring the best in construction regulations, and founded on a commitment to an open, balanced, and inclusive code development process.

When the legacy organizations consolidated in 2003, it was expected that as the organization grew into its role of prominence as the national model code developer, its sphere of influence would expand. Over the past 8 years, the I-Codes have become the accepted venues to address all aspects of construction, including how buildings impact the natural environment. An example of this expansion was ICC’s decision to develop a model code addressing energy efficiency, water conservation, and sustainability. The recognition for the work of ICC, not only for the technical merit of our documents but also the respect for the integrity and openness of the governmental consensus process, generated a quick acceptance and adoption of its newest model code, the *International Green Construction Code*. 


The complexity of our modern-day built environment is driving certain changes in the codes, attracting new sectors into model code development. Groups impacted by the codes but not traditionally visible at the code hearings are now becoming more vested in the I-Codes and more interested in participating in the process.

This very unique American experience of developing model codes in the private sector, with the authority of their implementation in the hands of state and local governments, is an ideal public/private partnership where consensus and transparency allows for all points of view to be heard and ensures that the goals of safety and sustainability are achieved.

**Values that Guided the Work of the Committee**

At the outset of their work, the Committee and ICC staff had an in-depth discussion of the principles that are or should embody the ICC CDP. These principles are essential in maintaining the historic high standards of integrity in the I-Codes.

1. **General confidence in the process**
   - Participants’ confidence (so that they will support the result)
   - Jurisdictions’ confidence in the outcome (so that they will adopt)
   - Governmental consensus process
     - Governmental member final vote
     - Appropriate definition of “voting member”
   - Transparency
     - See everything that happens
     - See how people voted
   - Due process
     - Appropriate opportunity to be heard
     - Meaningful opportunity to appeal
   - Legal (e.g., not anti-competitive)
   - Level playing field for all interested parties
   - Minimal effect of money on the process
   - Broad participation and debate by array of interests
   - Reasonable cost for stakeholders to participate
   - Stability and predictability of the system
   - Manageable length
   - Compliance with OMB Circular A-119 (National Technology Transfer and Advancement Act of 1995)
     - Directs agencies to use voluntary consensus standards in lieu of government unique standards
     - Voluntary consensus standards to include:
       - Openness
       - Balance of interest
       - Due process
       - An appeals process
• Consensus
• General principles of a representative democracy (e.g., maximize participation, open debate, free exchange of information and ideas, respect for rights of the minority)
• Simplicity in the process
• Ethical behavior by participants
• Opportunity for member and stakeholder input in the rules governing the CDP

2. Technical quality of the codes

• Appropriate industry involvement and participation
• Ability to keep up with advances or changes in the building sciences and responsive to critical issues
• Broad participation and debate by array of interests
• Level playing field for all interested parties
• User-friendly format that is consistent and coordinated

3. Material considerations

• ICC’s ability to offset the cost of the process
• Legal (e.g., not anti-competitive)*
• Intellectual property
  o Ability to protect our IP
  o Avoid inappropriate use of others’ IP
• Cost of the process is manageable (Sustainable)
  o For ICC
  o For general participants
• Feasibility/logistics/administrative burden on ICC
• Manageable length of hearings
• “Adoptability”
  o Practical to implement
  o Reasonable cost to the jurisdictions of adoptions
• Compliance with OMB Circular A-119
## Quick Reference Recommendations by Category

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Committee Recommendations

Schedule/Cycle

S1 Length of CDP Cycle:

In December 2008, the Board of Directors revised the code development process to consist of a single 3-year cycle with the codes divided into two groups, A & B, which would be heard in alternating cycles. This schedule was intended to accomplish three primary objectives:

1. Reduce the duration of any given hearing to not exceed one work week and two weekends (considered to be the maximum that a member could expect to be away from the office).
2. The Final Action Hearing of Groups A & B would each coincide with the ABM in years 1 and 2, respectively, in the new 3-year cycle.
3. Provide an “off” year for the production of codes and commentaries with a roll-out at the 3rd ABM of the cycle.

In order to evaluate the efficacy of this change it is necessary to experience at least one full code development cycle under the new process.

Recommendation - The Council should maintain the current code development cycle, and gather data over the next two cycles to see if hearing length has decreased and if attendance has increased, which were the underlying rationales for the changes from the 2009 cycle. Research questions for the 2012 and 2015 cycles include:

- Has the length of hearings actually declined?
- Are there more code changes per code under the new system?
- Are there significant technical matters whose inclusion in the code is delayed inappropriately because of the 3-year update interval?
- Has attendance changed and if so, why?
- Do the data support the conclusion that there is less interest in the codes?

S2 Code Action Committees (CAC):

The role of the Code Action Committees (CACs) is to create additional opportunities for members of the ICC and others to participate in the code development process. Building and PMG CACs were previously approved by the Board of Directors but postponed for budget reasons. In the 2011 ICC Budget they are fully funded.

Recommendation - Appoint and fund the new ICC Code Action Committees (CACs) to help get more people involved in the code development process.
Structure & Conduct of Hearings

H1 Length of hearings:
Reducing the length of each hearing day is half the effort to reduce hearing duration. This was achieved in the Dallas Code Development Hearings and remains an ongoing objective.

Recommendation - Establish fixed parameters for hearing length and time of Saturday to the Sunday of the following weekend 8:00 am to 6:00 pm.

H2 Screening Code Changes:
A key element of the code development process is the principle of unrestricted access to the process. In the US, OMB Circular A119 provided an important basis for the development of codes and standards. The Circular establishes policies to improve the internal management of the Executive Branch. Consistent with Section 12(d) of P.L. 104-113, the "National Technology Transfer and Advancement Act of 1995" (hereinafter "the Act"), this Circular directs agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical. It also provides guidance for agencies participating in voluntary consensus standards bodies and describes procedures for satisfying the reporting requirements in the Act. The policies in this Circular are intended to reduce to a minimum the reliance by agencies on government-unique standards. These policies do not create the bases for discrimination in agency procurement or regulatory activities among standards developed in the private sector, whether or not they are developed by voluntary consensus standards bodies. Consistent with Section 12(b) of the Act, this Circular directs the Secretary of Commerce to issue guidance to the agencies in order to coordinate conformity assessment activities.

The Circular describes voluntary consensus [code and] standards body by the following attributes:

1. Openness.
2. Balance of interest.
3. Due process.
4. An appeals process.
5. Consensus, which is defined as general agreement, but not necessarily unanimity, and includes a process for attempting to resolve objections by interested parties, as long as all comments have been fairly considered, each objector is advised of the disposition of his or her objection(s) and the reasons why, and the consensus body members are given an opportunity to change their votes after reviewing the comments.

Any attempt to restrict the number of code changes that could be submitted would have a negative effect on participation.

Recommendation - Changes to the process intended to reduce the size of the agenda have not been recommended.

H3 Number of Hearing Tracks:
The use of parallel hearing tracks is a method to control length of the hearings. Issues and concerns about the length of ICC code development hearings have been expressed.
Recommendation - Add additional hearing tracks, if needed to maintain the established hearing length and times, as recommended in H1 above.

**H4 Number of Testifiers:**

Another method that has been suggested to control the length of code development hearings is to further limit the number of people who could testify on a given item. As discussed in Recommendation H2, this suggestion is impacted by OMB Circular A119.

Recommendation - Don’t place limits on the number of people (or length of time for each side) who can testify on the same side of a proposed code change.

**H5 Assembly Action:**

The “Assembly Action” was added to the Initial Action Hearing (IAH) for the 2009 CDC. The current process allows all members to vote to overturn committee recommendations. This reduces the value of the Code Development Committees as a panel of experts and as a result impacts the process. In addition, there is no mechanism to balance stakeholder interests at this stage.

Recommendation - The “Assembly Action” vote should be eliminated at the IAH.

**H6 Code Hearing Groupings:**

The grouping of code changes is done through an administrative process to ensure independent oversight of the proceedings and maximize attendance at both Group A and Group B hearings. Recommendation - Maintain the current administrative process for how codes are grouped on the hearing agenda.

**H7 FAQ on Council Policy (CP) 36:**

ICC has specific policies on external funding of attendance at code development and final action hearings.

Recommendation - Produce an FAQ on sponsorship and contributions relating to funding of governmental member voting representatives’ attendance at hearings.

**H8 Ethics, Contributions, & Sponsorship:**

It is generally understood that the ICC CDP is used by special interests to advance their goals. The process is under increasing scrutiny as new approaches are developed to influence outcomes without violating current rules and procedures. As a result, periodic review of all policies is warranted to maintain the intent of these procedures, to provide a fair and open system and to achieve consensus-based results.

Recommendation – Staff should be directed to review policies on ethics, contributions, and sponsorship for conformity with the following six principles and propose changes, if necessary.

1. Goals
• Governmental member voting representatives are representing the governmental members (not private interests)
• Wealthy interests do not unduly influence outcomes
2. Reaffirm that policies are designed to prevent economic interests from buying results
3. Ensure that voters are complying with their own jurisdictions’ requirements in the first instance
4. Establish who can fund governmental member voting representatives:
   • Governmental members
   • Chapters
   • ICCF
5. Establish and clarify enforcement means such as:
   • Consider requiring disclosure from governmental member regarding sources of funding
   • Final Action Hearing (FAH) result can be overturned
   • Explicit sanctions, including suspension of voting rights
6. At the Code Development Hearings (CDH):
   • No restrictions on funding for anyone other than governmental members
   • Mitigate the possibility that special interests can unduly and unfairly influence the CDP by reverting to the previous rules of procedure with no assembly vote at the initial action hearing, and establishing a six-month waiting voting eligibility period for new members

H9 Disclosure:

Not all participants in the CDP make it clear what interests they are representing. Requiring disclosure of this information provides both the Code Development Committees and the voting members an additional piece of information with which to evaluate the testimony.

Recommendation - Revise CP #28 to require disclosure, during testimony, of who the testifier represents.

H10 Sponsorship:

The ICC allows sponsorship of certain activities outside of the hearing room. This draws a bright line where commercial advocacy efforts stop. This helps clarify the “rules of the road” surrounding the code development process. Several years ago, ads were briefly permitted in the hearing room. Concerns were expressed from a broad spectrum of attendees. As a result, all ads, banners, sponsorships and other evidence of commercial interest are kept out of the hearing room to maintain a “level playing field.”

Recommendation – Continue to permit the practice of sponsorship outside the hearing room.

H11 Collaboration:

E-mail is an effective means of communicating about code development. The use of e-mail and other electronic means could allow those submitting similar or related changes to contact each other informally and attempt to resolve differences prior to the hearings. It is hoped that this will reduce the debate on the floor on duplicative issues and shorten the hearings. Whether it is effective or not, at least this provides code change proponents with the opportunity to move towards a consensus.
Recommendation - Require an e-mail address for all code change proposals and create a community chat room (or similar vehicle) to facilitate collaboration.

H12 Tentative Interim Amendments (TIAs):

Section 2.4 of CP #28, “Emergency Procedures” provides for interim amendments by the Board of Directors with ratification by the members. It has been suggested there is a further need for a separate Temporary Interim Amendment (TIA) process which could be duplicative.

Recommendation - With regard to TIAs, there is currently a process in place to handle emergency code changes between editions. Additionally, the ICC Industry Advisory Committee is currently considering recommendations to the ICC Board of Directors on the issue of TIAs.

H13 Hearing Location:

ICC is contractually committed to meeting in Dallas for code development hearings for the next 2 years. Some questions have been raised about the result of hosting the CDH in the same location for multiple years.

Recommendation - Since ICC is contractually obligated for the location of hearings over the next 3 years, the Committee tabled discussion of whether ICC should rotate the location of hearings in order to address issues associated with potential undue influence of the voters located in the region near the hearings.

H14 Hearing Agenda:

ICC staff spends significant time tracking the history of hearing length for the various code disciplines in order to create the hearing schedule which provides a predictive tool for the hearing participant. Additionally, staff responds effectively to numerous inquiries in the days leading up to the hearings from those seeking guidance as to when the changes of interest to them are likely to occur. The current process is surprisingly effective given all the variables involved.

Recommendation - No changes needed to increase predictability of when particular code changes come up on the agenda at the hearings (so that people can schedule their time accordingly), as procedures are in place to address this and the Committee decided that ICC is already handling this issue as well as possible. At such time that accuracy can be improved, staff should revisit.

H15 Referenced Standards:

The updating of referenced standards is heard by the Administrative Code Development Committee so that all updates are heard by the same committee.
Recommendation - No changes are currently recommended regarding how ICC updates referenced standards. Possible options include use of the Administrative Committee, individual CDCs or a staff effort, but the Committee concluded that the current process in place is satisfactory and no changes need to be made at this time.

H16 Fees:

Charging for attendance would be counter to the primary mission to increase attendance and participation. It also would be counter to the principles of an open, accessible code development process outlined in OMB A119 and ICC rules of procedure.

Recommendation - ICC should not charge for attendance at hearings. The Committee did not believe that charging for attendance was necessary or the right approach.

H17 Cost:

Sustaining the CDP is critically important. One method of offsetting the cost of maintaining the process is to charge for ancillary services such as Internet access.

Recommendation - ICC should not charge for expenses associated with hearings (e.g., refreshments, Internet access, etc.).

H18 Quorum:

The issue of maximizing the number of members required to be in attendance at a hearing to decide the content of the I-Codes is an important matter.

Recommendation - The Committee concluded that the ICC should focus on increasing participation at the hearing, rather than establishing a formal quorum requirement for the FAH.

H19 Jurisdiction Enforcement:

Is enforcement of the I-Codes part of what makes a Governmental Member technically competent to participate in the CDP? Or does enforcement of codes in general provide a Governmental Member sufficient background to participate? The ICC Code Development Process is an incentive to those not yet using the codes to do so, because observing and participating in the process has been shown to make a favorable impression. Restricting access limits participation. Erecting a new barrier to the process was deemed counter-productive as it has been observed that participation in the process may precede adoption of the I-Codes.

Recommendation - Jurisdictions should not have to adopt or have enforced the I-Codes to be an ICC Governmental Member.
H20 Committee Member Conflicts of Interest:

Current policy outlined in CP #28 prohibits undisclosed conflicts. To date the policy has worked well as it relies on an informed membership to take the affiliation of the proponent, opponent or committee member under consideration.

Recommendation - ICC’s existing policy, as reflected in CP #28 is adequate to address issues related to committee member conflict of interest at the hearings, and no further changes are needed.

H21 Private Funding:

A key issue that needs exploration is the concern about the ability to influence the outcome of code changes by funding travel to ICC hearings. Interest in the I-Codes has grown exponentially now that all 50 states in the US and 14 foreign countries use the ICC family of codes. The Committee concluded that the receipt of private funds by Governmental Members to attend hearings should be prohibited.

Recommendation - Amend ICC policies to prohibit private funding to designated Governmental Member Voting Representatives and require certification from Governmental Member jurisdictions to verify (see Attachment 1 for proposed language).

Voting

V1 Deadline for Eligibility:

The proximity of joining the ICC to attend a code development hearing has implications on the credibility of the CDP. Currently there is only a 10-day deadline for registration of Governmental Member Representatives.

Recommendation - The ICC should establish a deadline for Governmental Members in order for their Voting Representatives to be eligible to vote at the FAH. This deadline should mirror the code change deadline (approximately 180 days). No change should be made to the 10-day application deadline for new or updated Governmental Member Representatives status prior to the FAH.

V2 Training on the Code Development Process (CDP):

Improving the general level of understanding of the CDP among building safety professionals is important. It would enhance participation, both in attendance and the resolution of technical issues through the development of proposed code changes.

Recommendation - Staff should be directed to develop a program to provide an online tutorial of the CDP.
V3 Member Eligibility:

Current ICC bylaws contain a very broad definition of Governmental Member. Attention has been focused on whether the current definition is adequate to maintain credibility in the CDP.

Recommendation – The Committee recommends that ICC tighten the bylaw definition of Governmental Member to focus on code administration, formulation, or enforcement “in the built environment” rather than on general public health and safety. Additionally, language should be added to the bylaws authorizing the ICC Board to establish a policy defining eligibility for membership in accordance with the bylaws requirements (see attachment for proposed language).

V4 Multiple Agencies:

As currently provided in the ICC bylaws, each agency in a unit of government is entitled to join ICC as a Governmental Member, if it is involved in the administration, formulation, or enforcement of codes. The Committee considered whether this standard is adequate to maintain consensus support for the I-Codes.

Recommendation –

1. Continue to allow multiple agencies per jurisdiction to join as Governmental Members, provided they meet the strict definition in the amended bylaws provided in Committee Recommendation V3.
2. Carefully apply the “separate unit of government” test to ensure that the Governmental Member is in fact a separate unit. The operative principle is that any agency that truly is in the business of code administration, formulation, or enforcement is an eligible Governmental Member.

V5 Ratification:

ICC Members have considered whether to add a ratification vote to the CDP. The Committee explored this issue again and has found an alternative technique to achieve similar goals.

Recommendation - The Committee recommends that a ratification vote not be added to the current CDP.

V6 Remote Participation & eVoting:

Overall participation in the CDP is one of the critical issues the CDRAC looked at. The Committee requested that Code Council staff gather relevant data, identify issues, and present their research to the Committee. To accomplish the task staff initiated the following research:

• An investigation into effective practices around Internet voting.
• A survey to gather thoughts, perspectives and quantifiable measures from ICC Members related to the current CDP.

• Research to uncover thoughts, perspectives and opinions on the CDP from the next generation of code officials.

In addition to the research listed above, a recent report by the Fire Protection Research Foundation entitled Tomorrow’s Codes and Standards Volunteer: A Study of Future Participants in Codes and Standards Development was reviewed.

This extensive research, supported by survey results related to the issue of remote participation in the CDP is summarized in Attachment 3 and should be reviewed carefully.

Recommendation - Based on current research, Code Council staff suggests the CDRAC make the following recommendation to the ICC Board of Directors, as part of their final report:

CC staff should be tasked to present a work plan to the ICC Board of Directors in 2011 to implement changes to the code development process that utilize new and emerging technologies to increase member and stakeholder participation, consistent with ICC’s mission. The work plan will provide for implementation of new processes by the start of the Code Development Cycle that will lead to the publication of the 2018 International Codes.

V7 Single-Issue Voting

There have been questions about the issue of “single-issue” voting. It is likely there will always be those whose interest in the code development process is limited to one or more matters, such as the topic of backflow preventers. After exploring this matter, the Committee recognized that the ICC could not impact this issue through rules, but believed that the changes proposed in Recommendation V1 would act to minimize its perceived negative effects.

Recommendation – None; concerns related to single-issue voting have been addressed, in part, by Recommendation V1.

V8 ICC Certification:

Require that Governmental Member Representatives be “certified” in a technical area, as a prerequisite. The Committee concluded restricting access to the process to those Governmental Members with an ICC certification would reduce participation which is contrary to one of the major goals of this effort to improve the process.

Recommendation - An ICC certification should not be required in order to be eligible to vote.
Committees

C1 Balanced Committees:
The faith that stakeholders have in the CDP is driven in part by ensuring there is a balance of interests that can participate in a meaningful way. The Committee was asked to consider whether CDCs should be limited to Governmental Members only. Currently ICC policy outlined in CP #7 requires that at least one-third of committees must consist of Governmental Members. This allows nongovernmental members to serve in a very important role in the CDP.

Recommendation – The ICC should maintain that Technical Committees, including CACs, be balanced in accordance with CP #7.

C2 Code Development Committee Participation at FAH:
The Code Development Committees hear testimony, deliberate and make recommendations for the disposition of proposed changes at the Initial Action Hearings, also referred to as the Code Development Hearings. The Final Action Hearings are not committee meetings. They are run by a Moderator with assistance by Code Development staff. There is no need or opportunity for committee participation at the Final Action Hearings.

Recommendation - Code development Committees should only be seated at the IAH.

C3 Use of CACs & Special Committees:
ICC has a long history of appointing Ad Hoc Committees to deal with specific technical issues or assigning technical issues to a standing committee, such as the Code Technology Council. As this dual approach has worked well, it is anticipated that the addition of the new Code Action Committees (CACs) will further complement this approach and enhance the ICC’s ability to respond to technical issues as they arise.

Recommendation – ICC staff should be directed to examine how to increase the use of special committees to deal with complex technical issues before the CDP.
3.2. A designated Governmental Member voting representative is prohibited from accepting contributions of financial assistance from industry or other economic interests for the purposes of participating in ICC activities. shall do so by action of its elected governing body or chief administrative authority.
Attachment 2 - Recommendation V3 Member Eligibility, Proposed Bylaw Change

Bylaws for the International Code Council, Inc.
A California Nonprofit Public Benefit Corporation
Revised February 2010

ARTICLE II — MEMBERSHIP

2.1 Categories of Membership - The Council shall have the following categories of voting membership:

2.1.1 Governmental Member - A Governmental Member shall be a governmental unit, department or agency engaged in the administration, formulation or enforcement of laws, ordinances, rules or regulations relating to the health, safety and welfare of the built environment. Each Governmental Member shall designate its Primary Representative who will receive benefits of membership in the Council on behalf of the Governmental Member as determined by the Board of Directors from time to time.

2.1.1.1 Governmental Member Voting Representatives - Each Governmental Member shall exercise its right to vote through its designated Governmental Member Voting Representatives, and shall be entitled to the number of Governmental Member Voting Representatives as specified in Table 2.1.1.1. Governmental Member Voting Representatives shall be designated in writing, by the Governmental Member, and shall be employees or officials of the Governmental Member or departments of the Governmental Member, provided that each of the designated voting representatives shall be an employee or a public official actively engaged either full or part time, in the administration, formulation or enforcement of laws, ordinances, rules or regulations relating to the health, safety and welfare of the built environment. The designation of a Governmental Member Voting Representative may be changed by the Governmental Member, in writing, from time to time.

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<th>Table 2.1.1.1</th>
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<tbody>
<tr>
<td>Population</td>
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<tr>
<td>----------------</td>
</tr>
<tr>
<td>0 to 50,000</td>
</tr>
<tr>
<td>50,001 to 150,000</td>
</tr>
<tr>
<td>Over 150,000</td>
</tr>
</tbody>
</table>
2.1.2 **Honorary Member** - An individual who has rendered outstanding service to the Council, and whose name shall be proposed by the Board of Directors and confirmed by a majority vote of the Governmental Member Representatives at an Annual Business Meeting.

2.1.3 **Nonvoting categories** - The Board of Directors shall establish the nonvoting categories of membership as may be necessary for the adequate representation of all parties interested in association with the International Code Council. Nonvoting categories shall provide for membership of individuals and corporate entities and shall include, but not necessarily be limited to, employees of governmental units, design professionals, corporations, educational institutions, not-for-profit associations, and other individuals interested in the purposes and objectives of the Council.

2.2 **Classification by the Board of Directors** - All applications for membership shall be subject to classification by and approval of the Board of Directors. Applicants shall be eligible for membership on approval of the membership application by the Board and on timely payment of such dues and fees as the Board may fix from time to time. This authority may be delegated by the Board of Directors to the Chief Executive Officer. In addition, the Board of Directors may establish a policy further defining eligibility for membership in accordance with these bylaws.
Attachment 3 Supporting Research

At the August 26, 2010, Code Development Review Ad Hoc Committee (CDRAC) meeting, the Committee discussed the issue of remote participation in the Code Development Process (CDP). The Committee requested that Code Council staff gather relevant data, identify issues, and present their research to the Committee. To accomplish the task staff initiated the following research:

1. An investigation into effective practices around Internet voting.
2. A survey to gather thoughts, perspectives and quantifiable measures from ICC Members related to the current CDP.
3. Research to uncover thoughts, perspectives and opinions on the CDP from the next generation of code officials.

In addition to the research listed above, staff reviewed a recent report by the Fire Protection Research Foundation entitled Tomorrow’s Codes and Standards Volunteer: A Study of Future Participants in Codes and Standards Development.

Key Findings

1. A strong majority of research participants support the concept of remote participation and embrace the notion of evolving the CDP.

A variety of questions in both the quantitative and qualitative research phases were designed to test the appeal and potential impact of remote participation on the CDP. Overall, a strong majority of respondents to both the electronic survey and under-35 interviews supported the concept of remote participation and were enthusiastic about the positive changes that it could bring to the process. For example, 78% of eSurvey respondents said they would be more likely to participate in the CDP if some level of remote participation was available. Similarly, when asked to rate their level of interest in “viewing and participating in the CDP using teleconferencing, streaming video, video conferencing or other related technologies,” code officials age 35 and under rated the concept as a 4.4 mean on a 5-point scale, a strong indication of their support. While there is strong majority support for remote participation, it is important to note that 35% of current CDP participants said that remote participation would make it “less likely” that they would attend face-to-face code development hearings. Nearly all participants also supported macro-level changes to the current CDP. Those who thought ICC should “attempt to incorporate technology into the process, but preserve the face-to-face code hearings as the primary vehicle for participation” (54%) or “redevelop the CDP from the ground up to focus on a technology-enabled process with a goal of involving a larger and more diverse group of participants” (34%) far outnumbered those who thought that ICC should “leave the CDP as it is, making minor process improvements as necessary” (9%).

Specific proposals on remote participation were also greeted favorably. Among the concepts with the highest favorability rating was “allowing remote participants who are viewing and/or listening to live code development hearings in real time to cast immediate votes on individual code change proposals (e.g., within 5 minutes of a vote being called at the hearings),” which was considered to be a “good idea” by 62% of respondents, compared to 24% who thought it was a “bad idea” and 14% who had “no
opinion.” Similarly, 63% of respondents perceived that this adaptation would have a “positive impact” on the CDP, compared with 27% who foresaw a “negative impact” and 10% who perceived “no impact.”

2. Cost, lack of employer support and time out of the office are the primary barriers to participation in code development hearings.

Throughout all elements of the research, participants cited that their ability to attend hearings is greatly compromised by time and expense factors. As expected, the recession has only exacerbated the issue for many participants. It is important to note that it is these factors, and not a fundamental lack of interest in the code development process, that respondents cite as their primary barriers to participation.

In a telling result from the eSurvey, individuals who have not participated in the CDP in the last 5 years cited a lack of employer funding (69%) and the inability to secure time out of the office (40%) as major factors in their decisions not to attend far more frequently than a lack of personal value in participating (14%). Similarly, 77% of respondents indicated that financial constraints within their organizations or jurisdictions have negatively impacted their ability to attend ICC code development hearings within the past 24 months. Unfortunately, a similar percentage (70%) responded that they are not aware of ICC Foundation’s Code of Honor Scholarship Program which provides funding for code officials to attend final action hearings.

In addition to these primary factors, it is also worth noting that several under-35 code officials discussed how participation in the CDP is typically reserved for more senior members of their department. As one participant said, “It’s hard to attend because of the economy, the expenses, first and foremost. Also, I feel that a lot of the older code officials want to keep the knowledge and know-how of the fire prevention world to themselves—it’s harder for young professionals to gain that knowledge—it’s passed on by the older guys on a need-to-know basis by senior officials. The opportunity to participate is not there for me at all.”

3. Perceptions of the current CDP are somewhat mixed, with a relatively low percentage of participants having strong “brand” associations with the CDP.

Generally, respondents had positive opinions of the code development process:
However, when asked to select terms from a list that appropriately describe the current code development process, respondents, particularly those who have not participated within the last 5 years, were not as likely to associate positive terms with the current CDP:

<table>
<thead>
<tr>
<th>Term</th>
<th>Participants</th>
<th>Non-participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective</td>
<td>41%</td>
<td>29%</td>
</tr>
<tr>
<td>Legal</td>
<td>37%</td>
<td>27%</td>
</tr>
<tr>
<td>Inclusive</td>
<td>30%</td>
<td>16%</td>
</tr>
<tr>
<td>Objective</td>
<td>28%</td>
<td>19%</td>
</tr>
<tr>
<td>Transparent</td>
<td>28%</td>
<td>10%</td>
</tr>
<tr>
<td>Proven</td>
<td>26%</td>
<td>15%</td>
</tr>
<tr>
<td>Efficient</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>Outdated</td>
<td>19%</td>
<td>13%</td>
</tr>
</tbody>
</table>

In fact, a divergence of opinion between CDP participants and nonparticipants is evident throughout the results of the eSurvey. In another example, while there is strong support among both cohorts for the general concept of remote participation and for evolving the CDP, participants see certain elements of the current CDP as far more important than their non-participant counterparts as shown the table below.
How important are each of the following aspects of the CDP in achieving successful outcomes? (% rating extremely important)

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Participants</th>
<th>Non-participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Following the CDP rules of procedure.</td>
<td>62%</td>
<td>36%</td>
</tr>
<tr>
<td>Allowing only ICC governmental members to vote on final action proposals.</td>
<td>54%</td>
<td>21%</td>
</tr>
<tr>
<td>Holding face-to-face code development hearings.</td>
<td>50%</td>
<td>33%</td>
</tr>
<tr>
<td>Basing the number of voting representatives on the population of the jurisdiction.</td>
<td>30%</td>
<td>14%</td>
</tr>
</tbody>
</table>

4. Other associations cite considerable benefits in moving to a technology-enabled process.

According to the association executives interviewed for the benchmarking study, adopting remote participation and Internet voting procedures has resulted in significant improvements and benefits. Participants mainly described decreased demands on staff, significantly reduced costs (after initial startup investments required to build out the platform) and greater transparency. One provider also explained how Internet voting improves fairness, as “anytime you have to travel to vote somewhere, especially today, you’re limiting some of your members. You’re not providing them the opportunity to vote, so it’s biased and skewed.”

5. A wide range of considerations must be addressed to realize a successful evolution to remote participation and Internet voting.

A key finding from the benchmarking study was how organizations have reworked their voting processes to feature technology-based solutions, rather than forcing the technology to conform to the existing voting process. One provider described it this way, “the more you can do outside of the traditional way of doing it, the better results you’ll have. One hesitation I would have about just trying to reproduce what you’ve done in the past with the face-to-face is that you’ll face challenges around the mechanism.”

As such, it is important to catalog and evaluate the technological and operational hurdles that are necessary to overcome to ensure an integrated, user-friendly process. For example, security and voting authentication are a challenge as there is no practical way to validate an individual’s identity when he/she casts a vote over the Internet. As one participant described, “as far as passing along passwords, that’s something that is difficult to control. If someone gets an e-mail and wants to forward the password, there’s not much to control that besides an on-site meeting. It happens even with paper voting.” In this way, establishing remote participation “sites” may allow ICC to maintain some element of authentication in the remote voting process.
However, several comments overheard during the under 35 interviews and seen in the open-ended comments to the eSurvey indicate that voting is an important consideration for CDP participants, particularly code officials. The notion of “having a voice” and the ability to represent particular points of view in the process are seen as important reasons to participate. As such, ICC’s development horizon should anticipate that, eventually, eligible remote participants will want to have the opportunity to vote on code change proposals.

Other Points to Note from Research

1. Participants (on-site) have a significantly more positive impression of the code development process than non-participants.
2. Thirty-five percent of those who currently participate on-site said they would participate remotely if remote alternatives were available.
3. Overlying a remote process on the current process will likely result in a process that fewer are satisfied with.
4. Reason for current reduced participation is economic, not dissatisfaction with the process.
5. There is not yet any assurance that employers will provide time in-office for off-site participation.
6. Large majority approve of the current code development process.
7. Remote participation reduces barriers to participation and will make it easier and cheaper for special interests to influence individual votes.
8. Off-site participation can respond to the reduction in participation.
9. Technical excellence of the codes is driven by the quality of the submission, not just the consensus vote.
10. Younger members less likely to participate in an on-site process.

Implications and Discussion Points

- Research suggests that a holistic redesign of the code development process which incorporates technology as a key element of the process may produce the best long-term results (as opposed to attempting to “bolt on” Internet voting to the existing process). However, many vested parties who have become actively involved in the current process may resist a wholesale shift in approach.

  - How can ICC best position the move toward remote participation and Internet voting as an “evolution” in the CDP as opposed to a “revolution” in the CDP?
  - What key progress steps and milestones in this evolution can be plotted?

- A substantial hurdle to implementing remote participation and Internet voting is the length of the action hearings. Maintaining a high level of participation via remote technologies over a multi-day period would be challenging for participants. However, if ICC can resolve the technological and operational hurdles that exist to ensuring a smooth transition to remote participation and Internet voting, the benefits of a more inclusive, participatory and broad-based CDP would seem to be considerable.
- Are there opportunities to create new procedures that would allow for more episodic, yet meaningful, participation for remote participants while maintaining key elements of the face-to-face hearings?

- There appears to be a “tradeoff” that may occur with remote participation, as some of the current members who attend face-to-face hearings will likely opt to participate remotely. This would most likely be countered by an overall higher number of participants in the CDP, many of whom will find that barriers to participation, most notably cost and time out of the office, are reduced or removed. Technology-based participation options would also make it far more likely that younger code officials could engage in the code development process.

- Does a higher overall level of participation and the prospect of having new audiences involved in the CDP outweigh the potential for somewhat smaller attendance at face-to-face hearings?

- Could strategically located remote participation “sites” help provide a suitable face-to-face alternative for members who could attend part or all of the hearings?

- Results suggest a high level of support for changes to the CDP. ICC should continue the two-way dialogue with members about the evaluation process and potential outcomes that are being discussed. Articles, blog postings and other member communications can help capitalize on the momentum created by this research project.

- The under-35 interviews portrayed a culture in which younger code officials can feel “shut out” of participation in the CDP by their supervisors. It is important to understand the level to which senior-level code officials will embrace (or not embrace) increased participation by more junior staff if remote participation becomes a reality.
**Special Thanks**

The Code Council and the CDRAC would like to specially acknowledge and thank those who took the time to provide input and feedback to the Committee.

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<tr>
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<th>Title</th>
<th>Jurisdiction/Organization</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaron McCarthy</td>
<td>Sr Fire Protection Engineer</td>
<td>Standford Fire Marshal's Office</td>
<td></td>
</tr>
<tr>
<td>Andy Bowman</td>
<td>Construction Code Official</td>
<td>Manheim Township Commissioners, Dept of Code Compliance</td>
<td>Lancaster, PA</td>
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<tr>
<td>Arlyn Follingstad</td>
<td>Flatin Insulation Plus Inc.</td>
<td></td>
<td>Fargo, ND</td>
</tr>
<tr>
<td>Barry Pines, C.P.D.</td>
<td>Member of the IRC-PM Committee</td>
<td></td>
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</tr>
<tr>
<td>Barry Riven</td>
<td></td>
<td>Bloomington, MN</td>
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<tr>
<td>Benedetto Tiseo, FAIA, NCARB</td>
<td>President</td>
<td>Tiseo Architects, Inc.</td>
<td>Livonia, MI</td>
</tr>
<tr>
<td>Bill Babich, P.E.</td>
<td>TrusSteel - Director of Engineering</td>
<td></td>
<td>Haines City, FL</td>
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<td>Bill Obenour</td>
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<tr>
<td>Bill Ziegert</td>
<td>Smoke Guard, Inc</td>
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<td>Bob Schneider, P.E., LEED AP</td>
<td></td>
<td>D. Hittle &amp; Associates, Inc.</td>
<td>Lynnwood, WA</td>
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<tr>
<td>Brad Emerick, P.E.</td>
<td>Fire Protection Engineer</td>
<td>Development Services, Denver Fire Prevention Bureau</td>
<td>Denver, CO</td>
</tr>
<tr>
<td>Brent Beshire</td>
<td></td>
<td>City of Henderson, TN</td>
<td>Henderson, TN</td>
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<tr>
<td>Brian Coombs</td>
<td>Building Inspector</td>
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<td>Brian Griffith, LEED AP</td>
<td>Senior Designer</td>
<td>Bobbitt Design Build</td>
<td>Raleigh, NC</td>
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<tr>
<td>Bruce Swiecicki, P.E.</td>
<td>Senior Technical Advisor</td>
<td>National Propane Gas Association</td>
<td>Frankfort, IL</td>
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<tr>
<td>Capt. Les Williamson</td>
<td>Fire Marshal</td>
<td>City of North Myrtle Beach</td>
<td>North Myrtle Beach</td>
</tr>
<tr>
<td>Carl D. Wren, P.E.</td>
<td>Chief Engineer, Engineering Services Section</td>
<td>Austin Fire Department/Emergency Prevention Division</td>
<td>Austin, TX</td>
</tr>
<tr>
<td>Carl E. Faust</td>
<td></td>
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<tr>
<td>Charles A. Graham, Jr., AIA, NCARB</td>
<td></td>
<td></td>
<td>Southlake, TX</td>
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<tr>
<td>Charles R. (Chuck) Bloomberg</td>
<td>Building Plans Examiner</td>
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<tr>
<td>Chuck Bajnai</td>
<td>Chief Residential Plan Reviewer</td>
<td>Chesterfield County</td>
<td>Chesterfield County, VA</td>
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<tr>
<td>Cole Graveen, S.E., P.E.</td>
<td>Senior Engineer</td>
<td>Raths, Raths &amp; Johnson, Inc.</td>
<td>Willowbrook, IL</td>
</tr>
<tr>
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<td>Location</td>
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<tr>
<td>Curt Blair</td>
<td>City of Lakeside</td>
<td>Lakesite, TN</td>
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<tr>
<td>Dale Gronberg</td>
<td>Plans Examiner</td>
<td>U of M Building Code Division</td>
<td>Minneapolis, MN</td>
</tr>
<tr>
<td>Dan Weed</td>
<td>Colorado Code Consulting, LLC</td>
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<td>Managing Director, Construction Technical</td>
<td>Steel Market Development Institute</td>
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<td>City of Dublin</td>
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<td>Jerry Eger</td>
<td>Building Sub Code Official</td>
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<td>John D. Sedine</td>
<td>President</td>
<td>Engineered Heating &amp; Cooling</td>
<td>Walker, MI</td>
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<td>John M. Eby</td>
<td>Building &amp; Zoning Coordinator</td>
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<td>Jon Siu, P.E., S.E.</td>
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<td>Department of Planning &amp; Development</td>
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<td>Joseph J. Mahr</td>
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<td>Julie Ruth, P.E.</td>
<td>J Ruth Code Consulting</td>
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<td>Kate Marks</td>
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<td>Kenneth Schoonover</td>
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<td>Leah Boggs</td>
<td>Environmental Planner</td>
<td>Metropolitan Washington Council of Govts, Dept of Environmental Programs</td>
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<td>Martha G. VanGeem, P.E., M.B.A., LEED</td>
<td>Principal Engineer &amp; Mgr, Building Science and Sustainability</td>
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<td>Michael A. Perrone, C.B.O.</td>
<td>Director, Building, Housing &amp; Codes Enforcement</td>
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<td>Michael Bailey</td>
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<td>Ferndale, CA</td>
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<td>Michael Bauer</td>
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<td>Mike McGee</td>
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<td>Nicole Dyess</td>
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<td>Patrick Mosbey</td>
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<td>Paul A. Antoine</td>
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<td>Randy Childers</td>
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<td>Rick Coburn</td>
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<td>Rob Pickett, C.G.P.</td>
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<td>Ron George, C.P.D.</td>
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<td>Sharon P. Stratton</td>
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Overview

McKinley Marketing was retained by the International Code Council (ICC) to investigate effective practices around internet voting. While internet voting is relatively common among associations that want to streamline by-law changes or the governance nomination process, ICC is looking to use internet voting as an element of a much more complex process - the development of codes and standards. ICC’s code development process is rigorous, with thousands of votes cast over the course of a multi-day, face-to-face meeting. ICC is considering ways to streamline the process and ensure that voting is possible for all members, regardless of travel, budget, or time restrictions.

To understand internet voting practices in the association community and support ICC in its exploration of options, McKinley engaged in a two-phase benchmarking study. The first round of interviews focused on companies that provide internet voting options to associations; the second phase targeted associations that have implemented some level of internet voting. A summary of the research findings, as well as related observations and recommendations, are outlined on the following pages.

Methodology

The goal of the first phase of research, or the provider interviews, was to learn more about current internet voting practices in the association community. McKinley probed for details about specific products and solutions that have helped associations tackle complex voting challenges, and it gathered the names of interview candidates for phase two of the research project. McKinley interviewed the following five internet voting solutions providers:

- Votenet
- Election Services Corporation
- Pantheon
- Survey and Ballot Systems
- CommPartners

Phase two of the research, which aimed at collecting relevant feedback from associations engaged in internet voting, proved more challenging. McKinley found that few associations are providing internet voting at the level of complexity and scope anticipated by ICC. McKinley conducted full interviews with three organizations – ASTM International, the National Quality Forum, and the National Association of Social Workers. It should be noted that McKinley reached out to three additional associations, the U.S. Green Building Council, the American Society of Mechanical Engineers, and the American National Standards Institute; however, none of these associations were able to provide additional insight since their practices do not incorporate internet voting at this time.
Research Findings

In the following section, McKinley outlines the major themes that surfaced during the research and provides a context for how these findings might impact ICC’s consideration of internet voting.

Internet Voting Today

Internet voting is growing in popularity among associations that want to bring transparency, accessibility, and fairness to their voting processes. Yet despite the widespread adoption of internet voting to simplify and streamline governance practices, by-law changes, or name changes, very few associations are leveraging online or internet solutions for challenges that match ICC’s codes and standards development process in terms of scale and complexity. “You are the first person with this concept of code voting and that’s because you might be the only association that does this,” responded one provider interview participant. Even for those associations whose core business includes codes or standards development, it is rare to find one that has incorporated internet voting beyond the process of board nomination or by-law changes. (On page four, McKinley profiles in detail those few associations that have introduced some level of internet media to solve more complex voting challenges.)

While complex voting challenges were difficult to find in the association community, heightened sensitivity was a common theme throughout the interviews. One provider, whose work focuses 90% on board of director elections, cited merger votes as a highly sensitive area and described working with hospitals and employee retirement systems that have confidential data such as social security numbers. Other providers described building internet voting processes for unions, election primaries, and award organizations (such as the Emmy’s, BET, and the Association of Cosmetic Women’s Beauty Awards). Many of these are conducted under close supervision with companies like Ernst and Young.

Security

The providers interviewed for this project consistently mentioned security as a critical area of concern for internet voting. Duplicate voting, password protection, and reinforced security were just some of the ways providers have built in safeguards to prevent breaches of security and ensure accuracy and confidentiality. At the same time, the companies interviewed for this project admitted that there is no way to validate the identity of the person casting the vote. As one participant described, “As far as passing along passcodes, that’s something that is difficult to control. If someone gets an email and wants to forward the passcode...there’s not much to control that besides an on-site meeting. It happens even with paper voting.”

Several interviewees described the process for providing the final vote tally to clients and emphasized the level of security built in to that process. “At the end of the project, we ask our clients for the name of the person who will get the final results (president or chair of the board). If someone else tries to get the results, we won’t comply.”
Advantages of Internet Voting

For most associations that have adopted an internet voting process, the benefits are significant. Participants described decreased demands on staff and reduced costs. In the case of NASW (one of the first associations to adopt internet voting), the savings were close to 80%.

One provider also explained how internet voting ensures fairness, “After talking with some clients, the concept of ‘fair’…anytime you have to travel to vote somewhere, especially today, you’re limiting some of your members. You’re not providing them the opportunity to vote, so it’s biased and skewed.” Participants view internet voting as a “fair, transparent, and open” process for establishing consensus.

Implementation

Even for associations that have adopted relatively limited internet voting, the investment can be steep. Many interviewees described reduced expenses (in some cases, significantly reduced expenses) as an outcome of the migration to internet voting. Associations slashed staff, postage, and other expenses – typically to provide a more streamlined, accessible process for members and other constituents. Yet as one interviewee described it, “A lot of times, the expense of doing this type of thing is more outside of the actual adoption portion of it than it is with the prep and follow up. From an organizational perspective, that’s a lot of staff and other resource time.” Another participant mentioned “convincing the board to go along with it” as the biggest hurdle.

In addition to financial sensitivities and culture change, participants emphasized the importance of taking a slow and deliberate approach to implementation. NASW approached its migration to an online platform very aggressively because of existing time constraints; however, it cautioned against relying on such an optimistic timeline. As the NASW interviewee explained, “If you’re going to do it, stick to your timeline and make sure you build in testing and training. We were doing that as we were going along. The provider needs enough testing time for training. We had that, but it wasn’t enough. Doing a mock meeting is really important.” The NASW interviewee went on to describe how critical it was for the organization to follow certain protocols, and how complicated it was to incorporate all of those into the system, “What was challenging is that we used Robert’s Rules very closely and approved policies like child welfare, alcoholism, etc. These are the policies that we take to the Hill. CommPartners didn’t really know Robert’s rules, and this was a new area for them, but we moved forward.”

Customization for ICC

The majority of the examples shared by providers and association executives include static, one-time voting procedures such as board nominations or by-law changes – with the exception of the National Quality Forum and ASTM International. The similarity between these two associations and ICC went beyond complexity of scale; both NQF and ASTM have migrated standards or quality review processes to more internally-based forums.

NQF took advantage of new technology to look “holistically” at the voting process. A key finding with NQF (and one that was later corroborated by ASTM) was to focus on reshaping the voting process to fit the technology rather than forcing the technology to conform to the existing voting process. One
provider described it this way, “So the more you can do outside of the traditional way of doing it, the better results you’ll have. One hesitation I would have about just trying to reproduce what you’ve done in the past with the face-to-face is that you’ll face challenges around the mechanism.”

This innovative approach to the process (as well as the technology) seemed to be a key element of success for both NQF and ASTM. The details of each approach are outlined in the chart on page six.
Assessing the Opportunity

No matter what the driving force behind the move to internet voting or the exact format of the new configuration, it is clear that internet voting is an opportunity to create a more transparent and accessible voting process for ICC. The following are some key questions and considerations that should be taken into account as ICC carefully weighs the advantages and disadvantages of a new or refined approach to its code and standards development process. These suggestions are taken either directly from the interviews, where participants shared “lessons learned” and “best practices,” or from McKinley’s observations of and experience in the association community:

Administration

• **Integration of internet and in-person voting:** Avoid looking at the two voting approaches in isolation if both will be an integral part of the procedure. Look for ways to streamline. For example, consider having computers available for in-person attendees to vote on the internet so that votes can be collected and tabulated consistently (rather than facing a lag time as votes are tallied in person and through the internet.)

• **Ensure that the process remains democratic:** Opening up the process for broader participation is a more democratic approach to association voting; however, the dialogue that happens in reaction to a proposed amendment is critical. When possible, associations should develop a forum for voters to express their reactions to changes, seek answers, and review the comments of their peers and committee members.

• **Preserve – if not improve – the transparency of the voting process:** Associations that are considering internet voting should take into account the level of transparency that exists today and either meet or exceed that level. So, for example, if the current process includes a visible “show of hands” and a final count of how the votes were distributed, the new process should mirror that transparency.

• **Consider limitations that internet voting may introduce:** Internet voting has helped several associations realize significant savings and improved processes, yet the format has its own inherent limitations. How realistic is it that participants will be able (and willing) to sit at a computer through five days of proceedings? Is it likely that participants will be distracted by other responsibilities? Should the association allow voters to participate in specific segments of the voting proceedings?

• **Interruption of voting:** Plan for possible interruptions in the internet voting procedures and determine a contingency plan if people are left waiting to vote.

• **Training:** Ensure that adequate time is dedicated to familiarizing the staff, volunteers and/or other participants with the platform or system. Participants need to feel comfortable navigating around the tool, so hosting mock meetings can be beneficial for the association and participants.
### Overview of the Association Participants

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<th>National Quality Forum (NQF)</th>
<th>What Is The Vote?</th>
<th>Details</th>
<th>The Validation Process</th>
<th>The Voting Process</th>
<th>Tools and Resources</th>
<th>Advantages and Disadvantages</th>
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</table>
| Quality measure development for the healthcare industry | • NFQ receives a 125-question submission with approximately 300 submissions per year  
• 400 total voting population  
• Combination of in-person meetings, teleconferences, online collaborative platforms (Sharepoint), and internet comments and voting  
• Over $1.5M in start up costs  
• Launched in summer 2010 | • Call for intent to submit candidate standards  
• Call for nominations  
• Candidate consensus standard review (by staff and committees)  
• Public and member comment | • Member voting  
• Executive Committee of all sub Committees (CSAC) decision  
• Board ratification  
• Appeals | • Workflow software through Pantheon  
• Votenet internet voting platform  
• Sharepoint collaboration site (to be launched in a few months) | • “Higher quality” validation and voting processes  
• Simplified operations  
• Forced clean up of contact information  
• More transparent process  
• More strategic communications  
• Drop in response rate (from 25% to 10-15%)  
• Challenge for voters to remember passwords |

| ASTM International | Development and delivery of voluntary international consensus standards | • 2-2,000 total voting population  
• Customized system  
• $100 - $500K over 10 years  
• 98% of the votes are internet  
• Launched in 2001 | • Bi-annual committee meetings | • Notice is sent so voters can log into website (with 30 days to review the PDF) | • Internal document repository system (Sharepoint)  
• WebEx for meetings and online collaboration | • Increased global participation  
• Decreased costs and staff time |

| NASW | Online platform to facilitate deliberation and formal voting on NASW’s official positions around social work issues and policies | • One of the first online voting platforms built in the association community  
• Replaced the 400-delegate, three-day face-to-face meeting  
• 80% reduction in costs | • Opportunity for deliberations among all 400 delegates | • Previously, all voting was conducted via telephone - in 2011, NASW will move exclusively to internet voting | • A customized platform through CommPartners | • Substantial financial savings  
• Shorter meetings  
• “Never going back to the old way” |
International Code Council
Code Development Process Study

Member Survey Results
January 18, 2010
Project Objectives

Gather thoughts, perspectives and quantifiable measures from ICC members related to the current code development process (CDP) to help inform CDRAC discussions and deliberations. Areas of emphasis included:

- Gain insight on strengths, weaknesses, opportunities and threats related to the current CDP
- Measure the potential and perceived impacts of remote participation and Internet voting
- Test the favorability of remote participation concepts
Methodology

- **E-survey responses:**
  - 9,974 members were invited to participate
  - 1,314 responses
  - 13% overall response rate

~ 2.52 Margin of Error at 95% Confidence Level
E-Survey Results
## Respondent Profile

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<tr>
<td>Not currently employed</td>
<td>1%</td>
</tr>
<tr>
<td>Educational institution</td>
<td>1%</td>
</tr>
<tr>
<td>Federal government/agency</td>
<td>1%</td>
</tr>
<tr>
<td>Student</td>
<td>0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Org. Type (for profit)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture Firm</td>
<td>28%</td>
</tr>
<tr>
<td>Engineering Firm</td>
<td>27%</td>
</tr>
<tr>
<td>Consultant</td>
<td>15%</td>
</tr>
<tr>
<td>Contractor</td>
<td>9%</td>
</tr>
<tr>
<td>Building Developer</td>
<td>3%</td>
</tr>
<tr>
<td>Building Owner</td>
<td>1%</td>
</tr>
<tr>
<td>Tradesperson</td>
<td>0%</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>17%</td>
</tr>
</tbody>
</table>
## Respondent Profile

<table>
<thead>
<tr>
<th>Occupation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Official</td>
<td>30%</td>
</tr>
<tr>
<td>Engineer</td>
<td>15%</td>
</tr>
<tr>
<td>Architect</td>
<td>15%</td>
</tr>
<tr>
<td>Inspector</td>
<td>13%</td>
</tr>
<tr>
<td>Fire Official</td>
<td>6%</td>
</tr>
<tr>
<td>Contractor / Trade Prof.</td>
<td>4%</td>
</tr>
<tr>
<td>Building Dev. / Owner</td>
<td>0%</td>
</tr>
<tr>
<td>Other, please specify</td>
<td>13%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tenure in Code Orgs.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td>3%</td>
</tr>
<tr>
<td>1-2</td>
<td>5%</td>
</tr>
<tr>
<td>3-5</td>
<td>10%</td>
</tr>
<tr>
<td>6-9</td>
<td>11%</td>
</tr>
<tr>
<td>10-15</td>
<td>18%</td>
</tr>
<tr>
<td>More than 15 years</td>
<td>52%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>0%</td>
</tr>
<tr>
<td>25-34</td>
<td>2%</td>
</tr>
<tr>
<td>35-44</td>
<td>10%</td>
</tr>
<tr>
<td>45-54</td>
<td>36%</td>
</tr>
<tr>
<td>55-64</td>
<td>41%</td>
</tr>
<tr>
<td>65 or older</td>
<td>11%</td>
</tr>
</tbody>
</table>
## Respondent Profile

<table>
<thead>
<tr>
<th>Region</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>New England</td>
<td>7%</td>
</tr>
<tr>
<td>Mid-Atlantic</td>
<td>16%</td>
</tr>
<tr>
<td>E.N. Central</td>
<td>12%</td>
</tr>
<tr>
<td>W.N. Central</td>
<td>6%</td>
</tr>
<tr>
<td>S. Atlantic</td>
<td>12%</td>
</tr>
<tr>
<td>E.S. Central</td>
<td>12%</td>
</tr>
<tr>
<td>W.S. Central</td>
<td>7%</td>
</tr>
<tr>
<td>Mountain</td>
<td>9%</td>
</tr>
<tr>
<td>Pacific</td>
<td>20%</td>
</tr>
</tbody>
</table>

### Gender

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>93%</td>
</tr>
<tr>
<td>Female</td>
<td>7%</td>
</tr>
</tbody>
</table>
% of Participation in the CDP (last 5 years)

- Yes (368 responses)
- No (946 responses)
# Type of Participation in the CDP

<table>
<thead>
<tr>
<th>Activity</th>
<th>#</th>
<th>% of CDP participants</th>
<th>% of all respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attended final action hearings</td>
<td>249</td>
<td>68%</td>
<td>19%</td>
</tr>
<tr>
<td>Attended initial action code development hearings</td>
<td>192</td>
<td>52%</td>
<td>15%</td>
</tr>
<tr>
<td>Submitted code change proposal(s)</td>
<td>126</td>
<td>34%</td>
<td>10%</td>
</tr>
<tr>
<td>Submitted public comments on code change proposals</td>
<td>123</td>
<td>33%</td>
<td>9%</td>
</tr>
</tbody>
</table>
What are your overall impressions of ICC’s Code Development Process?

Participants:
- Very/Somewhat Positive: 67%
- Neutral: 10%
- Very/Somewhat Negative: 23%

Non-participants:
- Very/Somewhat Positive: 48%
- Neutral: 34%
- Very/Somewhat Negative: 18%
<table>
<thead>
<tr>
<th>Factor</th>
<th>Major Factor</th>
<th>Minor Factor</th>
<th>Not a Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure and experience that you gain from participating.</td>
<td>68%</td>
<td>25%</td>
<td>7%</td>
</tr>
<tr>
<td>Contributing your experience and expertise to improve the codes.</td>
<td>65%</td>
<td>27%</td>
<td>8%</td>
</tr>
<tr>
<td>Desire to affect a specific code in a manner that best serves you/your jurisdiction</td>
<td>63%</td>
<td>24%</td>
<td>13%</td>
</tr>
<tr>
<td>Ability to connect with peers, colleagues and friends.</td>
<td>59%</td>
<td>32%</td>
<td>10%</td>
</tr>
<tr>
<td>Already attending the ICC Annual Conference.</td>
<td>51%</td>
<td>30%</td>
<td>19%</td>
</tr>
</tbody>
</table>
How much of a factor were each of the following in your decision not to attend the hearings? (Answered only by non-participants)

- Unable to secure the necessary funding from your employer: 64% Major Factor, 21% Minor Factor, 15% Not a Factor
- Employer would not authorize time out of the office: 40% Major Factor, 37% Minor Factor, 26% Not a Factor
- Length of the hearings: 36% Major Factor, 34% Minor Factor, 31% Not a Factor
- Lack of personal value in participating: 14% Major Factor, 56% Minor Factor, 31% Not a Factor
- No issue being voted upon prompted your interest: 9% Major Factor, 60% Minor Factor, 31% Not a Factor
Have financial constraints within your organization or jurisdiction negatively impacted your ability to attend ICC code development hearings within the past 24 months?

- Yes: 74% (Participants), 72% (Non-participants)
- No: 26% (Participants), 28% (Non-participants)
Current Perceptions of the CDP
Which of the following terms would appropriately describe the ICC code development process? Select all that apply.
Following the CDP rules of procedure.
Allowing only ICC governmental members to vote on final action proposals.
Allowing open participation in the CDP for all categories of ICC members.
Holding face-to-face code development hearings.
Maintaining a three-year update schedule.
Basing the number of voting representatives on the population of the jurisdiction.
Allowing multiple agencies from the same jurisdiction to send voting representatives to hearings.

How important are each of the following aspects of the CDP process in achieving successful outcomes? (% selecting Extremely Important)

- Participants
- Non-participants
The CDP produces building codes that jurisdictions are likely to adopt.

The CDP ensures that all relevant voices can be heard during the process.

The CDP ensures excellence in the technical merits of building codes.

The CDP increases the public's confidence in building safety.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Participants</th>
<th>Non-participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>The CDP produces building codes that jurisdictions are likely to adopt.</td>
<td>82%</td>
<td>81%</td>
</tr>
<tr>
<td>The CDP ensures that all relevant voices can be heard during the process.</td>
<td>75%</td>
<td>54%</td>
</tr>
<tr>
<td>The CDP ensures excellence in the technical merits of building codes.</td>
<td>67%</td>
<td>66%</td>
</tr>
<tr>
<td>The CDP increases the public's confidence in building safety.</td>
<td>66%</td>
<td>61%</td>
</tr>
</tbody>
</table>
Remote Participation
How would you rate your overall level of proficiency with Internet technologies?

- Expert: 8%
- Advanced: 48%
- Intermediate: 43%
- Beginner: 2%
# Opinions on Remote Participation

<table>
<thead>
<tr>
<th></th>
<th>% Selecting “Good Idea”</th>
<th>% Selecting “Positive Impact”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants</strong></td>
<td>64%</td>
<td>55%</td>
</tr>
<tr>
<td><strong>Non-participants</strong></td>
<td>69%</td>
<td>67%</td>
</tr>
<tr>
<td><strong>Participants</strong></td>
<td>60%</td>
<td>61%</td>
</tr>
<tr>
<td><strong>Non-participants</strong></td>
<td>63%</td>
<td>65%</td>
</tr>
<tr>
<td><strong>Participants</strong></td>
<td>39%</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Non-participants</strong></td>
<td>60%</td>
<td>63%</td>
</tr>
</tbody>
</table>

- Allowing remote participants to view and participate in the CDP (but not vote on proposed code changes) using teleconferencing, streaming video, video conferencing or other related technologies.
- Allowing remote participants who are viewing and/or listening to live code development hearings in real time to cast immediate votes on individual code change proposals (e.g., within 5 minutes of a vote being called).
- Allowing remote participants who have viewed, listened to or read some or all of the proceedings to vote for or against individual code change proposals within a prescribed time period (e.g., within 30 days).
### Opinions on Remote Participation

<table>
<thead>
<tr>
<th></th>
<th>% Selecting “Good Idea”</th>
<th>% Selecting “Positive Impact”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eliminating allowing multiple agencies from the same jurisdiction to send voting representatives to hearings.</strong></td>
<td>43% 39%</td>
<td>44% 40%</td>
</tr>
<tr>
<td><strong>Eliminating the formula that correlates the number of voting representatives to the population of the jurisdiction.</strong></td>
<td>27% 37%</td>
<td>29% 41%</td>
</tr>
<tr>
<td><strong>Allowing remote participants who have viewed, listened to or read some or all of the proceedings to vote for or against the entire slate of proposed code changes, but not on individual proposed changes, within a prescribed time period (e.g., within 30 days of the conclusion of the hearings).</strong></td>
<td>12% 25%</td>
<td>14% 26%</td>
</tr>
</tbody>
</table>
If you regularly attend code development hearings, would having remote participation options available make you:

- **No impact on your decision to attend face-to-face hearings**
  - Participants: 52%
  - Non-participants: 63%

- **Less likely to attend face-to-face code development hearings**
  - Participants: 35%
  - Non-participants: 19%

- **More likely to attend face-to-face code development hearings**
  - Participants: 13%
  - Non-participants: 18%
Considering the various remote participation options outlined in this survey, if some level of remote participation were available, do you think it would make it:

- More likely you would participate in the CDP: 85% (Non-participants), 64% (Participants)
- Less likely you would participate in the CDP: 6% (Non-participants), 1% (Participants)
- No impact on your participation: 30% (Non-participants), 14% (Participants)
In your opinion, would remote participation increase, decrease or have no effect on each of the following outcomes (% selecting increase)

- Attendance at live code hearings
- Ability of single interest group to exert undue influence on the process
- Likelihood of the codes being adopted at the state and local level
- Technical excellence of the codes
- Interest by state and local elected officials in the codes and the CDP
- Interest by state and local building regulatory officials in the codes and the CDP
- Overall interest by state and local building regulatory officials in the codes and the CDP

Participants
Non-participants
Which of the following best represents your opinion on the overall direction ICC should take with the code development process (CDP)?

1. Attempt to incorporate technology into the process, but preserve the face-to-face code hearings as the primary vehicle for participation
   - Participants: 57%
   - Non-participants: 51%

2. Redevelop the CDP from the ground up to focus on a technology-enabled process with a goal of involving a larger and more diverse group of participants
   - Participants: 29%
   - Non-participants: 38%

3. Leave it as is, making minor process improvements as necessary
   - Participants: 9%
   - Non-participants: 9%

Other, please specify
- Participants: 5%
- Non-participants: 2%
International Code Council

Code Development Process
Under 35 In-depth Interviews

Interview Transcripts

Prepared for:
Dominic Sims
Chief Operating Officer
International Code Council

Prepared by:
McKinley Marketing, Inc.
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Washington, DC  20007
www.mckinleymarketing.com

Jay Younger
Managing Partner & Chief Consultant

January 18, 2011
Introduction

McKinley Marketing was retained by the International Code Council (ICC) to conduct a multi-phase research project around the concepts of remote participation and internet voting in the code development process (CDP). McKinley was charged with investigating perspectives on the current CDP from a variety of constituencies to help inform the deliberations and discussions of ICC’s Code Development Review Ad Hoc Committee (CDRAC).

A key objective of the project was to uncover thoughts, perspectives and opinions on the code development process from the next generation of code officials. To secure these impressions, and to understand the potential impact of proposed “remote participation” concepts on this important audience, McKinley conducted a series of in-depth telephone interviews with code officials aged 35 and under. Participants were selected based on voluntary responses to an outreach email that was distributed to all of ICC’s primary jurisdictional contacts. A list of participating jurisdictions is provided in the appendix.

This report includes a summary of key elements of the research, as well as detailed transcripts of the calls. Additional insight, findings and implications have been included in a companion executive summary delivered under separate cover.
Findings

Participation in the Code Development Process

The majority of participants (30/40) have never participated in the ICC code development process. Three participants said they have been involved in the process – primarily through working on proposals – but have not attended the hearings or voted. Seven young code officials reported participating in the process by attending code hearings or voting.

Respondents most frequently cited the cost, distance to travel, and time commitment required for the code development process as barriers to participation. Many indicated that for their employers, their participation in the CDP is “not a priority” to warrant the significant expense and time out of work.

Several participants also indicated that their lack of experience is a barrier to participation. A few respondents explained that their office regularly participates in the CDP but they have not had a chance to go because their office can only afford to send a limited number of staff – those with more tenure tend to get priority. As one participant explained, “as a young code official, those officials above me all want to go, and they don’t let the younger guys participate...Since only one person from my office is allowed to go, it is always the boss.”

Even though the majority of participants have never participated in the code development process, most indicated that they were aware of ICC and the CDP, and cited learning about the process from a number of sources. Several learned about the CDP through colleagues at work who have either participated in the process or are active with ICC. A few mentioned that they have participated in their state’s code development process and through that have learned more about the ICC CDP. One participant said he received an overview of the CDP in “a continuing education class about the ICC.”

One young code official summed up what participants have heard about the CDP from those who have been involved in the process. “The people I know have expressed the idea that the
CDP is a long and tedious process, but a beneficial one.” Others reiterated this sentiment. One participant said his colleague described the hearings process as “a lot like congress.” Several participants also shared that they heard negative feedback about a recent incident in which the hearings process was “flooded” with fire services officials who came to vote just on the sprinklers code and then left for the remainder of the hearings. The young code officials who have attended code hearings felt that the hearings were “well run” but expressed some discontentment with the length of the process and delays in voting. Most thought the process was “too long” and one participant said the length negatively impacts the effectiveness of the process. “Because of the length of it, sometimes you have just a few people in the room...so it wasn’t necessarily effective in my opinion.” Another respondent added that he had to leave the Philadelphia code hearings “without voting on what we were there for” due to delays in voting. A few participants also mentioned that they felt that lobbyists and special interest groups now “have too big of a role” in the CDP.

When asked why they participate in the code hearing, participants explained that it is to meet expectations of their communities, to ensure that codes are clear and “user-friendly,” and in some cases to vote on a specific code in their area of interest.

**Interest in Participating in the Code Development Process**

All participants were asked to listen to three statements about the CDP as follows:

- a) I would like to participate in the code development process, but to date I have not been able to do so.
- b) I see the code development process as important, but I do not feel compelled to participate personally.
- c) I don’t have any interest in participating in the code development process.

When asked to select which statement best described their perspective on the CDP, overwhelmingly, young code officials (34/40) chose option A, indicating that that they would like to participate in the code development process but to date have not been able to do so. [Note: this statistic includes a few code officials who have participated in the past]. Most participants indicated that “remote access” would reduce or remove the toughest barriers to participation – cost, travel, and time – and allow them to become involved in the process. These participants suggested “technology-based” forums would provide the accessibility they are seeking. Some technology-based solutions included:

- Webinars on the codes with “access to what other are saying in real time”
- A “separate page on the website that you could go into and make suggestions or comments on the code in a live format, as if you were there and participating in the process”
- A webcast of hearings followed by online voting
- Video-conferencing

Only a handful of young professionals who are interested in participating in the CDP recommended modifying face-to-face options by shortening the duration of the process or providing more convenient locations. For example, one participant suggested that ICC “regionalize some part of it [the CDP] into multiple locations.”
Responses also suggest that there is an opportunity to increase awareness of the process and employer support for participation. A few young code officials mentioned that ICC could do more to promote meetings and hearings through memos, invitations, and information on how to get involved. One participant commented, “I think I need better knowledge of what it would take to become more involved with the process.”

Additionally, several participants indicated that approval for participation generally must come from “higher up” positions. Since cost is a major factor in participating, young code officials must get a supervisor to approve of funding. Some young code officials expressed that the code hearings “seem a little intimidating” due to lack of experience, as evidenced by the comment that “some of the codes include a lot of technical language, almost like lawyer lingo, and I don’t understand what’s being discussed or evaluated.” Those young code officials who are interested in participating in the CDP, emphasized the importance of voting in the process as opposed to generally participating without voting. Overall, participants expressed a strong desire to “have a voice” through voting.

Only two participants said that they see the CDP as important but do not personally feel compelled to participate. Both cited lack of experience as their primary reason for not wanting to become more involved at this time. The remainder of participants indicated that they have already participated in the process. No respondents reported that they have no interest in participating in the code development process.

**Potential Changes to the Code Development Process**

Participants were asked to rate how specific changes to the code development process would impact their level of interest in participating. Responses show that changes to the CDP would significantly influence participants’ level of interest in the process. A few participants noted that some combination of the proposed changes – virtual or remote participation coupled with a shorter time frame – would be ideal.

<table>
<thead>
<tr>
<th>Proposed Change</th>
<th>Mean Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants can view and participate in the CDP using teleconferencing,</td>
<td>4.4</td>
</tr>
<tr>
<td>streaming video, video conferencing or other related technologies.</td>
<td></td>
</tr>
<tr>
<td>ICC establishes remote participation “sites” in local jurisdictions where those</td>
<td>4.2</td>
</tr>
<tr>
<td>interested in the code development process could view and/or participate in the</td>
<td></td>
</tr>
<tr>
<td>process using teleconferencing, streaming video, video conferencing or</td>
<td></td>
</tr>
<tr>
<td>other related technologies.</td>
<td></td>
</tr>
<tr>
<td>Face-to-face hearings that occur over a shorter time frame.</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Participants most strongly favored the idea of allowing participation through technologies such as teleconferencing, streaming video, and video conferencing. Respondents cited this option as removing the barriers of cost, travel, and the need to spend time outside the office. One
participant summed up overall sentiment, “Budgets are the major issue; if things could be done online it would be easier to participate.” Young code officials almost equally favored using remote participation “sites.” Some participants mentioned that an added benefit of this option would be opportunities for face-to-face discussion and networking; however, a few noted the downside that this option would still require some travel for them.

“Face-to-face hearings occur that over a shorter time frame than the current ones” received the lowest rating, primarily because it does not eliminate the cost of travel – one of the top barriers to participation for this audience. Some participants also noted that they are not interested in taking time off work, even if the number of days for the CDP were reduced. Of those who rated this option highly, some suggested one to three days as an appropriate amount of time for the CDP.

The table below summarizes the pros and cons participants shared about each potential change to the CDP.

<table>
<thead>
<tr>
<th>Participants can view and participate in the CDP using teleconferencing, streaming video, video conferencing or other related technologies.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pros</strong></td>
</tr>
<tr>
<td>Reduces costs associated with travel</td>
</tr>
<tr>
<td>Reduces time out of the office / away from home</td>
</tr>
<tr>
<td>Allows for face-to-face interaction and networking</td>
</tr>
<tr>
<td><strong>Cons</strong></td>
</tr>
<tr>
<td>No method to monitor virtual voting process or participant identities</td>
</tr>
<tr>
<td>Some jurisdictions may not have the technical support needed to participate</td>
</tr>
<tr>
<td>Less engaging / interesting</td>
</tr>
<tr>
<td>No face-to-face interaction or networking</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICC establishes remote participation “sites” in local jurisdictions where those interested in the code development process could view and/or participate in the process using teleconferencing, streaming video, video conferencing or other related technologies.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pros</strong></td>
</tr>
<tr>
<td>Reduces costs associated with travel</td>
</tr>
<tr>
<td>Reduces time out of the office / away from home</td>
</tr>
<tr>
<td>Allows for face-to-face interaction and networking</td>
</tr>
<tr>
<td><strong>Cons</strong></td>
</tr>
<tr>
<td>Some travel and cost required, particularly for those located far from major cities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Face-to-face hearings occur over a shorter time frame than the current ones.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pros</strong></td>
</tr>
<tr>
<td>Reduces time out of the office / away from home</td>
</tr>
<tr>
<td>Decreases perception that CDP is an extremely lengthy process</td>
</tr>
<tr>
<td>Allows for face-to-face interaction and networking</td>
</tr>
<tr>
<td><strong>Cons</strong></td>
</tr>
<tr>
<td>Requires costs associated with travel</td>
</tr>
<tr>
<td>Still requires time out of the office / away from home</td>
</tr>
</tbody>
</table>
Young code officials shared a few other changes ICC could make to the CDP to encourage their participation. Suggestions for ICC included:

- “Compartmentalize” the process, allowing code officials to participate just for codes that are relevant to their career
- Make the process more “forum-based” so “anyone can “react, make comments to the code being amended on the website...on our own time, even from home”
- Send email notifications to inspectors about upcoming code changes
- Reduce the influence of special interest groups in the process
Call Transcripts

To provide context for today’s conversation, the International Code Council (ICC) is currently undertaking a research project with McKinley marketing to better understand existing perceptions of the code development process. We are interested in gauging the level of interest in participation in the ICC’s code development process and to gain understanding on how ICC can make the process accessible to more individuals.

1. ICC’s code development process (CDP) currently includes a variety of opportunities for individuals to participate, including submitting code change proposals, attending initial and final action hearings and voting on final code change proposals. Have you ever participated in the ICC CDP? Answer Yes or No, then probe for details.
   If yes:
   - What are your overall impressions of the process? (Probe around value of participating and satisfaction with the process)
   - Why do you participate?
   - Have you attended hearings? If yes, what were your impressions?
   If no:
   - What, if anything, have you heard about the ICC code development process? (Probe: Where have they heard others discuss the process?)
   - What barriers to participation exist with the current code development process?
     (Probe: Have they been turned down due to travel/budget restrictions?)

1. Yes. I have reviewed the proposals, but never attended or responded. I’m in Oregon, and typically the meetings are held on the East coast or Midwest, so cost is a major factor for travel. We currently gather information and opinions in our office and then pass them on to state level representatives who actually go to the meetings.
2. No. I’m from NJ, we adopted the ICC codes, but we obey NJ codes. At my level it’s hard for people to be involved in the code development process. It’s too far away to get to meetings, and too expensive for me to travel to get there. The website is not effective to the process. As it is done now, the code development process is not open enough for everyone to participate.
3. No. Our director sits on a board with the ICC and they are involved with code changes. I’ve heard things about the CDP from him. Time and budgeting prevents me from going to meetings. I haven’t submitted proposals or anything. The main prevention for participation is distance. My family and my personal life keep me from going to a 6 – 9 day meeting, along with the expense. Even with a better economy, it’s still a lengthy process, and too much time and money for our department to pick up. The inspector would in all probability be required to pick up the tab, and that would keep 90% of the people from participating, in my opinion.
4. No. I’m in Salem and with our budget we have one city representative that goes to the meeting, and that person would represent all our city departments (fire, building etc). That person will typically meet with our staff to discuss items that would be potential issues and concerns and then would represent us at the meetings.
5. No not directly. I have participated in surveys and such, but anything too far away I
7. No. I’ve heard it only takes place in one location and the locations move yearly. And at work here we’ve been working on the 2009 energy code, so I am familiar with some aspects of the process. Funding is a major barrier to participation, we don’t have the money in our budget to send people out to the meeting, to give their input—yeah, just getting there—we can’t afford to send people.

8. Yes, I have participated with my department, just not individually. From what I know, most of the proposals we send in get turned down. We run into stuff in the field all the time we think should change, and some of the existing codes are really vague the way they are written. We participate to help clarify existing codes.

9. No. Our building official sat on the IAPMO board for a time. We’ve been under discussion about participating. Barriers are economics having the funds to go to the meetings prevents participation. The other component for lack of participation is staff, we lost 1/3 of our staff due to economy, we cross trained across both different codes—plumbing, mechanical etc. I am certified under the Uniform code

10. Not in the ICC’s CDP, but I have been involved with the state residential code (WI). A gentleman I work with goes to the ICC conferences, and I know about the process through that. Other than it being fairly easy to submit a proposal to the ICC, if you are in a small organization, or low on the totem pole, those people aren’t free to travel to the meetings and participate in the process.

11. No. I’ve heard from one of our fire inspectors who attend the meetings and went to the one in Minnesota. He said the process is a lot like “congress”, a few days of hearings with lots of code talk, and it gets confusing with people standing up, making changes and amendments to codes being voted on. He said it is hard to know what you are voting on with all that going on around you. No barriers for me, other than some of the codes include a lot of technical language, almost like lawyer lingo, and I don’t understand what’s being discussed or evaluated.

12. No. We do send two people from our office every year. I know of the process, but I haven’t gone. The CDP, submittal of code changes is open to pretty much everybody. Eligibility to vote is the downfall, because not everyone can go to the meeting to vote on the code.

13. Not through the ICC but through some of the state codes to make edits or revisions on existing state codes. I never got involved with it, but I know the ICC code is a model code for our state code. There are periodic revisions. A barrier existing for me to participate would be finding the available time; there are different assignments I am working on. If our department wanted to participate in the CDP, we would have to first decide to dedicate the time and personnel and then internally decide to go forward—it would be a process in itself to get involved. We would have to go through the approval process in my department, through the chain of command, for
me to get involved.
14. I have had a very small involvement. Yes, I am familiar with it (the CDP). No, I don’t see barriers. I’d love to go attend the meetings but haven’t had the opportunity. I watched the meetings one year on a web cast and it was really interesting.
15. I attended the final action meeting in Baltimore last year for a day, Nov. 9. It took them a while to get to the fire safety stuff, which is why we were there. That was delayed and we never got a chance to vote on what we came for. When the schedule was released, it listed the day they were going to vote on those issues, and I planned my travel accordingly, booked a hotel. Then on the day of the vote, it didn’t happen while we were there. I sat through mechanical code stuff, and eventually just had to go home to Philadelphia without voting on what we were there for. I went because the meeting was being held close to us, only two hours away, and I went with two other guys from my office. We were trying to support some of the code changes of our Washington staff, some stuff that they were pushing forward. I thought the process at the meeting was all right, well run. Other big issues being voted on earlier in the week (fire sprinklers) may have been what caused the delay on our stuff.
16. I have not. I am fairly new to the inspector environment of the ICC, less than one year. We did a continuing education class about the ICC where I got a little bit about the CDP in an overview, but I don’t know that much about it. The class talked about fire sprinklers and the codes involving these but I don’t remember much else. A barrier for me now would be getting to the meetings, getting the funding to go attend, and the time off from work to go.
17. Yes. I have been on the voting end and participated in discussion hearings. Overall, it seems to be a great deal of procedural bureaucracy. The CDP as a whole seems to be drawn out, lugubrious to participate in, and you’re exhausted with the process at the end of the day—lots of red tape. I participate, as someone who is responsible for enforcing those codes, they need to be user friendly, and they need to make sense to those who enforce them. When you participate in the process you have a deeper understanding of why the language is used and what is the historical reasoning for those codes—why they exist, essentially.
18. No. I know the other Inspector in my office served on the plumbing code change committee and my building director is the president of the ICC, Jimmy Brothers. Several of our inspectors have served on committees. There aren’t any barriers, I am just busy. There are some things I’ve thought of submitting changes on for clarification, I just haven’t done so.
19. I have. Honestly, it was before they overhauled it. The length of the meeting was too long, and it was hard to really attend most of it. Because of the length of it, sometimes you have just a few people in the room; sometimes you have a lot of people, so it wasn’t necessarily effective in my opinion. I think it is important to participate; my boss is very encouraging of my involvement with the CDP.
20. Yes. It is a cumbersome process. The reasons I participate are two-fold—my community expects me to be involved at the level I’m at, and I also want my input and our area’s experiences to be represented in the CDP. I have been to multiple meetings. Impressions of the meetings—once you are at the meetings, I think the job done by ICC is outstanding, their webcast and live streaming is done better than anyone else. The room is comfortable, the staff is knowledgeable, and you can be put off by the size of the group, so the moderators do a very good job. This past year was very tough, with lots of meetings, lots of hearings. This coming year, the CDP
21. No. Our building official attends the meetings (we have 2 to 3 people go from our office who rotate from year to year, so some day I might get a chance to go). He has told me about the process and the proposals so I have some understanding third party. The barriers to me participating are primarily within our office. The economy has prohibited the expense of going to the meetings, taking time off. The time it takes to go over the code changes and proposals, and to discuss them is not a high priority in our office.

22. No. I’ve heard it’s flawed (due to the vote in the 2009 code where the fire services flooded the hall for the one single vote about fire sprinklers in single family dwellings and then left). There needs to be a way to make it more accessible to those who can’t afford to go. As a young code official, those officials above me all want to go, and they don’t let the younger guys participate. Funding is the major issue. Since only one person from my office is allowed to go, it is always the boss.

23. Not directly, but in a roundabout way. North Carolina has its own version amended to the ICC code. When the state changed the testing questions that are involved in becoming an inspector, I was on a committee for that. We submitted proposals that would change the test questions. We don’t hear a whole lot, probably because here in North Carolina we have a code council. We are far removed from the process. Occasionally our department may get e-mails about the code development process, but since we are a large city those don’t necessarily get to our level. Barriers to my participation in the CDP—I would say the biggest is the size of our city structure, we have 30 fire inspectors, seniors, a deputy Fire Marshall and a Fire Marshall, there are a lot of layers. We are a para-military organization when it comes to chain of command—the top levels participate and tell the bottom levels what to do.

24. I made a suggested code change to the state of Michigan; it has its own version of the ICC Code. My impression of the CDP is it’s a lengthy process. Everyone has to have a chance to speak. It’s hard to take the time off to participate. I participate to make the codes more realistic. No, I have not attended any of the code change hearings at the national level.

25. Personally, I have not. In the last round of voting, the chief code official went from our town. The only thing I know is at the end of the cycle the meetings are open for all voting members to listen to on a webcast to what’s being voted on. I think the only barrier is the code hearings are held in a centrally located place and a lot of towns can’t afford to send people, because of the travel expenses. We’ve been on a budget freeze for three years; we are spending money out of our own pockets.

26. No, unfortunately I haven’t. We have a chain of command, and we have one person who generally has that responsibility. It’s hard to attend because of the economy, the expenses, first and foremost. In our area, I’m a new inspector, and as I have been going to see businesses, a lot of businesses haven’t been visited by inspectors from our area in a long time. There is some resistance by businesses about what the new codes say that are required, maintenance inspections for example. I feel that a lot of the older code officials want to keep the knowledge and know-how of the fire prevention world to themselves—it’s harder for young professionals to gain that knowledge—it’s passed on by the older guys on a need-to-know basis by senior officials. The opportunity to participate is not there for me at all.

27. Yes, basically. I don’t like the politics and I don’t like the special interests—they have no business being involved in the CDP, they have too big of a role in it now. Minnesota is most likely going to amend out the residential code’s fire sprinkler
mandate from the ICC. I was on a Residential Sprinkler Committee and we met to try and see if there was common ground but even our local meetings were divided right down the middle. We had local politicians and special interest groups sitting in at our committee hearings—in effect, you had fire on one side, and building contractors on the other side, with building officials right in the middle. If residential sprinklers go through, it will slow down construction projects in the area, due to the increased costs. Politics and special interest should not play a role in it. Still worse than the current CDP situation would be if the politicians were the ones actually writing the code, so I hope that doesn’t happen or become forced to happen.

Yes, I have attended meetings of the CDP—thought they were run well with the exception of the special interest groups present.

28. I have not. I have opinions though. There was a big uproar over the fire sprinklers at the last meeting. The fire association officials showed up for the sprinkler vote and left right after it was done and I think that is wrong. My boss just went to the most recent CDP for the 2012 code and she had a very good experience there and she shared it with me. I wish, if someone was interested but couldn’t afford to go, that there was a webcast of the hearings, so you could see the process and that would help people understand it. Time and money are the barriers. It seems to me, the past two code hearings, both were located in states that were a great distance for me to travel, why not have it on the west coast so people from my part of the country might attend?

29. I have not participated. The extent is watching the online CDP. At a local level we can fund one person to attend the meetings from our chapter of Idaho Association of Building Officials (BSPSI is our local chapter) from the dues of the chapter. We usually fund half of the cost, and the municipality funds the other half. We lucked out last time because of the new Energy Ambassador Program—extra funding from that made it possible for two people to go from our chapter. The people I know have expressed the idea that the CDP is a long and tedious process, but a beneficial one. They usually have a very good experience at the meetings. It is a great way to get everyone’s voices heard. The big barrier for me is the funding is hard to get to actually attend the meetings. I am on the list of eligible voting representatives, but I have never been sent, again mainly because of the funding issues.

30. I have not. I have participated at the state level but not at the national meetings. I haven’t heard a whole lot; I go by what I hear on my (Oregon Fire Code Committee) the guys I work with on the committee are involved and I hear about it from them. I hear it is an overwhelming process, a lot goes on there. There is a political aspect to the CDP (case regarding residential fire sprinklers, where they will get people to attend to vote just on that).

A couple of barriers: 1) Location of where the hearings are being held and the proximity to me (Baltimore, last one is cross country),
2) Lack of experience. Having not attended, they seem a little intimidating to me. Long time code experts attend, and it can be a little daunting for a newcomer and
3) The time factor, every agency is doing more with less these days, so taking time off to go that far of a distance for a whole week is very hard for me.

31. No I haven’t. We do hear about the code process, but with our funding (lack of) it’s hard to be involved. Funding is the biggest barrier. If we had a way to view the hearings remotely and vote remotely that would be a way for us to participate. Our contractors, who we are in touch with a lot and others in the industry, would also be
interested in viewing the hearings. If we had a way to do this remotely, we would possibly invite the contractors to watch it with us.

32. I have not participated. I have heard from people who have gone, and who are frustrated about the number of people from industry who attend the meetings compared to the number of code officials. For me, it is the cost/expense of attending the voting, being able to get that much time off from work to attend.

33. No I have not participated. For me, when the whole issue about residential sprinklers and what went on at the meetings was going on, that is how the CDP process came to light. The biggest barrier would be that the votes are held out of state, so the means of getting there, the transportation costs and travel expense are part of why I haven’t gone in the past. Depending on what is being voted on, if it were a huge issue, then it might be more of an influence for me to participate. For that to happen, someone in my department needs to recognize that our local input is important to the process, and give their buy-in to letting me go. Also, the funding has to be raised or budgeted for people to go. The issue of getting time off from work to attend is there also.

34. Yes, I have. The process is long, with too many lobbyists involved. I am not real excited with the voting. The last conference, there was a gentleman sitting next to me who was not a member and he was voting, and I know there were other non-members voting. The voting is not monitored by the ICC during the CDP meetings. I participate because it is my duty to participate as a code official.

35. No, I have not. Other people, inspectors, where I work have been involved. I went to Raleigh for some state hearings. Other Inspectors in my office have talked to me about the Minnesota (Minneapolis?) and Baltimore meetings. They went to the hearings, listened to the voting, and heard discussions from opposite sides on issues. The meetings are usually held far away, and we can’t go unless there are funds available for our departments to go. When the money is there, only certain people can go from our department. Unless the meetings are more accessible, I can’t really have any input or experience the process.

36. No. The State of Maine has just adopted the ICC codes. They went into effect December 1, 2010, with a grace period for those municipalities that don’t already have a building code through July 1, 2012. I’ve been through the state’s process of code development, just not the ICC’s. I have minimal exposure to the ICC’s CDP. I haven’t heard much about the process. The only barrier for me to participate is being from a small municipality like ours (population 2700) the expense of going to the meetings, the travel expense. I attended all of the state’s meetings for code development. My municipality supported this because we wanted to see what was going on and to gauge the impact that the new codes would make on our staffing needs.

37. No. It’s very cliquey. When lobbyists are thrown in to the mix with their money, it becomes a nightmare. Fire sprinklers for example.

38. I have not. My boss attends them every year and he is the chair of the National Green Building Standards. He’s involved in the process. For me, it’s probably time and money (the cost of travel and taking time off from work), which keep me from participating. Right now, there is a policy in place that no out of state travel is permitted.

39. No. I get e-mails from time to time from the ICC with things to look for, be aware of,
meetings to discuss and participate in. My lack of experience (3 years at my job) keeps me from participating more. The other barrier is the cost. The meetings are not usually close to me (I would have to travel far distances; as far as I know they’ve never held the meetings in Oklahoma, or even Dallas, which is just 3 hours away).

40. Yes. It was interesting and a great learning opportunity. My challenge is my own jurisdiction, trying to gain the support from people above me to participate in the process and getting the buy in to go. My old jurisdiction in the state of Washington was very supportive of the CDP. I have written change proposals, and once wrote a change proposal and traveled to Nashville to present it. I participate in the CDP because of some of the inconsistency in the code language, and the importance of having it be clear and tied together, sometimes bringing a gap together in the codes. If I feel there’s an inconsistency, then it is a personal responsibility as a code professional to make a difference, to be a part of the solution and not work around it.

2. Which of the following best describes your overall perspective on the CDP? Choose A, B or C, then probe for further explanation.

   d) I would like to participate in the code development process, but to date I have not been able to do so.

   Probe:
   • What would need to happen to make it more likely that you would participate?
   • Is the concept of voting important to you or are you just generally interested in participating?)

   e) I see the code development process as important, but I do not feel compelled to participate personally

   Probe:
   • Who do you think should be involved if it’s not right for you?

   f) I don’t have any interest in participating in the code development process

   Probe:
   • Tell me a little more about why you’re not interested?
to the code being amended in an open forum style. I would like it if this was done over a period of time and that I could do it on my schedule, not the ICC’s. If I am going to take my time to comment, I would like to have the ability to vote on the amended code.

3. a. The biggest problem or concern with me personally, and this is true for many in my generation, is that I have a personal life with young kids and can’t step away. My personal life, coupled with the expense and the time taken off from work, precludes me from going away for that length of time. If it could be shortened, or a video conference held in my office, maybe this would make it more conducive to participate.

4. a. I think this would be the most accurate. There are costs to going and they prohibit me from attending. If these were removed, I would be more willing to participate. That’s a good question—yes, the concept of voting is important to me.

5. a. It would have to more technology-based with webinars and such, not face to face long meetings that no one can get to.

6. a. I’m not sure what would need to happen for me to become more active. With the CDP hearings being nationally held, it’s hard to get there. I am interested in participating more in the process and in having a voice by being able to vote.

7. a. Um, I would need maybe some remote access, teleconferences, streaming video, a live feed interaction, but not necessarily on site. Yes, I’d like to be involved in the voting process.

8. a. The hearings would have to be held closer to home, travel to and from them now is difficult. I am interested in both, participating in the process and voting.

9. a. What would need to happen? Maybe start with flyers or memos from the ICC regarding upcoming meetings. I am not on an e-mail list from the ICC. Being in the know about what’s upcoming would be really helpful. Also, if the ICC had an easier to navigate website, that would be helpful. Since I am in the field a lot, time on the website for me has to be fast, so maybe if the website had an “inspector” tab that I could click on that would have all relevant information to inspectors and be quick for me to check periodically.

10. a. For me (to be more involved), it would be being able to participate through short periods of travel, a day or two, or making the hearings accessible with a video conference— that would make it more feasible for me to participate. (Regarding the concept of voting), I would say that means is my voice heard, and it would be nice to be involved. I think it’s important that a group of people be allowed to vote, not necessarily me, although I’d like to be involved in the process.

11. a. For me, part of it, is do I really want to go to the hearing, take time away from my family and work and also, what am I going to get out of it? It would be interesting to go, but I don’t feel I would need to go every year. I would say I am generally interested, I don’t know if voting is that important to me, I could change my mind though, depending if the subject was relevant to me in my line of work.

12. a. The availability for me to go is hindered by the location and cost of the meetings. I can’t get away from work for that long of a time, and then I have to make up the time. We can’t send the office to vote. We won’t close the office. The concept of voting on the change is almost more important than the idea itself, it would be nice to have a say in the process.

13. a. One of two things would need to happen for me to participate—I would first need to go through approval steps from my department and chiefs. The second way for me to be involved would be for me to involve myself in non-working conditions,
almost as a hobby in my free time, which would be harder for me. I do have a lot of technical writing experience and I enjoy immersing myself in the language of codes and making them more understandable for everyone. The concept of voting is important, where you get collaboration from a state level and then on to a national level—it is good to have a clear picture, to be language-specific so everyone involved is on the same page. Another thought on the voting process, you have the concept of peer review when you bring voting into the picture, where thoughts and wording can be amended, clarified and reviewed by many to get a consensus before being voted on.

14. a. (In response to what would need to happen for him to participate, he answered) Two plane tickets and a baby sitter! It’s hard to make the trip for a week, to be away that long. I do think voting is one of the most important ways to participate, that is how it all happens, how changes are made and new codes are developed.

15. a. My lack of experience primarily keeps me from participating. The two central office people from our Washington office generally represent our office in the CDP. My office and other regional staff are not usually asked to participate. Maybe when I have more experience under my belt, I will be inclined to do so. Generally, I am interested in participating. Using the codes a lot, I think it’s important to have input. I think voting is important. If you don’t vote you really don’t have a voice in the final product/code. Like a political election, if you don’t vote you really can’t complain about the officials who are elected. So yes, it’s important.

16. b. I don’t feel as though I have the experience needed yet to participate in the CDP. I may feel differently in the future, I have only been doing this for about six months. I think someone with 3 to 5 years experience, with more on the job training, who would have a good feeling for what codes might need to be changed or added would be more qualified to participate.

17. None of those are applicable. Because as I mentioned, I have participated in the CDP process.

18. a. I guess it’s up to me to take the initiative; there are no barriers to me that stand in my way. I don’t have that much time to participate. I do have a family as you can hear (in the background).

19. a. It best describes my perspective even though I have had an opportunity to participate in the past. Of course the big issue is our budget; I can’t get away and travel. I participate with other organizations (NFPA) on their committees and the voting process is much easier, because it is a shorter process, and documents are reviewed one at a time which is less confusing than ICC’s CDP. I think the voting concept is important; consensus is needed in the process.

20. I am actively involved in the process currently. The idea of regional voting—I am mixed on it. To get to the national meetings is expensive, with hotel and air, but there is a lot of debate that goes on face to face at those meetings, the exchange and communication that goes on live is important to the process. I don’t know if regional voting would offer the same give and take that goes on at the national meetings.

21. a. I would say the financials play a part in it—if the money was allocated in the budget for me to go, I would go. Also, if costs were cut on ICC’s side to make it more affordable. I think the whole process is important, including the voting concept, also.

22. a. I would love to participate. One of two things would need to happen for me to participate: My boss would have to ask for more money in our budget or he would
have to be willing to let me go in his place. I think the concept of voting is important—to let the code officials vote and not the industry leaders who are in it for financial gain. I fear changes in code are due to the market or industry for financial gain not life safety issues.

23. a. ICC needs to make more of an effort to engage other cities in North Carolina besides Raleigh. There are a lot of levels in my city’s structure and if ICC has a lot of layers to go through to get to my level. The opportunities to participate usually end up at my boss’s door, but they do not get to those of us (inspectors) who are doing the inspections in the field. I would say that both participating and voting are equally important to me.

24. a. if I could get my business done in two days so I am not away from the office for too long. Voting is important, yes. Why not be able to sign in with a password and code, and vote online? The timing would have to be right with a webcast, but that shouldn’t be a problem if there was a published meeting agenda with voting schedule.

25. a. What would need to happen is the ICC would need to regionalize some part of it (the CDP) into multiple locations—to make it easier to travel to the hearings. I am interested in both participating and the voting, but general participation would satisfy me.

26. a. I think it would have to come from higher up, the fire chief, would have to allow all inspectors to participate in the CDP. The networking opportunities to be gained are priceless—the sharing of new ideas, state of the art technology-- a lot of the old guys are not as savvy with technology as the new guys. The older official are resistant to technology changes, for example we have been trying to implement a “paperless inspection report” electronic—but the older officials are resistant to utilizing this form of information sharing.

The concept of voting is powerful from a code official’s standpoint—to be able to weigh in and give input from our experiences in our area, so the codes can be modeled to benefit our areas' needs for those code revisions—that would be great to participate in the voting.

27. None of them apply. If I had to select I would say “a.” I want to participate. Cost (it is not free to attend) is a big barrier. I think I have heard that the first two hearings are free, and that the final action meeting hearing maybe has a cost, but I may be wrong. Travel expenses are a huge barrier to participation.

28. a. I see it is important and agree it is important to participate but I haven’t had a chance yet to participate (I have been an inspector for 7 years). If we had a live webcast during the final action hearings I would be able to book out time during my day, look at the agenda, log on and make suggestions interactively. I think you’d get a lot more participation in the country. If people chose not to participate, they wouldn’t be able to complain, they are just being lazy. My boss would support that for the inspectors and make them be involved that way. I believe the concept of voting is a good thing. I think if you are a voting member and you are present at the meetings to vote, you need to be present to vote for all changes, not just what your particular interest may be. (ex. fire sprinklers!)

29. a. definitely. Obviously if the CDP meetings were anywhere here in the North West, I might have a better opportunity to go, but when the meetings are held so far away, maybe then participate through the internet process. I would love to vote online—the best of both worlds. I know I would participate at every stage of the way. If you can’t vote online, then at least being able to watch the hearings from a live
webcast to understand why the changes are happening is beneficial.

30. b. I am actually between a & b. I think people at my level and my peers should be involved, I just haven’t taken the plunge myself to be involved. There are people around the state that have more experience and more qualifications than I, who should participate in this.

31. a. to get better understanding of the process, and as a younger inspector to be able to input or forge new codes in the future. Remote access would need to happen or more funding on our end, maybe ICC would give us a grant. Getting the funding represents the biggest barrier to my participation. Voting is important to me. There are a lot of codes in the code book now that could be revised and I’d like to be able to vote on getting them changed.

32. a. For the reasons stated above-- time and travel expense prohibits me from participating. I do think the concept of voting is important, to me.

33. a. For me, I have 12 years in fire service, and five as a Fire Marshall, the codes are very important. Fire prevention, when reinforced with good enforcement and good codes, means you won’t have to use your fire suppression as much (firefighters hopefully won’t have to do as much putting their lives and safety on the line—good code development and enforcement affects our livelihood and our life). I think I need better knowledge of what it would take to become more involved with the process, gain some experience getting involved and learning the process—basically knowing what I need to do to become involved in the process. And, as I mentioned the travel is part of it, but not all of it.

34. None of the above. I have participated in past hearings and in the voting process.

35. a. If I was able to get to where the meetings are being held is the main thing. Funding and budgeting concerns are in the way, we can’t send everybody in the office. When the meetings were in Minneapolis, a mixture of senior and junior level inspectors went from our office, but I was not part of that group. I am interested in participating and voting-- being involved in the procedure. I use the codes every single day, and voting on the big issues that come up is important to my job, doing inspections. Being able to explain to people why we are enforcing a code would be more meaningful if I had been involved in the making of it.

36. a. I would like to, I just haven’t had an opportunity to do so yet. Once the code is up and running for me, I’ll be keeping up with all the changes, but for now it’s just not needed at this point—we are still learning the code, it’s new to us. I like the old saying “It’s hard telling, not knowing”. The concept of voting would be important to me.

37. a. An invitation, for starters. I think a voting member should have no financial gain in the CDP, it’s not right to have a voting member dumping money into the process and gaining from it. Fire sprinklers, colleges, where are they getting the money? Follow the money. It’s not about safety anymore, it’s about following the money, who voted where what politician voted and who’s funding their campaigns?—the system is corrupt.

38. a. for personal reasons, I feel it’s important to focus on the safety aspect of the codes rather than the product placement into the codes. The codes should be designed to enforce a minimum safety requirement and not to sell certain products, no matter how good they are (i.e. the new insulation codes—insulation went from R19 to R20, the difference in the two products is minimal but the cost is like 70% more). For me to participate, time and cost to attend would have to change, and it would have to fit in with my life. I do feel it is important to have a voice. Everyone wants to have a voice, so you can feel as though you tried or that you made a
difference. Yes, I feel that voting is important.

39. a. The meetings would have to be closer, involve less travelling.
I would vote. If you are going to have to read these things (codes), and follow them every day, and enforce them with the public, you have a responsibility to vote in the process.

40. a. In my current jurisdiction I have not yet been able to participate. (Note: In jobs prior to where I am, the jurisdictional support was present and I have participated in several past CDP meetings.). I see it as a very important process and I enjoy being involved in it.

3. Now I am going to share some scenarios where the code development process is changed and ask you to tell me how this would impact your level of interest in the code development process on a scale from 1 to 5 where 1 = not at all interested and 5 = extremely interested. (Probe: Please explain your rating.)

   a. Face-to-face hearings occur over a shorter time frame than the current ones.

   b. Participants can view and participate in the CDP using teleconferencing, streaming video, video conferencing or other related technologies.

   c. ICC establishes remote participation “sites” in local jurisdictions where those interested in the code development process could view and/or participate in the process using teleconferencing, streaming video, video conferencing or other related technologies.

1. a. 3. Not so much because it still includes the travel to and from the meetings which is cost-prohibitive for us.

   b. 5. Distance and immediate feedback, being present via electronic or computer access is important to participation.

   c. 4. My guess is “local” means Portland, so that would still be 3 – 4 hours travel from my office. It would be attractive to sit in on meetings right from our office, that way more people can participate the closer the meetings are to home.

2. a. 1. Not feasible because of the travel issues, impossible

   b. 2. This is still not feasible because I would still have to take time off from my job if the hearings are on the ICC’s schedule, even if I don’t have to physically be present, it is a step in the direction of compromise, but it’s still not feasible. Now, if it’s on my schedule, or my time, and I can look at it from home, then that would be preferable, and I would be able to participate more.

   c. 2. If I have to stop what I am doing and vote or participate on their time, then it is not feasible for me for me to participate.

3. a. 5, but it still depends on how much time off would be required by me to attend

   b. 5. Streaming video, would take away the travel issue for me, and I would not have to leave my family.

   c. 5. A local site would be better. Local is better.
4.  
   a. 3. I mean, I don’t really know how that would occur. Would there be a small meeting, one more localized? Because meetings in Florida every 6 months would not be an option for me or others on the west coast.  
   b. 4. If I had a different office set up--our atmosphere here in my office is open, there is no place to isolate and concentrate on the process.  
   c. 5. Maybe renting a space or arranging a one-day meeting in the Salem –Portland area where representatives from our area could go and meet to teleconference the hearings from that location.

5.  
   a. 2. The process needs to be virtual-based. I am not interested in face-to-face meetings—no time or budget for travel.  
   b. 5. The technology needs to be more updated in this process for people to participate.  
   c. 3. It’s a better option, but the best scenario would be able to sit at my desk and participate without having to leave the office.

6.  
   a. 4. A shorter time frame for the meetings would be better  
   b. 5. Being able to participate without the travel involved is good  
   c. 5. I like this because it’s local, and we’d be getting together with other code officials in our area to talk and engage in the process.

7.  
   a.3. Because I’d still have to travel to get there, and have expenses to get there and stay, even for a shorter time it would not motivate me to participate.  
   b. 5. Because of the reasons already stated (in Question 2)  
   c. 3. A little bit of travel still would be involved, it would depend on how far away the local site was set up from here. I mean if it were an hour away, we’d probably go, that wouldn’t be too far.

8.  
   a. 5. The 6 to 9 days meeting period is way too long, shorter the better.  
   b. 4. Closer to home would be good.  
   c. 5. If the ICC made the hearings available for us to participate in our jurisdiction, set up a video conference somewhere close, something like that.

9.  
   a. 3. I haven’t been to a meeting, so I pick the middle of the road—In my opinion, six to 9 days is way too long, I mean a week out of the field is very difficult to make up for an inspector. This is a big barrier to participation in the CDP for an inspector.  
   b. 5. Having a webinar, teleconferences, would be beneficial to me.  
   c. 5. That would really be a step in the right direction, it would reduce the costs and make getting to the meetings more feasible— it is like the ICC would be meeting us halfway, instead of requiring everyone to come to them.

10.  
    a.4  
    b.5  
    c. 5. I think that would be more feasible, the travel time would be cut down. Also, if the duration of the meetings were shortened over the current process would be an improvement.

11.  
    a.4  
    b.4  
    c. 4 equally interested in b and c. I thought you were going to say that the last scenario would involve travelling to a remote site in a local jurisdiction AND participate in the process for a much shorter time frame—that would be really good.

12.  
    a. 2. It really doesn’t make a difference to me. I am still taking time away from work.  
    b. 5. Most people have the ability to teleconference or of going online. The only drawback is it would be hard to verify who that person is.  
    c. 5. The availability to spend half a day or so in the process while not having to
travel far, to be involved, would be great.

13. a. 4. I think two days would be appropriate.
   b. 5. Technology helps us do more things, where we don’t have to drive to the state
capital or out of state, which has lots of planning involved. Teleconferencing is
easier, you come in and log in to a computer is much easier than travelling to
meetings.
   c. 5. We currently are involved with a group of fire officials in our area, and I think
this option would be good to bring to the table.

14. a. 3. Because travel is still expected
   b. 5. Convenience, not having to travel. It’s hard these days to get expense money
out of a city budge to travel also.
   c. 8-no, 5. I like this a lot because more of your local individuals would be available to
take part in the discussion. It would be like having a smaller version of the coding
meeting at the local level.

15. a.2.
   b. 4. We travelled two hours to go the last one, because it was more local. Having
the ability to teleconference, no matter where you are in the country, would make it
much more accessible to people who are further away and wouldn’t be going.
   c. 4 or 5. Teleconferencing is very good, but I think it is still good to have face-
to-face interaction. If this option brings people physically together to interact and to
also teleconference, that would be really good.

16. a. 4. Because 6 to 9 days is a long time, I might want to only participate in one or two
days.
   b. 4 - 5. Because that would help me to participate, and take away the travel issue.
Maybe just one day involved, instead of the entire process.
   c. 4. It might be better to have people to bounce questions off each other, in a group
setting, during the teleconference.

17. a. 4.
   b. 5. This solution would be the best to increasing participation in the CDP. It would
be a way to allow more direct input and produce a more involved CDP.
   c. 3. Essentially if this option is used, you are going to create multiple discussion sites
with multiple opinions. The process may be lengthier if multiple locations form
differing opinions and then later have to combine or compare/contrast them.
However, if everyone is involved online, through a teleconferencing process, the
discussion is held with virtually everyone all together participating. Plus, by having
individuals participate online, travel expenses and time off from work are eliminated
in getting to the meetings, even if the meetings are more local. Basically, if people
don’t have to travel, they will participate.

18. a.4. I’d be interested-- time is important, nine days is a long time to hash some of
these changes out, when they could be done in a shorter time frame.
   b. 5. They are doing some of that with the plumbing end. Last year they had a phone
conference, with debate. Moving people all over the country doesn’t make sense
when you can have a virtual meeting. There is no reason with today’s technology
why you can’t have the meeting over the internet, in a webinar. People have access
to that technology
   c. 4 or 5. That’s important too.

19. a.4. The CDP is too long now
   b. 5. Definitely. Budgets are the major issue; if things could be done online it would
be easier to participate.
c. 5. There is some value to meeting face-to-face and getting other viewpoints. There can be problems with teleconferencing, and getting live feedback is sometimes good.

20. Question skipped.

21. a. 3. The less time spent away from my job responsibilities and less travel would be good.
   b. 2. Not so much. I might lose interest watching a teleconference by myself and start doodling on my paper.
   c. 4. Because this option would involve some face-to-face contact with others and the ability to explain things live is available. A teleconference attended by yourself, you don’t have that rapport or idea exchange.

22. a. 5. People don’t have the ability to take that much time off from work and this keeps them from participating.
   b. 3. I’d like to see that happen, but my concern is that the local government would stop budgeting the money for their officials to go and participate in the hearings. I think it is very important to attend the national meeting, to have discussion about the codes with officials from all over the country.
   c. 4. I like the idea of people getting together to discuss the CDP on a local level, but it still would be nice to go to the national code hearings to meet with officials from other jurisdictions, to exchange ideas and have the input of many jurisdictions.

23. a. 5. Takes way too long now!
   b. 5.
   c. 5. I like both option B & C, my preference of one over the other would depend on where in the state the meeting’s would be held, the travel distance and how expensive it would be to get there—travel is a big issue in our department, with not a lot of funds for travel in the budget. If you had to travel and take a lot of time off to go to a meeting in the state versus just teleconferencing or attending a webinar from home or the office, I think B would be better. I like C because it would be an opportunity to meet with other code professionals in the area and to interact with them while teleconferencing.

24. a. 5. Yes, a shorter duration of the CDP hearings is very important
   b. 5. Listen to what’s going on, have a live feed, and participate on your computer or telephone—this makes sense to me.
   C. 2. Because I still have to be away from my business, this takes away from my office availability

25. a. 4. Shorter time frame, I guess, makes it cheaper on the travel expenses to attend.
   b. 5. Definitely. Likes this.
   c. 4. Not as high as B. Because most people have access to a computer in their own office and this last option requires some travel or time away.

26. a. 3. The obstacle for me is having the opportunity to attend, not the length of the meetings.
   b. 5. That’s the new wave of technology, to have a mass meeting where everyone doesn’t have to be in the same room, but can be participating, discussing the changes, and perhaps even voting in the process. This is the way things are going for me, we have lots of conference calls in the office with property managers, or board members that are really effective, and the info is given to all parties at the same time without a replication of info or misunderstanding. E-mail is also a very effective tool. The codes are forever changing, and people think we make these up at the top of our head—often I go back to my office and I will e-mail people the code to back up
what I am saying.
c. 5. Anything with technology and boosting the passing of information with other peers, passing around ideas from other scenarios. We are doing this already in our area, going to meetings to view training films and have conversations with other officials to discuss real life scenarios we deal with everyday. To get feedback from other officials in our area is beneficial to me—to see the information spread around and to promote standardization of the code throughout the state is a very good thing.

27. a. 5. As short as possible two to three days, everybody is busy. Most municipalities only have one building official and he can’t be gone that long to attend. Metro areas have the ability to be more involved due to larger staffs that can cover for absences of officials attending the meeting. Smaller municipalities don’t have that coverage so are not as represented in the process.
b. 5. Any form of teleconferencing, whether it’s at your own computer or a central site with other officials would be beneficial.
c. 5. I like both b & c —my personal preference would be to meet at a central site in our local jurisdiction—I think it would promote more discussion, more involvement overall. It is easy to blow it off a teleconference when you are on your own, but attending with a group I would be more apt to attend and probably stay more alert and engaged in the process.

28. a. 3. Because, it’s going to a while before I can get back to a meeting. The travel is still involved also, and getting away to attend is difficult.
b. 5. I think it’s great because everyone in the country could be involved. Even contractors, who might be interested, could at least view or see how the process is carried out. Officials could have a say in things that way. We could even have a meeting in our conference room, put it up on our prompter and people from our office and public could participate that way—have a mini-meeting, like a town meeting.
c. 3. The majority of the state population is in the southern part of the state and that is probably where they would hold the meetings, making it difficult still for people in my area to participate.

29. a. 2.5. Because I understand it would be less travel time and expense, but I think the time to participate at the meetings would have to increase just to get in all the material needing to be discussed
b. 5. Sounds greatly interesting, a great way to be involved and have our region represented in the CDP.
c. 5. Anything that will better represent our region interests me. I think this option is preferable to b, there would be fewer interruptions and distractions when you go to a meeting then if you were at your office trying to participate.

30. a. 3. Because time is precious; Participation to the CDP is a big commitment of time now, but a shorter time frame would be easier to commit to, I think.
b. 4. Takes the travelling factor out of it and still be able to participate online, should get more buy-in nationally from people to participate.
c. 4 to a 5. The ability to meet as a group and have discussions or dialog to the CDP as the teleconference is going on is very appealing. Teleconferencing all by yourself is difficult— to concentrate or stay focused or not be distracted. Also, the third option might allow our division to tag team attendance at the local meetings, so more people from our division would be involved in the process.

31. a. 2. A shorter time frame would not really impact us, it is still the issue is funding.
b. 5. I like the idea of remote access, being able to participate through the internet.
c. 5. I like this option because getting the input of the other officials who are
attending the meeting, instead of being alone in front of a computer and viewing it,
is better. I prefer the remote site scenario, getting everyone’s input at the same
time.
32. a. 4. The meetings in the last cycle were held in two places, each 6 to 9 days, and it is
impossible to get that much time off from work. The meetings should be shorter.
b. 5. I like this. In the past, before I was laid off from my job, I have teleconferenced
and am familiar with the technology.
c. 4. The financial status of lots of communities would prohibit even a more local trip
to participate, say 100 miles even. The time and expense to drive to the location and
stay the night makes it still an expensive process in my opinion.
33. a. 4. I think a lot of it is the time commitment, to be able to get more people there,
etc
b. 4. There is something to be said for opening the meetings up this way—to be able
to participate without having to be physically there, that is the wave of the future,
definitely a viable option.
c. 4. Yes, something local that could be facilitated is interesting. It’s nice to have
multiple people in the discipline, being among peers, to talk and discuss things being
brought up.
34. a. 3. They are awful long now, shorter hearings would be great. I don’t know how
that could be accomplished.
b. 2. The number is low because of my thought on whether you can accurately
monitor the voting process using that technology. I would worry about lobbyists
logging in under a code officials number and illegally voting with the lobbyists
agenda in mind.
c. 3 or 4. This would help to get more participation by code officials who are unable
to attend the national meetings. It would be beneficial as long as attendance was
monitored at the site and identities were verified before voting.
35. a. 4. Not so long and drawn out, so you are not gone too long from work.
b. 5. It would be so much easier for more people to be involved, not to have to be
away from work; to be at the meeting without actually having to go to the meeting
would be great.
c. 5. I’d be interested in that as well, it’s not as close as the office (option B), but still
closer than travelling great distances to the meetings. At the meeting, you could talk
about things with your colleagues and peers, ask questions, get explanations, or the
opinions of others, before voting—that feedback would be good.
36. a. 5. Budget implications would be less; travel expenses would be down for the
municipality.
b. 4. I’m old fashioned, I’m hands on and would like to attend the actual meetings,
but if no other choice for me to attend existed I would like this.
c. 3. I belong to the Mid Coast Officers Association, a local group of code officials in
my county, and we get together monthly and have meetings. The difference here is
the number of people that attend that meeting is much smaller than what you are
proposing in this option. The difficulty in the third option would be being able to
communicate effectively everyone’s opinions and thoughts in that environment, I
think it might prove difficult to handle unless someone was managing the meeting.
37. a. 5. I agree with that. The ICC is like Washington, it’s out of touch with the field. The
same select group of people always testify at these meetings.

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b. 5. They should be doing that.
c. 5.

38.  a. 1. I don’t think the solution is to shorten the meetings. The ICC shouldn’t try to cram things in to the meetings, and not make snap decisions. The Codes affect a lot of people, it’s important to take the time to do it right when it affects so many states.
b. 5. I think it would be a great opportunity for more people to get involved.
c. 5. Either option (b or c) is great. Both options would boost attendance and participation. Also, both would provide the opportunity to attend for people who have not gone to the meetings or had the chance to.

39. a.5. Since we are struggling with funding, and then also trying to get the time off for any length of time--it might be easier to get the time off to attend if the meetings were shorter.
b.4. It’s interesting, but I prefer face-to-face meetings. If there were no other options for me to attend, then it would be a good option.
c.5. You get the networking with this one, the face-to-face with other people, talking about what is going on at the code meetings. The interaction is a big part of it, seeing other people’s reactions is important.

40. a. 4
b.4. There is value to face-to-face communication, but the application with technology is here. The CDP is such a big endeavor, it might be difficult to manage teleconferences of this size. But it’s worth exploring from a cost effective standpoint. It might be hard for some jurisdictions to participate unless the technical support was there.
c. 3. On the one hand, it makes a lot more sense and is cost effective. On the other hand, in my experience, the closer the meetings are to home the harder it would be to set aside the time to fully participate in the process—to separate from my job completely and to focus on the meetings may not be easy to accomplish with this option. I guess I see it as a “middle of the road” option for me, unless some of the challenges to my full participation in the process could be overcome.

4. Are there other changes to the current process that ICC could make that would encourage you to participate?

1. No. Other than to make the process more accessible, by having the ability to do webinars, video conferencing, etc. To make it quick, easy, and accessible to be a part of the process would increase involvement in our office, I know.
2. Piggybacking from the second question, I think just make the CDP more forum-based, add a link from the website on the code being changed, schedule a specific time period for anyone who cares to weigh in, react, make comments, to the code being amended on the website, which we can do on our own time, even from home. Then after the period of time for evaluation is up, put it to vote through the web.
3. There isn’t really any motivation for up and comers, for new code professionals, to get involved. Perception in my field is that there are gentlemen sitting across the table arguing codes that are out of touch from In-field procedures. I don’t feel motivated by the ICC to get involved, and I don’t think they are trying to reach out to younger code professionals to get their input. Honestly, 90% of code professionals
don’t know about code changes until they actually buy a new code book, the codes have already been voted and approved. A question I’d like to ask the ICC is what percentage of known code professionals in this country actually attend the meetings? I would dare say that it’s a low percentage. Our director goes out of his way to provide us with proposed code changes before hand, but if you’re not involved with the process you won’t know about it until it’s done. The more convenient the code development process becomes, the more participation you will have—streaming video, being involved locally without the travel and within the office—that would be convenient and help more people to participate.

4. Other than what we talked about, not really. The cost is the most prohibitive thing, as it stands now. And I think localizing meetings would be an improvement, something that would allow the region to talk about our local issues and how they relate to the code development process of the ICC.

5. I think we have touched on those changes already—I would be more apt to participate if ICC made the process more accessible for me to do so—by utilizing the virtual technology or capabilities that are available today, I think that would be a good start.

6. Pretty much what we have talked about already.

7. Oh, honestly I am not sure about that. I don’t really know enough now about how the process of voting works with ICC code development to weigh in with an opinion. I wouldn’t want to give a wrong answer.

8. Not really.

9. Well, I haven’t been to the meetings. How about sending an e-mail blast to inspectors across the country notifying them of upcoming changes and areas needing to be clarified? Primarily, a questionnaire sent electronically by the ICC to inspectors and code professionals to gain feedback and participation.

10. I think those scenarios hit the nail on the head with what I see the direction ICC should be going toward in the future.

11. The only other thing would be to submit a vote electronically or by mail-in on proposed code changes and for new codes—casting a vote that way would be an improvement.

12. Not that I can think of. The technology aspect that we discussed is the biggest change I can see that would impact participation in the CDP.

13. I can’t think of any off the top of my head.

14. Probably not. I really like the localized site idea from the last question—that would be very beneficial and it would make it more accessible to the local guys to participate.

15. None that I can think of.

16. Not that I can think of.

17. Um, I think that if the ICC would compartmentalize the CDP, break into chunks by sections of the codes. If they had committees for various sections of codes, broken into major components. This would make the CDP less exhaustive, throughout the creation and revision process.

18. One real problem a lot of the guys have in our office is the website is awful (ICC’s). It is not well organized, extremely difficult to find things. ICC’s website prevents interest in the process, to find anything on the website is a miracle. If it could be redone, that would help. Everyone I have talked to has said that ICC’s website is terrible (not user-friendly).

19. There are philosophical differences between the ICC’s CDP and other code
organizations (i.e. NFPA) in regard to its voting process. I believe the ICC could benefit by adopting the practice of other organizations. The major difference between ICC and the other organizations is who is allowed to vote (governmental employees only are allowed to vote in the ICC). With the others, that limitation is not imposed and I think you get a better consensus and input in a code when more people are involved.

20. I see the big change being determined now by the ICC is how to do the voting. I have stated my feelings about regional voting—I have very mixed feelings about whether this is the way to go or not. It would probably increase participation of the people, who are now unable to travel to the national meetings, but I worry that exchange of ideas and dialogue, the give and take that comes from face-to-face interaction will be missing or lacking, and that part of the CDP is essential to its success.

21. Because I have not gone through the CDP, I don’t have any improvements to suggest. This is based on my lack of experience at this point. I do think a “hub and spoke” thing (with local sites linked to the main hub) would be the most efficient way to participate. If there was a meeting place in our local jurisdiction, I would participate. One other thing, I earned my Bachelors degree online, and I think most people in my demographics would support the technology advances of teleconferencing and webinars, as a way to participate in the CDP. That being said, I think that accomplishing this while still incorporating other people from the jurisdiction at a meeting site in order to have dialog, and have the face-to-face contact during the process is important.

22. I have never been to the meetings or taken part in the process, so I can’t make recommendations. I am going to apply to ICC for a grant so I can go to the next national meeting—ICC started doing this about two years ago, offering grants to people who are not able to get to the national meeting and who really want to go.

23. I don’t know. I kind of wish the ICC would stop allowing the states to amend the ICC Code to fit their states codes. In my state, North Carolina, the code has been lessened, not made more stringent (for example, in the area of “a place of assembly”, with the ICC Code once you reach a capacity of 100 the place has to install a fire sprinkler, but North Carolina raised that capacity number which, in my opinion, lessens the safety to life. Local politics make us have to play nice when the state amends the code-- to make people and businesses happy, rather than making the public safer.

24. If they could have more of a regional voting process, break them up, space them out so you could work on just your section. I know it wouldn’t make sense regionally, and it would have to be a national vote with a webcast of voting rights with a time schedule for voting. Individuals could log in with preset pass codes, the technology does exist.

25. None that pop out immediately in my mind.

26. Can’t really say, without having the first hand experience of attending the meetings, it would be hard to comment on what the ICC could do to improve the process.

27. I don’t believe so-outside of keeping special interest groups and politics out of the CDP, but I don’t think that will ever happen.

28. Not really, I can’t think of any that would change the process.

29. The one thing that would interest me is if I could go and attend only the part of the meetings that I actually know something about which is the International building code and the International residential code, without having to go through all the mechanical code changes, which I don’t enforce or use.
30. Nothing beyond what we discussed. Scenario 2 & 3 (individual internet interaction and/or the remote site participation in the CDP) would make a difference to a lot of people and would increase participation nationwide.

31. Not really. If we had the funding I’d be all over it. Two or three years ago we sent a couple of guys to the meetings and it was good. The option with having a remote site to go and participate locally is the key—DuPont Industries in our state has been using these kinds of technology for a long time. It can be done.

32. I think it would be helpful if the ICC controlled the duration of the meetings each day as well as the agenda. The hearings should not drag on to the wee hours of the night when there is a much smaller group in attendance than during the day—when only a few people are left to direct the input and make decisions on issues that affect many communities.

33. None that I’m aware of; I don’t know the process well enough to be specific.

34. One thing that would encourage me to participate more, because the meetings are so long and time consuming, is if the code changes were coming from code officials rather than special interest groups who are getting code changes made in order to sell their products. Because the hearings are so lengthy now, I would think eliminating or limiting the input from the special interest groups/lobbyists/industry would reduce the time spent at the meetings developing and voting on the codes.

35. Not that I can think of. Bringing the meetings and voting process closer to home would be good.

36. No, it’s too new for me to know. I am at a disadvantage to comment. As we get into using the ICC codes more in my state, I will be able to participate and plan on being more involved in the process.

37. They need to take an in-depth look at themselves. The ICC’s credibility has slipped a lot in the past years. If they are not careful they’ll end up going the way like CABO and BOCA. A proverb, “a fish rots from the head down” meaning the ICC has gotten so full of themselves in recent years, that they’ve lost touch with their mission which is code construction.

38. None that come off the top of my head.

39. Maybe one idea would be if the ICC meetings could somehow be coordinated to occur during other national organization’s conferences. For example, if the ICC held and televised their meetings during the NFPA conference or the International Association of Arson Investigators conference, and those associations would agree to show the meetings to interested members at their conference, that would be a great way for people to participate within a conference, they would already be there anyway for the conference. It would be easier to explain to my boss that I am going to a national conference, where I would be learning relevant things to my job, and to have the ICC meetings be bundled into it, then to talk him into letting me get the time off and the funding that goes with it to go and attend the ICC hearings alone.

40. Part of the challenge for me, is that my current jurisdiction is not as open to participation as my former one. There are lots of layers and levels for proposals to go through before it can even get to the state level—Participation to the CDP is simply not accessible in my current situation.

41.  

5. **Do you have any other thoughts to share on the code development process?**
1. No. Financial commitment to participating in the Code Development process is a big consideration for us. We are faced with very tight budgets and as a matter of fact, we currently do videoconferencing in our office to save our local people the time and travel expense of going just 10 miles! If we had to travel cross country to attend CDP meetings, we just would not go.

2. I think there should be something in the website that refers to the different states (my state is NJ) where I could make comparisons between the national and amended version of codes and the state codes—right now I have to refer to two different books, the amended and the national version and it’s time consuming.

3. The records show my lack of involvement—I’d like very much to be involved but the restrictions to the process (example: personal expense, time off from work to attend, time away from young family, and travel) prohibit my involvement.

4. I think we summarized what my concerns are—Hearings are too expensive to attend. I like the idea of attending a day-long meeting in our local jurisdiction with others from our area and being able to video conference and participate in the hearings that way. My office space is not conducive to me participating, it’s too open and busy, and wouldn’t work for me.

5. I don’t think so. If the ICC brought the code development process to everybody, so we could all have input on changes and development and I could be involved more than I currently am, I would have more thoughts to share on this process. Currently I am not actively involved in this process, but would like to be in the future.

6. Just making the process more accessible, bringing it to a local jurisdiction, so people wouldn’t have to travel so far to the national meeting, and having it take place in a shorter time frame would increase participation, I think.

7. Not at this time, except that if it (the CDP) was more accessible to people, you might get a better turnout, more input from others, more participation in the final product—and ultimately, a better final product.

8. The 6 to 9 days CDP hearings time period is way too long to encourage participation. Having the hearings in a meeting place locally, where you could attend the hearings via teleconference would be a good thing.

9. I think I’ve exhausted my experience with the process—having not been to the meetings before, I don’t have a lot of input about the existing process. I do think that the ICC is trying to make this a more accessible process, and a good start is with e-mail and internet communications.

10. The options or scenarios we discussed where the meetings are held closer to district sites or by individual teleconferencing, and over a shorter time period, I think would really help people to participate more in this process.

11. I think they are doing a pretty good job and I’d like to see that continue. I think if the ICC could keep some of the industry players out of the voting process, so they are not able to profit directly by the code change to benefit their particular products. I think that sort of thing happens. I see that its happened in the electrical industry, for example if breaker A is now required to be under code and other less expensive breakers are not code, that benefits someone directly.

12. The biggest drawback I see is the absence of communication between the code officials and the fire service (personnel) with regard to the changes in code. Better communication is needed. It’s like the left hand not knowing what the right hand is doing. It can only get better I hope.

13. No other thoughts really. The CDP is an important process, having consistency through the codes so people know what’s expected of them is critically important.
This survey by ICC is a good thing—that they are taking the time to find out our thoughts on this process is a very good sign.

14. I don’t know that I have any more to say on the subject.

15. I really can’t think of anything.

16. Maybe an on-line discussion forum on the ICC website, where you could ask about specific areas of codes that might need to be revised or updated, something that you could ask questions and make comments on a regular basis.

17. The ability to view and print electronic copies of the ICC would be tremendously helpful. The NFPA (National Fire Protection Association) allows you to freely access their codes online, at any time anyone can read them. When I am talking with a non-code professional, I can send them to the internet and in a few minutes they can see exactly what I am talking about and it makes the whole process 100% easier. Given the frequency of change of the codes, this makes it even more beneficial to read them online—the benefit being instant access to the most current edition of the code, as well as archival of past codes. The process now for looking up ICC codes is lengthy, difficult to use, and very difficult to find specific information—the best way to describe it now is impractical.

18. I have also heard this mentioned a lot. I went to Denver to school last year and lots of guys I went with served on code change committees, and the code changes in my opinion don’t necessarily reflect the minimum standards. It keeps getting more and more restrictive and in some cases a lot of things in the code are very region specific (i.e. CA) and have no bearing in other regions that are under the same code. A building or plumbing code that is passed might be specific to a region (for example in Florida—for wind load, in California—for seismic, and the North East for snow loads), that is then applied to everybody in the country. Maybe region-specific requirements could be put into an appendix, and not in the ICC code. Then the regions that are impacted the most by these requirements could vote them into their state’s code. Many of the people that serve on the code change committees represent areas where the codes are very important to their region (i.e. California, Florida, and the North east). Their particular regions needs for certain necessary codes are the basis for much of the input that goes in to the CDP, though it may not necessarily represent the needs of other regions in the country. I think if the process was opened up to more individuals throughout the country, via the internet or teleconference, much more input and discussion would go into the CDP from other regions that aren’t necessarily represented as much (because they haven’t served on the committees in the past).

19. I think you may have heard this from others, but I feel the codes are becoming more and more product specific (manufacturers are involved and trying to push their particular product into the code), so the CDP becomes more about selling a product than about the core value of safety. The focus should be on safety and not about product sales of a particular product for a company. I don’t like where the code is headed in that way.

20. Question skipped.

21. I think we are pretty good. I do appreciate the opportunity to be involved as a sounding board for the ICC. I would be available to participate in the future for other discussions on changes and improvements to the CDP.

22. I think it will continually change and be modified, and become more accessible to others—more technology based, to include those unable to participate who still want to hear what is being discussed and voted on. I really hope to participate
someday and attend a national meeting of the CDP.

23. I wish the ICC would try to engage the inspectors more (the actual field personnel) rather than engaging higher officials who are in the office all day. In my 5 years as an inspector, this is the first time the ICC has reached out to me for my opinion, that I am aware of (the opportunity to participate came to me in an e-mail from my boss, not directly from the ICC. As I mentioned, there are lots of layers in between me and the top!

24. Limit the special interest vote in the CDP, those who are there to mainly to get their products into the code. I see it in the fire code and I hear of it in other areas. Developing a code specifically to sell a product that benefits a special interest group is not viewed well by code professionals. I understand, if a product comes along and it will uniquely serve the purpose of an existing code, the necessity of presenting that product—but why couldn’t that be done in a presentation on the live webcast instead of from the floor of the meeting. Those people (special interest) have the time and money to attend the CDP because it’s in their company’s best interest to get their product in the code. I am not sure how that can be stopped but it would be nice to know who is voting—who and what exactly they are representing.

25. In reality, don’t have too many complaints about the process or final results in the voting. It (the ICC) is a code that is used by a very diverse group of people and countries. Although not everything in the code is applicable for everyone using it, I think that, overall, the ICC does a decent job of making people happy.

26. Yes. I think within the CDP itself there should be some kind of statement that requires all code officials to not only attend and participate in the CDP, but also be required to vote in it as well. We have so many things we are required to do in the code world, it makes sense to have us be in on the process of developing the codes from the start to better understand why they exist, and to better explain and enforce the codes to owners and occupants of our community. I appreciate the opportunity to weigh in on this process. I feel as though the younger code officials are sometimes intimidated by the elders, mostly out of fear of looking foolish or not being in the know.

27. I don’t think so.

28. Really, not the process, but I feel the ICC has too many codes (International Building code, International Residential Code, etc.) there are a lot of them. In my part of the country, we are strong uniform code people. Basically you have one building code that takes care of all structures, same for plumbing and mechanical codes. It’s easier to explain to the public when you have one code; it blends together a lot better. You don’t have to cross reference codes when you use to IAPMO’s version of the uniform code, which is easier. This is what I hear; “the ICC is in the business of selling books” and I agree with that statement. They sell a lot of books, so they are in the business of testing people (tests so people can get certified). For example, the inspector before me had this advice for me when I was studying for my test with ICC. He said, “don’t worry about the test, its open book, and the ICC is in the business of selling books. So if you fail, you won’t buy their books”.

The Uniform Code Plumbing certification test is very difficult, a two hour test. It requires a lot of job knowledge and studying to pass. The ICC test, in my opinion, is an easier test to pass if you are simply able to study the books—you don’t necessarily have to have field knowledge. My job is made easier because I have a lot of support from my boss, she encourages us to stay involved, and continue learning.

29. Just that I hadn’t previously considered the option or idea of having a local meeting
site within our jurisdiction to go to and vote, and I think that it is a really good idea. I hope that will happen.

30. I don’t have a lot to say about it. Has ICC ever considered having a link on their website explaining the CDP, and voting process? Similar to a basic tutorial, to educate anyone who is interested in the process to how the codes are developed. There are a lot of people who don’t participate because they are unfamiliar with the process, the forum it takes place in. I think this would be a valuable tool.

31. Not really. With no previous experience working on the CDP and not having been involved in the past, I don’t have any comments on how to change the process. I do really think remote access is the answer to improve and increase participation in it.

32. I think it is important for the ICC to work toward the goal of allowing a lot more of the smaller jurisdictions to attend, by making it easier and more affordable for smaller communities to participate and have representation at the meetings. The ICC needs to make sure that these local communities’ interests are represented in the CDP, and not just the interests of industry people and the larger, metropolitan jurisdictions that can afford to have their people go and attend the meetings.

33. Being a smaller municipality, just having more access to the ICC, having them be more available to us would be helpful. The website currently is a bit prohibitive, you can only get so far into it, and if you are not a member you can only get so much out of it (ex. You have to be a member to sign in and discuss issues; click on the “communities of interest” tab and then on to the “fire” tab, at which point you would have to sign in to participate) If the website was more open to other parties and anyone could add comments, like a blog or something, the ICC could get more valuable input and participation.

34. Not really. I’m not really excited about having the hearings split up into two sessions, it’s hard enough for me to get to one place a year and attend one set of meetings, let alone trying to do two trips. It would be nice if the meetings could be accomplished in one spot all at the same time.

35. Not off the top of my head.

36. Transparency is good. Whenever a process is transparent you usually can get the most out of it. Another comment—Our state is new to the adoption of the ICC Codes. I have noticed that some of the codes do not apply to our state (ex. wind loads and snow loads). I find it curious that a code that is used by the entire country has codes that don’t necessarily apply to our state’s circumstances.

37. I think the ICC knows where I’m coming from.

38. I think I’ve said everything. Nothing else comes to mind.

39. This happened to me, a couple of days ago. I was looking through the index of one of the ICC codebooks and the index directed me to a subject chapter, and when I turned to the chapter it was not the correct reference—the index didn’t match up to the chapter. Other people I’ve talked to have noticed this problem as well, that indexes don’t match up with the section when you look it up. NFPA has their codes available for online access, we pay a subscription fee, with log in access, and look up current and past codes—it is easy and awesome. We use it a lot. I have often thought that the ICC should have their codes more available online. Also, NFPA sends us quarterly updates for our hard copy books, and I am sure that its website is updated that often. The ICC Code book is printed out only every three years, it would be great to get more regular updates. Maybe ICC could send out e-mail alerts that revisions to codes have been made, directing us to the website to print off the revision, and replace it in our books. That would be helpful also.

McKinley Marketing, Inc.
ICC Under 35 Telephone Interviews
January 2011
40. I think the biggest challenge faced today by the ICC, is that the ICC Code is behind the times. The code doesn’t keep up with the current technology in general. I work more with the fire code in my job. There needs to be some way to shorten the cycle, three years is a long time, and often by the time the codes are published, the new codes are no longer current.

I do feel it is important to get involved with the process. The CDP is what we have to work with, so we need to be invested in it. Maybe a solution might be more frequent mid-cycle code interpretations (of some of the temporary amendments or code provisions).

Also, for the younger code official generation, additional on-line training and certification preparation are both imperative to keep the younger code officials engaged, especially with jurisdictional budgets being very tight. The ICC is starting to do this and they should continue to improve on these offerings. On-line training is how our generation learns and how we prefer to learn—it is what we are used to.
## Appendix: Participating Jurisdictions

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<th>Department</th>
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Tomorrow’s Codes and Standards Volunteer: A Study of Future Participants in Codes and Standards Development

Final Report

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FOREWORD

The United States-based codes and standards development system(s) have traditionally been heavily dependent on the participation of independent volunteers to both provide input and expertise into the development of specific requirements, as well as, often provide a level of administration and quality review of the overall documents. In recent years, it appears that several outside factors may be influencing the level of participation and commitment of the traditional codes and standards volunteer, from the casual observer to the consistent and active participant. The relevant participation factors may range from the obvious time and financial impact on the individual volunteer – or the volunteer’s employer – to the more ambiguous shift in generational motivations and/or other demographic factors.

To better understand the known and unknown factors and their impact upon the standards making organizations, the objective of this research has been to develop, collect, review and analyze information to map the reasons and motivators for participation and decline of participation by individuals and organizations, including a review of the shift in available communication and technological platforms as a potential factor in participation patterns; and to project characteristics, attitudes, and expectations of future volunteers.

The Research Foundation expresses gratitude to the Project Sponsors and Technical Panelists listed on the following page.

The content, opinions and conclusions contained in this report are solely those of the authors.
Tomorrow’s Codes and Standards Volunteer: A study of future participants in codes and standards development

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Background

The United States-based codes and standards development system(s) have traditionally been heavily dependent on the participation of independent volunteers to both provide input and expertise into the development of specific requirements, as well as, often provide a level of administration and quality review of the overall documents. In recent years, it appears that several outside factors may be influencing the level of participation and commitment of the traditional codes and standards volunteer, from the casual observer to the consistent and active participant. The relevant participation factors may range from the obvious time and financial impact on the individual volunteer – or the volunteer’s employer – to the more ambiguous shift in generational motivations and/or other demographic factors. To better understand the known and unknown factors and their impact upon the standards making organizations, the objective of this research has been to develop, collect, review and analyze information to map the reasons and motivators for participation and the potential decline of participation by individuals and organizations, including a review of the shift in available communication and technological platforms as a potential factor in participation patterns; and to project characteristics, attitudes, and expectations of future volunteers.

The project tasks were carried out in conjunction with a technical panel of standards developing organization representatives and participants who were interviewed about their own experiences, reviewed the survey questionnaires, and in some cases invited their own volunteers to respond to the surveys, increasing the response rate and the value of the data collected.
Acknowledgements

The authors would like to acknowledge the valuable review and comments provided by the staff of the Fire Protection Research Foundation and especially its executive director, Kathleen Almand. In addition, the project sponsors and their representatives, and the project technical review panel helped to guide the work. Finally, the authors wish to thank the staffs of the standards developing organizations (SDOs) who were willing to share their time and thoughts on these subjects, and the committee members and students who took the time to complete the on-line survey.
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Executive Summary

A study was commissioned by six US standards developing organizations along with ANSI (the US national standards body) and NIST (the federal government agency responsible for the government’s implementation of the National Technology Transfer and Advancement Act). The objective of the study was to develop, collect, review and analyze information to map the reasons and motivators for participation and the potential decline of participation by individuals and organizations, including a review of the shift in available communication and technological platforms as a potential factor in participation patterns.

Following a literature review which identified almost no applicable references, administrative staff of the sponsoring organizations were interviewed by phone to organize and document real and perceived obstacles to volunteer participation based upon the Standard Development Organizations’ views, needs, and historical observations. While all follow the ANSI requirements for consensus document development, each organization is unique in their objectives, processes, and procedures, requiring some modification of the questions and interpretation of responses. All follow the requirement for maintaining a balance of interests in voting, but their individual procedures for classifying interests vary. Because this represents a significant constraint on committee membership, the interest classification systems were collected for understanding.

Following the phone interviews, two online surveys, one of current volunteers and the other of students who would be expected to make up the bulk of future volunteers, were developed. The SDOs sent email invitations to randomly selected committee members. Student members of two SDOs and the Society of Fire Protection Engineers (SFPE) were similarly emailed invitations to complete the surveys. A total of 1352 of 5075 (27%) of current volunteers, and 440 of 4400 (10%) of students completed the surveys.

Finally, top IT professionals at several organizations were interviewed by phone to explore the degree to which each organization is exploring technologies for remote meetings, web-based document collaboration, and electronic voting intended to streamline the procedures and to permit more involvement with reduced costs to sponsors.

Key findings included the following:

- The discussions with staffs of the participating organizations indicated that there is currently no shortage of standards committee volunteers to work on projects dealing with hot or emerging topics. They occasionally experience shortages of volunteers that are motivated to maintain older standards unless these form an explicit part of their business. Most committee projects do not have vacancies, nor do they have waiting lists.
Both current and potential future (student) volunteers reported that professional development, networking, and recognition were the primary personal motivators for participating on standards committees. Sponsors are more interested in the ability to influence and to obtain early awareness of changes to standards that affect their business, the ability to enhance the safety of products and representing their companies and industries in standards development. Continuing the current level of participation will require that these motivations be supported going forward. While most organizations have programs to recognize individuals, none currently recognize sponsors. Recognizing specific companies as industry leaders in promoting safety and public welfare might be seen as a positive factor in marketing and additional motivation to fund participation.

Committee workload is generally not sufficient to overload volunteers in relation to their other duties. Current volunteers are sometimes willing to donate time or pay some travel expenses themselves when funding is not available from employers. Future volunteers are less willing to contribute time and especially to pay expenses without reimbursement from employers. This observation places even more importance on existing programs that fund travel for certain interest categories such as enforcers (governmental) and consumers.

Embracing new technologies that can reduce the time and expense burden for volunteers is being pursued by every organization interviewed. All of the organizations reported that there is no substitute for face-to-face meetings when the work involves the resolution of technical issues or the development of consensus.

These led to the following recommendations:

A primary goal of the sponsors of this study was to identify and address any issues that might affect their ability to attract committee volunteers in the future. From the telephone interviews it appears that the SDOs are not currently experiencing problems except with some older standards projects where the document(s) are largely on maintenance. Multiple cycles in which a document is repeatedly recertified (to meet the 5 year requirement) can result in a lack of interest.

One process that might be useful in maintaining interest is to periodically solicit input from users of the standard as to any problems that they encounter in their use. Going beyond a call for proposals, this could be modeled after the users' groups that are in place for several test methods. Those using the standard in their daily business are best suited to identify problems and the practicality of potential solutions.

The authors were surprised to learn that, while every organization recognized volunteers, none recognized their sponsors. Such recognition might encourage
sponsoring organizations to increase (or at least maintain) their financial support of employees to participate fully in committee activities.

- Concerns about the loss of experienced volunteers upon retirement might be addressed by encouraging succession plans that provide some incentive for the retiring volunteer to recruit and train their replacement. The longer term grooming of potential volunteers might be facilitated by the development of web based training modules (recorded webinars) that educate potential volunteers on the standards development process.

- While some are more ambitious than others, every organization is exploring new technologies to streamline the workload and to reduce travel. Every organization reported that there is still no substitute for face-to-face meetings, especially where it is necessary to reach consensus on complex issues.

- While the cost of a volunteer’s time generally exceeds the travel costs, sponsors are more concerned about the latter. Most organizations do a good job of obtaining reduced hotel rates and discounts on airfares. Some might do more by entering into agreements with lodging chains to hold multiple meetings at their properties in exchange for lower rates, complimentary meeting space with smaller guarantees of room-nights, or refreshments.
Introduction

A group of US standards organizations jointly funded research into the interests and motivations of potential future volunteers to the standards developing process. The research was organized into a study of the characteristics of the current volunteer, including their motivations and those of their sponsors. The characteristics of potential future volunteers was studied by surveying students (mostly engineering) who would be expected to make up a majority of the future pool. The sponsoring organizations were questioned about their current volunteer pool including any impacts of the current economic downturn on participation rates, and on their exploration of new technologies intended to reduce workloads and travel costs. An initial literature review was conducted to collect information on any prior studies applicable to these issues.

Literature Review

The first task was to search the accessible literature to determine if prior work had addressed any of the central issues such as motivation of volunteers, reasons for decline in volunteering, or demographics of volunteers, specifically with regard to standards development or the broader topic of volunteering for work of a broad societal value.

Search Strategies

On-line searches were conducted on a range of literature and Internet databases including Library of Congress, BFRL Research Information Service (NIST), Google, Google Scholar, and Bing, on a number of terms and keywords such as:

- Technical standards committee,
- (Technical) standards committee volunteer,
- Committee volunteer,
- Motivati(ng)(on) volunteer(ism),
- Standards development,
- Committee (participation)(volunteer),
- Future volunteer(ism), …

Results

These searches identified very little related to standards development. Search results typically included calls for committee volunteers from a large number of standards developing organizations and from jurisdictions seeking to fill positions on local technical committees and appeals boards. Articles and books that address motivating volunteers for charitable and public assistance organizations such as delivery of meals to shut-ins, soup kitchens and food banks, and tutoring of disadvantaged children were abundant. Occasionally, this class of result included articles on recruiting volunteer firefighters such as;
Motivation of Volunteer Firefighters in Combination Departments, J.P. Silva, Meridian (OH) Fire Department, US Fire Academy Executive Leadership program.
Why would you do it? Age and Motivation to become a Fire Service Volunteer, McLennan, J. and Birch, A., The Australian and New Zealand Journal of Organizational Psychology, I, 7-11, DOI 10.1375

For any published article found, the list of references included in that article was reviewed to determine if any of these might be applicable to the subject. There were no scholarly articles identified that dealt with volunteering on technical committees that develop standards. Scattered among the results were postings on the websites of SDOs supporting their own recruitment of committee volunteers such as, Your volunteer opportunities within ASHRAE, and The benefits of participating in ASME Codes and Standards Activities.

Discussion of Results
Typically, the factors identified that motivate volunteers to charitable or public assistance activities are altruistic and are not applicable to volunteerism on technical standards committees, with the possible exception of committees established by professional societies to develop standards of professional practice. Here, volunteers may be motivated by a perceived need to “give back” to their profession, especially with respect to altruistic issues such as ethics or professionalism.

Motivational factors identified in relation to the volunteer fire service are the same as those identified for charitable and public assistance activities. Community service and public safety, helping those less fortunate, learning important skills (especially medical training), camaraderie, and the exhilaration of emergency response are all discussed. While the factors identified as contributing to the motivation to participate in volunteer firefighting or in charitable enterprises in general are likely different from those associated with technical standards development, some of the perceived barriers to participation may be applicable.

As part of the literature review activity, the NFPA Profile 2000 report (Volunteers and the Standards Process in the Year 2000, NFPA, 1990) was reviewed. This report of a two-day workshop on this subject directly addresses the issues that are the subject of this project and provides some interesting insights. A fundamental premise of the workshop was that the motivations and barriers to committee participation vary in relation to the interest categories used to characterize committee members in the standards development process. This should not come as a surprise because the interest categorization is based on the interest (usually financial) that the volunteer and his/her sponsor have in the documents for which the committee is responsible. Thus, the breakout groups were organized into six interest categories and their recommendations and observations reflected those perspectives.

Classification of Volunteers by Interest Category
ANSI procedures for consensus standards development require that voting committees are balanced by interest categories and that no individual interest can dominate. The procedures do not specify interest categories and each SDO has developed its own
classification system. The NFPA process has nine interest categories that are similar in
definition to most others, so these will be used for the following discussion. The interest
category definitions listed in the NFPA regulations (governing committee projects) are:

1. Manufacturer (M). A representative of a maker or marketer of a product,
   assembly, or system, or portion thereof, that is affected by the standard.
2. User (U). A representative of an entity that is subject to the provisions of the
   standard or that voluntarily uses the standard.
3. Installer/Maintainer (IM). A representative of an entity that is in the business of
   installing or maintaining a product, assembly, or system affected by the standard.
4. Labor (L). A labor representative or employee concerned with safety in the
   workplace.
   testing laboratory or independent applied research organization that promulgates
   and/or enforces standards.
6. Enforcing Authority (E). A representative of an agency or an organization that
   promulgates and/or enforces standards.
7. Insurance (I). A representative of an insurance company, broker, agent, bureau,
   or inspection agency.
8. Consumer (C). A person who is or represents the ultimate purchaser of a
   product, system, or service affected by the standard, but who is not included in
   (2).
9. Special Expert (SE). A person not representing (1) through (8), and who has
   special expertise in the scope of the standard or portion thereof.

Manufacturer
Clearly, manufacturers have a direct financial interest in the standard since it applies to
the product(s) they provide. Manufacturers’ representatives are motivated to participate
in the development and maintenance of standards in order to have some input to
requirements and to have early knowledge of potential changes to requirements that
may affect their business. Some manufacturers may be motivated to participate in
standards development in order to create a mandated market for their products where
others may wish only to assure a level playing field among their competitors.

Manufacturer representatives provide valuable insights to the standards process
because they have intimate knowledge of the products and the practicality of
requirements that are proposed within the confines of current technology. Their vested
interests are held in check by the requirements for balance of interests and vigilance by
the SDO with respect to any attempt to restrain competition. Here it should be noted
that activities amounting to restraint of trade carry liability both to the SDO and to
individual members of the committee.

Manufacturer representatives often work through trade associations to represent their
industry rather than an individual company. The trade association coordinates
committee assignments to equitably spread the workload among member companies
and often develop industry positions through an internal codes and standards
committee review of ballots and a directed vote of the member. Some companies may
be motivated to support standards committee participation to gain recognition of their position as an industry leader or to address industry issues in a forum generally safe from anti-trust considerations.

User
User representatives also have direct, financial interest in the standard(s) since the standard(s) may significantly influence the users’ business. For example, health care providers are users on standards for health care facility safety or operational procedures and these standards are often applied by accreditation bodies to qualify for insurance or Federal reimbursement. Thus, the motivations of user representatives parallel those of manufacturers for participation on SDO committees particularly where accreditation or licensing is required.

Installer/Maintainer
Installer/Maintainer representatives are service providers like Users but their services involve the installation and ongoing maintenance of manufacturers’ products at their customers’ premises. Like Users, the standards which they use significantly influence the installer/maintainers’ business and, in some cases, accreditation by the original equipment manufacturers or licensing by enforcement authorities may be required, based on compliance with recognized standards.

Labor
Labor representatives (typically labor union representatives) are very similar to installer/maintainers in that the standards on which they serve usually significantly impact their work, but their perspective is often related to a union’s fundamental duty to protect the health and safety of its members rather than licensing or professional qualifications which are generally addressed through union rules.

Applied Research/Testing Laboratory
Representatives of applied research or testing laboratories often provide testing services utilizing the test standards developed and maintained by the committees on which they serve. Like manufacturers, the testing lab representatives have an intimate knowledge of the practical use of the standard and the practicality of proposed changes within the confines of current technology. RT representatives from product listing agencies like UL and FM Global develop their own product standards, but these need to be consistent with nationally-recognized standards that apply to installation, maintenance, and use, so their input to and advanced knowledge of proposed changes to these standards directly influence their core business.

Enforcing Authority
Enforcing officials apply standards and their related regulations in their role as guardians of the public safety and welfare. Enforcers are also those to which the responsibility for public policy decisions on the costs that society is willing to bear has been delegated. Enforcers have the practical experience with the application of standards to everyday situations and have strong understanding of what does and does not work. Enforcers have no financial interest in the standard but owe allegiance only to the public they serve.
Insurance
Insurance representatives serve a role in developing standards that control risk and minimize the probability of unexpected losses. Insurance is about understanding risk so that insurance premiums are established that cover losses plus costs. Adequate standards have been shown to result in stable or improving loss experience that permits insurance companies to avoid surprises.

Consumer
Consumer representatives are intended to provide the viewpoint of the general public with no financial stake in the standards, products, or services other than receiving value for money or meeting societal expectations. With no direct financial stake in the standard, these are the most difficult to recruit because they lack financial resources to fund participation.

Special Expert
Special experts are people with technical knowledge or experience applicable to the standard but who do not fit into other categories. They are frequently consultants who are contracted to represent other interest categories, especially manufacturers who may not have the broad knowledge or staff to fully participate in the standards development process. Special experts may represent individual companies, groups of companies, or entire industries on standards committees or by providing testimony in the adoption process. Special experts may also find themselves at times in the temporary roles of user, installer/maintainer, or applied research/testing laboratory as well as a designer or specifier. Most SDOs require that Special Experts disclose any funding entities that are being represented in any action that they are taking before the body, and some SDO’s require that these individuals be assigned the interest category of the entity that is funding their committee participation.

Recognition
In the general context of volunteerism, recognition of the volunteer, usually in the form of awards or public acknowledgement, is often cited as a motivational factor. While this is certainly also a factor in standards participation, it may be as important to recognize the sponsoring organization that allocate the resources that enable the participation. There is an entire section of the Profile 2000 report devoted to this topic.¹

Barriers to volunteer participation in SDOs
Funding
Clearly, the top barrier to volunteer participation is funding. Active participation requires that a sponsoring organization is willing and able to fund the time and travel costs associated with the committee work. Volunteers from interest categories with direct financial interest in the standards are the most likely to obtain this commitment. Thus it is common for there to be no shortage of volunteers from the manufacturer, and special expert (particularly those being paid to represent manufacturers); and from installer/maintainer, user, applied research/testing lab, and labor, depending on the scope and application of the standard.

¹ Enhancing the volunteer experience, Profile 2000, Nat Fire Prot Assn, Quincy, MA, pp12-14, 1990.
In recent years, globalization and industry consolidation has resulted in fewer manufacturer representatives available to participate in standards development. When there were many independent companies, it was sufficient for each to support one or two employees to cover standards development activities, especially when coordinated across an industry by a trade association. With fewer, larger companies today, filling all the slots requires more people and funding resources that are being questioned at high levels in these companies. Globalization is resulting in questioning the need for different standards in different markets requiring compliance with multiple standards and certifications. This is especially an issue with respect to the sharply higher travel costs of participating in international standardization activities.

Enforcers are generally employed by State or local government agencies because regulations are adopted and enforced at that level under the powers granted the states in the US Constitution. State and local government employees frequently have difficulties receiving authorization to travel outside their jurisdiction and some have difficulties obtaining time off to participate because their shifts must be covered. Some SDOs offer at least partial reimbursement for travel costs of enforcers.

Insurance representatives volunteer for committees whose standards are utilized by their companies in loss control programs since this is another example of a direct financial interest. Consumer representatives are rare because there are very few organizations willing to sponsor their participation.

**Time**

One issue that was discussed in much of the literature on volunteerism is the observation that, today, most people are under significant time pressures. With most families having both partners working and the trend for children to be involved in multiple, organized activities, travel commitments increasingly conflict with family commitments. A key factor attributed to difficulties in recruiting volunteer firefighters is their inability to commit significant time to training and time away from family in the station house. Companies are less willing to commit multiple people full time to standards development, so many volunteers have other responsibilities that limit their availability for standards work.

These issues are compounded by the psychology of younger professionals, often classified as *millennials*, who are more tech savvy, multi-taskers, and impatient with doing things the traditional way. These young professionals often express frustration with the slow pace of building consensus in standards development, three- to five-year cycle times, and the rigid process of public input to document revision.

Many people experienced in standards development observe that committees are much more efficient at reacting to proposed language than to writing it. Many SDOs make extensive use of task groups or subcommittees that do not need to meet balance requirements because voting is done at a (balanced) “parent committee” level. ASTM, ASME, and ASCE are examples of SDOs that make extensive use of this process for initial document development or for significant revisions. This permits these larger work
efforts to be performed by volunteers with financial interests while maintaining control by a balanced group with a smaller time commitment.

Another method of reducing time and financial burdens is the use of teleconferencing, electronic document processing, and electronic voting. Most SDOs have such systems in place and their use is increasing. Some interfaces are more intuitive and other SDOs can learn from these. Some SDOs are still struggling with electronic voting but these issues should be worked out in the near term. A downside of the technology approach is that many participants report that it is more difficult to achieve consensus while teleconferencing; and that the most effective resolution of complex issues comes only from face-to-face meetings.
Interviews of Standards Developing Organization Representatives

A detailed telephone interview questionnaire was developed to organize and document real and perceived obstacles to volunteer participation based upon the Standard Development Organizations’ views, needs, and historical observations. Two organizations that are not traditional SDOs (ANSI and NIST) were included. The phone interviews included demographic questions such as age, sex, education, years of professional experience, present position and years in present position, size of company, and location. The second part of the interview was a combination of scaled opinion questions and open-ended questions. These questions explored issues of volunteer participation such as what are the perceived obstacles which may be based upon costs, employer support, organization or industry representation, emerging communication platforms, motivational factors and suggestions on ways to remove these obstacles. These questions were developed in consultation with the Project Technical Panel.

After the interviews, data analysis of the results was conducted to explore the types of correlations between the demographic factors and answers to the attitudinal questions. The results of the SDO interviews were used to develop the Task 3 Electronic Survey questions in order to provide additional detailed information for direct comparison for specific perceived obstacles or hindrances to participation.

A list of questions was developed that are listed in Annex A. Since the types of standards, the standards development process, and the membership from which volunteers are drawn vary substantially across SDOs, the questions needed to be adjusted for some SDOs. To help understand the similarities and differences in the SDOs that were interviewed, a summary of each of their standards development processes was produced.
Background on Sponsoring Organizations

American National Standards Institute (ANSI)

The American National Standards Institute (ANSI) is a private, non-profit organization that administers and coordinates the U.S. voluntary standards and conformity assessment system. As the voice of the system, the Institute works in close collaboration with stakeholders from both industry and government to identify consensus-based solutions to national and global priorities. In its role as a neutral forum, the Institute has helped to forge and continues to facilitate the robust public-private partnership that now exists in the United States.

ANSI is not technically an SDO since it does not develop standards itself but rather accredits standards developed through accredited processes\(^2\) as American National Standards. The American National Standards process involves:

- consensus by a group that is open to representatives from all interested parties;
- broad-based public review and comment on draft standards;
- consideration of and response to comments;
- incorporation of submitted changes that meet the same consensus requirements into a draft standard; and,
- availability of an appeal by any participant alleging that these principles were not respected during the standards-development process.

In addition to the Institute’s role within the domestic standardization infrastructure, ANSI promotes the use of U.S. standards internationally, advocates U.S. policy and technical positions in international and regional standards organizations, and encourages the adoption of international standards as national standards where they meet the needs of the user community. The Institute is the sole U.S. representative and dues-paying member of the two major non-treaty international standards organizations: the International Organization for Standardization (ISO), and, via the U.S. National Committee (USNC), the International Electrotechnical Commission (IEC). Through ANSI, U.S. experts participate in almost the entire technical program of both the ISO and the IEC, and administer many key committees and subgroups.

ANSI also publishes a weekly newsletter, *Standards Action* that supports the requirement for broad public review and comment on draft standards and serves the legal requirement for public notice of regulatory actions.

Website: [http://www.ansi.org](http://www.ansi.org)

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\(^2\)ANSI Essential Requirements: Due process requirements for American National Standards, 2010 ed.
American Society of Mechanical Engineers (ASME)

ASME is a not for profit, professional engineering society that develops technical standards needed in mechanical engineering practice. Topic areas include:

- Energy and environmental standards;
- Nuclear (nuclear power plant components);
- Pressure technology (boilers, pressure vessels, piping, and pipelines);
- Safety (elevators and escalators; conveyors; cranes derricks, and hoists; automotive lifts; and rail transit vehicles);
- Dimensional and Testing (geometric dimensioning and tolerancing; verification and validation), and
- Conformity assessment (product certification, personnel certification)

Interested parties apply to standing committees and are appointed subject to interest group limitations in accordance with balance requirements. Subordinate groups develop recommendations to standing committees for development of consensus approval, so are not subject to balance requirements. ASME committee membership options include a Delegate Program where a designated delegate carries a single vote representing an organized group of experts located outside of North America while participating in a standing committee or subordinate group activity. The group being represented by the delegate must be open to membership by any interested party.

The following are excerpts from ASME procedures:

3.2.5 Classification of Members. In order to establish balanced representation for developing evidence of consensus on standards, consensus committee members shall be classified in accordance with the business interests of their primary source of support for committee participation. Alternates shall not be counted in determining the balance of the consensus committee. The classification system and the classifications assigned to members shall be proposed by the consensus committee, shall be subject to approval by the cognizant board, and shall be included in the supplement to the procedures. Not more than one-third of the membership of consensus committees dealing with safety codes and standards shall come from any single category without the recorded approval of the other classifications and the approval of the cognizant board.

3.3 Delegates. Delegates are individuals representing a group of experts outside of the U.S. and Canada, and is intended to allow participation on ASME committees. Each group represented shall have a clearly defined interest in participating on ASME committees. A group is intended to be interpreted broadly to mean jurisdiction(s), company(ies), professional society(ies), trade organization(s), or user group(s).

3.4 Contributing Members. A contributing member is an individual non-voting member whose contribution to a committee is through review and comment on proposals (see para. 7.2.1). Contributing members shall possess the technical qualifications described for individual voting members in para. 3.2.

Web site: [http://www.asme.org](http://www.asme.org)

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3 Procedures for ASME Codes and Standards Committees, Rev. 14.
ASTM International (ASTM)

ASTM develops standards for materials, products, systems, and services. They are best known for standard test methods but also develop standard specifications, practices and guides. The ASTM process is a little different from most other SDOs in that any individual, with the proper approvals, can initiate the development or revision of an ASTM standard. A task group may be formed (while there is no formal balance requirement, broad representation of stakeholder input is recommended) to develop a draft document that is submitted to a standing subcommittee (by topic) for letter ballot. If successful, the document is balloted by the main committee and the entire ASTM membership. All negative votes at any point in the process must be addressed in accordance with the ASTM Regulations. If the committee does not agree with the negative voter, there is a mechanism for considering the negative vote “non-persuasive.” Technical committees normally meet twice per year but much of the development work is conducted by task groups between committee meetings.

Classification of Members
Section 7 of the Regulations\(^4\) specify that voting members are classified as Producer, Consumer, User, General. User and General are composed of government, academia, testing labs, or consultants. Consultants retained to represent an interest are classified as the interest they represent.

Web site: [http://www.astm.org](http://www.astm.org)

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International Association of Plumbing and Mechanical Officials (IAPMO)

IAPMO is a membership organization similar to the International Code Council (ICC) in that their members are primarily plumbing and mechanical code officials who enforce the Uniform Plumbing Code and Uniform Mechanical Code. Thus, members are classified as governmental (enforcers) or individual (everyone else). IAPMO used to restrict voting privileges to governmental members like ICC and, like ICC, could not become ANSI accredited. When they established a strategic partnership with NFPA, they asked NFPA to assist them in revising their procedures to qualify for ANSI accreditation. The NFPA Standards Council appointed an IAPMO Standards Council (including several former NFPA SC members) to facilitate these changes. IAPMO adopted a system much like NFPA’s and eventually achieved ANSI accreditation. Recently IAPMO has begun to develop standards for mechanical products such as heating, ventilation, cooling and refrigeration system products.

IAPMO interest categories are shown below:\(^5\).

3-2.5.1 Interest Categories. The following interest categories apply to TC and TCC members and represent each TC or TCC member’s principal interest in the activity of the TC or TCC.

(a) Manufacturer. A representative of a maker or marketer of a product, assembly or system, or portion thereof, that is affected by the Document.

(b) User. A representative of an entity that is subject to the provisions of the Document or that voluntarily uses the Document.

(c) Installer/Maintainer. A representative of an entity that is in the business of installing or maintaining a product, assembly, or system affected by the Document.

(d) Labor. A labor representative or employee concerned with safety in the workplace within the scope of the Document.

(e) Research/Standards/Testing Laboratory. A representative of an independent research organization; an organization that develops codes, standards and other similar documents; or an independent testing laboratory.

(f) Enforcing Authority. A representative of an agency or an organization that promulgates or enforces the Document.

(g) Consumer. A person who is or represents the ultimate purchaser of a product, system or service affected by the Document but who is not a User as defined in 3-2.5.1(b).

(h) Special Expert. A person not representing 3-2.5.1(a) through (g) and who has special expertise in the scope of the Document or portion thereof.

Web site: [http://www.iapmo.org](http://www.iapmo.org)

\(^5\) IAPMO Association Bylaws,
National Electrical Manufacturers Association (NEMA)

NEMA is an industry trade association of manufacturers of electrical products and medical imaging equipment. NEMA develops industry standards which may not be consensus standards, primarily for interoperability of electrical products made by its members. The standard for the so-called “Edison base” light bulb is a NEMA standard. NEMA may also organize or participate in consensus standards that are ANSI approved.

NEMA coordinates industry positions on codes and standards. NEMA member volunteers are appointed to standards committees as NEMA representatives with a vote directed by the NEMA Codes and Standards Committee that reviews ballot items and approves official positions from an industry (rather than a company) position.

Since product manufacturers have the most direct stake in standards that apply to their products, the affected companies are quick to participate in NEMA standards development projects. Consolidation in some industries has reduced the pool of people available to represent the industry on the committees of US SDOs, leading to shortages in representation.

Codes and Standards Committee

The Codes and Standards Committee is composed of technically knowledgeable representatives of NEMA member companies, appointed each year by the NEMA Standards and Conformity Assessment Policy Committee (SCAPC). Committee members represent a cross-section of the broadly diversified interests and products within NEMA. The officers of the committee are a chair and two to four vice chairs, all designated by the SCAPC.

The most important function of the committee is to review for approval and appropriate action all proposed standards, reports, or technical documents which are to be issued as representing NEMA positions.

After a NEMA (industry section) subdivision has approved a standard by letter ballot, the proposed standard is reviewed by the committee to ensure that it had been coordinated with other NEMA standards, and that it conforms with NEMA policies and applicable laws.

The NEMA Codes and Standards Committee also reviews letter ballots of NEMA representatives to other SDOs and directs votes on these from an industry perspective.

Web site: http://www.nema.org

6 http://www.nema.org/standards/codes/
National Fire Protection Association (NFPA)
The NFPA is a membership-based SDO that describes itself as the world’s leading advocate of fire prevention and an authoritative source on public safety. NFPA develops, publishes, and disseminates more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks. Many of NFPA's standards are adopted internationally and are widely recognized as delivering an appropriate level of safety consistent with public policy in most developed countries.

Like with all ANSI-accredited SDOs, committee members need not be NFPA members but membership is required to vote at Association meetings. All NFPA documents are issued by the 13-member Standards Council and all standards development activities and ballots are considered to be advisory to the Standards Council action. This is unique among US SDOs with the exception of IAPMO whose current system was modeled after NFPA’s.7

The Standards Council authorizes all standards projects, appoints committee chairs, and appoints committee members based on qualifications and a balance of interests. The Standards Council decides the interest category of all committee members based primarily on funding source(s). Larger committees may have a pre-determined committee structure that attempts to maintain minimum numbers of members representing specific interests.

The NFPA interest classification system has many more categories (nine) than most SDOs that may have only three or four. Most committee volunteers come from a smaller subset of these categories. For product-related standards, there is usually an abundance of manufacturers (M) and special experts (SE) who may be consultants paid to represent the interests of a manufacturer. For standards of practice for the operation of facilities, there are usually many users (U) that operate the type of facility addressed. Since the ANSI balance criterion requires that no more than a third of voting members can come from any one interest, this limits the pool of volunteers from the categories with the most incentive for committing the time and resources.

Web site: http://www.nfpa.org

7 Regulations Governing Committee Projects
Underwriters Laboratories, Inc. (UL)

UL is a private, not-for-profit company specializing in testing products for safety. Historically, they wrote their own standards and tested products against these as the condition for their listing (approving) the product as complying with their standard. In recent years, their operational model has changed and they will now test any product to any standard, but listing still requires that the product be tested against their own standard. Further, they encourage others to test products against their standards after which the product can be listed by the other lab as complying with the UL standard that might be required by regulation. This permits regulators to mandate compliance with UL standards without restricting the requirement to a single provider.

For the UL standards to be broadly used, they needed to be approved by ANSI as consensus documents which required the development process to be opened up to participation by any interested party. UL created Standards Technical Panels\(^8\) as balanced committees on which UL has only one vote, and a formal appeals process that is also independent of UL dominance. Voting members of the STP shall consist of the following interest categories. (Note that not all interest categories need to be represented.)

a) **Producer.** For standards establishing product requirements, a representative of a company that is engaged in the manufacture of products covered by the standard. For standards establishing requirements for the installation and/or servicing of products or systems, a representative of a company that is engaged in the installation and/or system servicing. A company which contracts out operations (such as fabrication and/or assembly for product manufacturing), but still retains some control of the overall process (including for example, performance of such major functions as research and development, design, ownership of tools and dies, production scheduling, quality control and wholesale distribution for product manufacturing), is also considered to be a producer. A consultant or agent who represents a producer is considered a producer.

b) **Testing and Standards Organizations.** Organizations that test and/or certify products, services, or systems covered by the standard, or that develop standards/codes related to the products, services, or systems covered by the Standard.

c) **Supply Chain.** Component producers for an STP responsible for standards covering end products, or end-product producers for an STP responsible for standards covering components; and installers, distributors, and retailers. Manufacturers who have no manufacturing facilities for the products covered by the STP, but solely use contract manufacturers to make the products, are considered part of the supply chain category. Wholesale or retail purchase-resellers for products made by other companies are also considered as part of the supply chain category.

d) **Authorities Having Jurisdiction.** Those involved in the regulation or enforcement of the requirements of codes and standards at the regional (e.g., state or province) and/or local level. The authority having jurisdiction (AHJ) may be a regional or local department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, state department of insurance official, labor department, or health department; building official; electrical inspector; or others having statutory authority.

\(^8\) For regulations on the US STP, see [http://ulstandardsinfonet.ul.com/stp/](http://ulstandardsinfonet.ul.com/stp/)
e) **Government.** Representatives from national government agencies. For U.S. representatives, these may include CPSC, FDA, EPA, DOT, DOE, DOD, NIST, etc. Also, this category includes representatives of regional (e.g., state or province) or local government bodies that do not fall under the category of AHJ.

f) **Consumer.** Consumer organizations, consumer departments at universities, home economics departments at universities, professional consumers, individuals who use the product as part of their livelihood and are not eligible for STP membership under another interest category.

g) **General Interest.** Consultants, academia, scientists, etc., that are not covered by the other participation categories, such as professional societies, attorneys, safety experts and trade associations. Companies that only private-brand label products (made by another manufacturer) covered by the STP. This includes all others not otherwise classified.

h) **Commercial / Industrial Users.** Organizations that use the product, system, or service covered by the applicable standards under the STP in a commercial or industrial setting. Examples include a restaurant owner/operator serving on an STP for commercial cooking equipment, or a gas station owner/operator serving on an STP for flammable liquid storage tanks. Representatives of organizations that produce products, systems, or services covered by the standard, whose organizations also use the product, systems or services, are not eligible for STP membership under this category.

i) **International Delegate.** An International Delegate is an individual representing a national standards body outside of the United States (e.g., JISC, DIN). This person is designated by the national standards body and approved by the STP Chair. A national standards body can only have one International Delegate per STP. The International Delegate will have full voting privileges. An International Delegate will be granted non-voting status if the International Delegate’s base company or organization is already on the STP.

Web site: [http://www.ul.com](http://www.ul.com)
National Institute of Standards and Technology (NIST)
NIST is neither a project sponsor nor a SDO, but Belinda Collins, Chief of the Office of Technology Services was interviewed because of her office’s involvement in US and global standards. NIST is the lead federal agency in the government’s implementation of the National Technology Transfer and Advancement Act (NTTAA) which requires the federal government to utilize private sector consensus standards (defined as developed in a consensus process whose attributes mirror the ANSI criteria without explicitly requiring ANSI accreditation) wherever possible and to actively participate in these SDO processes. Agencies must provide an annual report of their activities to NIST which compiles these into a report to Congress. NIST Technology Services also operate a Standards in Trade program which is intended to educate foreign governments on US standards and conformity assessment programs and to educate US SDOs on the programs of these governments in the hope of mutual recognition to the extent that this can facilitate trade between the countries. NIST works closely with ANSI on international standardization issues in organizations like ISO, IEC, and the World Trade Organization to assure a level playing field for US companies in foreign markets.

Web site:  http://nist.gov/ts/
Summary of Phone Interviews

Representatives of six standards development organizations (SDOs) in addition to ANSI and one government agency were interviewed by phone for this project. The interviews were conducted in order to further explore the real and perceived obstacles to volunteer participation on codes and standards committees. A copy of the questionnaire is attached in Annex A. Results from these interviews were used to help create the online survey of current volunteers and potential future volunteers (student members). Due to the small number of people interviewed these results should not be extrapolated to other organizations. Thus, based on the varying composition of each organization, this is a summary of the interviews actually conducted.

The following people were interviewed: Lisa Rajchel, ANSI; Bill Berger, ASME; Katharine Morgan, ASTM; Neil Bogatz and Gabby Davis, IAPMO; Vince Baclawski, NEMA; Chris Dubay, NFPA; Belinda Collins, NIST; and Don Snyder and Deb Prince, UL.

The number of members of each organization varies from the largest with 125,000 members at ASME to 2,600 members at UL. ANSI is slightly different from the SDOs in that its members are corporations and other organizations, not individuals.

The number of codes and standards committees that each SDO has varies widely from IAPMO having 6 committees to ASME having approximately 750 committees. The total number of codes and standards documents that each SDO produces also varies greatly with IAPMO producing 24 documents and ASTM producing approximately 12,000 documents.

The types of professionals who comprise each SDO’s codes and standards committees are quite extensive. The following is a list of the types of professionals who comprise the committees: academics, administrators, architects, association members, consultants, consumers, engineers, government enforcers, government officials, government representatives, lab managers/technicians, labor organizations, lawyers, manufacturers, marketing professionals, other SDOs’ employees, plumbing installers, producers, research and development professionals, retailers, retirees, scientists, and suppliers.

Half of the respondents, three of six participants who responded to this question, limit the size of their committees to between 20 and 40 members. NIST and ANSI did not answer this series of questions. ASME allows each committee to recommend its own limit. While UL does not have a limit on the size of their committees, the committee chair will sometimes limit the size to about 50 members. Four of the six respondents had waiting lists for their codes and standards committees. At NFPA, approximately 80% of their committees currently have waiting lists. At UL, 50% of their codes and standards committees have waiting lists. Less than 1% of ASME’s committees have waiting lists. The main reason why UL, IAPMO, and NFPA have waiting lists is because they operate exclusively with balanced committees in accordance with ANSI-recognized procedures while the others make significant use of subcommittees and task groups.
Interview Standards Developing Organizations

that do not need to be balanced to draft proposals for consensus body consideration. It is often producers (manufacturers) who are waiting for an open slot to join a committee.

NFPA, ASME, and UL all have vacancies on committees. About 20% of NFPA’s committees have vacancies, particularly on those committees that address less popular issues. UL found that their vacancies are primarily in certain interest categories due to the balance requirement. They are able find enough participants from producers, but it is more difficult to recruit volunteers from other interest groups, especially consumers and enforcers due to limited sources of financial support.

All of the respondents, except for NFPA, stated that it is possible for a committee member to participate without attending all of the meetings. NFPA reviews participation at the end of every revision cycle and may drop those who do not attend meetings or return ballots. Failure to attend at least some meetings is not cause to drop a member, but it is considered important to actively participate in the committee debate. Four of the six said that there is no minimum number of meetings that a volunteer must attend. At ASME, because all of the meetings are in the United States, international organizations may be represented by a delegate. UL also has delegates that represent national standards bodies of their countries. NFPA reappoints committee members every year but, if a member has an economic hardship, they try to accommodate that issue.

Half of the respondents, three out of six, stated that they sometimes subsidize some committee members’ travel. ASTM provides funding for designated consumer participants and also has limited funding resources that can be used in extenuating circumstances of financial hardship (i.e. an officer who is critical to the meeting’s success who has recently become unemployed.) UL pays for state and local code authorities’ travel as well as consumers’ travel plus an honorarium. NFPA will also pay for travel and lodging for specific committee members, such as consumers, government officials and other groups who are more difficult to recruit.

Five of the SDOs answered “yes” to the question about using task groups or subcommittees that are not required to be balanced to draft working documents that are then balloted to a balanced parent committee as a means to reduce workload on committee volunteers. In 2004, ASME established a separate group (ASME Standards Technology, LLC) that can hire contractors to write the first draft for their committees. For ASTM, task groups of four to six members may compile the first draft of a new standard or significant revision; Balanced representation, while recommended for task groups, is required at the subcommittee level. IAMPO and UL also responded that they allow this procedure on their committees. For NEMA, the answer depended upon the committee. For a NEMA industry standard committee, no balance is required on their sub-committees. For their ANSI sub-committees, no balance is required as long as there is no ballot; otherwise a balanced committee is required. At NFPA, all of their committees have to be balanced to write documents. Subcommittees and task groups with no balance requirement are permitted but are utilized less than in other SDOs.
Questions were asked to explore levels of participation on the SDO’s codes and standards committees. Five out of the eight participants in the phone interviews have experienced increasing difficulty in finding enough volunteers for their committees. ASTM observed that it is sometimes more difficult to find volunteers to review standards where the technology/industry is fairly mature and not changing. They have also recently experienced a slight decline in government attendance at meetings due to cuts in travel budgets. ANSI has observed that corporations are eliminating their standards departments due to budget constraints, making it more difficult to find volunteers. They found that those in academia are also constrained by budget cuts. Another problem is that there is also limited visibility of codes and standards in academia. To address that issue, ANSI has been trying to engage more academics in the process. NIST has observed that finding volunteers for more technical committees, such as acoustics and nanotechnology, has been increasingly difficult. UL has had more difficulty in recruiting consumers, government officials, and academics to volunteer for committees. They have also experienced a large number of committee members who have retired. Other groups, such as ASME, had a general problem attracting early career professionals to participate. Even though NFPA has not experienced much problem recruiting members, they have noticed that it has become more difficult to recruit government officials who sometimes have to use personal time to work on committees. They also attribute this to a decrease in travel budgets.

A majority of the organizations, five out of eight, have noticed a particular problem attracting or retaining younger professionals to replace more experienced volunteers as they retire. At UL, they have observed that more seasoned professionals are placed on committees whereas younger professionals are not placed on the committees because they do not have enough experience or political influence. ASTM also noted that some organizations prefer to send more experienced professionals to committee meetings. In the past, younger participants attended meetings to be mentored by more experienced professionals. But, due to the economy, companies are now only sending the experienced professionals. ANSI has also had similar experiences in that corporations are not mentoring younger professionals on codes and standards committees. However, NIST has observed that sometimes older participants are not leaving the committees when they should. ASME also has found difficulty in recruiting younger members, possibly due to the decline in the economy. Companies are reviewing where their resources are allocated, with some finding that participation on codes and standards committees is not a high priority. ASME thinks that there is a lack of education on the importance of participating on these committees. ANSI believes that a reason why young people are not volunteering is that recent graduates don’t know what codes and standards are, their role in the built environment and how to write them. ASTM conducted a survey of its members to find out why participation has declined. Their survey showed that the main reason why some members had stopped participating was because they had moved to another part of the company and the committee was no longer relevant to their new positions.

Of the three SDOs who aren’t having problems recruiting young professionals, NEMA utilizes a recruitment plan for some of its committees. For NFPA, applications to be on
committees are actually continuing to rise. IAMPO also has experienced no recruiting problems because their committees are full. However, they estimate that most of their volunteers are 45 years of age or older.

Phone participants were also asked about possible obstacles to volunteering for committees. Of the eight respondents, 75% said that they have heard that members won’t volunteer because their employer will not pay their travel expenses to committee meetings. The same percentage of respondents has heard that the member’s employer will not give time off from regular work duties to attend meetings is an obstacle to volunteering where meeting attendance is involved. One respondent stated that, particularly for small companies, there is sometimes a conflict between work obligations and travel for committee meetings. Five out of the eight respondents have not heard the following as obstacles for volunteering: employer will not give time off from regular work to work on volunteer activities at home or work; and employer does not see value in volunteer work.

Six out of eight interviewees have not heard the following personal reason why someone would not volunteer: I don’t see a professional reason for me volunteering. Five out of eight respondents have also not heard that, “I am too busy personally to travel unless it is necessary for my job,” as a reason to not volunteer. The majority, six out of eight, also have not heard the reason, “I have found the process of volunteering on a committee frustrating,” for not volunteering. However, six out of eight respondents had heard volunteers say that they found that the process takes too long to get things accomplished. One respondent stated that he hears about the slow process of committee work occasionally from committee members. He also hears from people who are not on a committee that it is frustrating that the process takes too long. However, another respondent stated that he used to hear that as a problem, but that he has not heard that complaint recently because of the use of new technology.

There were many different reasons that respondents gave for the possible decline in volunteering. Some have observed that there are fewer young people volunteering. One possible reason could be that the committees are viewed by some as “good old boys’ networks” and that new volunteers don’t think that they can contribute. ASME discovered from a survey that they conducted that respondents viewed the committees as closed systems and that some weren’t even aware that they could participate on codes and standards committees. Again, money came up as a problem why participation is declining. Many potential volunteers are being asked to do more work with fewer resources, thus not allowing them the time or the money to volunteer. Sometimes there is also a conflict between a volunteer’s day job and his/her volunteer work, particularly if his/her company does not value volunteer work. Government agencies have also faced budget cuts, making it more difficult for government employees to participate. If a topic is not of interest to the potential volunteer, then he/she will obviously not want to volunteer. UL has found that potential volunteers often lack the technical expertise to be on a committee. They also have observed that there are few potential volunteers for all of the standards organizations, making those who do volunteer spread too thin.
Seventy-five percent of respondents have found people more willing to volunteer for committees which deal with more interesting or “hot” topics. However, often the most important factor is if the topic is relevant to the company that employees the volunteer. New technical issues often have great interest at first, but later it can be more difficult to recruit volunteers. Some of the SDOs stated that members are also more likely to volunteer for committees which are dealing with controversial issues. If there is an industry need or a problem that needs to be solved, members are also more willing to volunteer.

Five of the six SDOs offer some type of benefit to their volunteers for being on a committee. These benefits include discounts on programs, seminars, and other industry events; a free book of standards that the volunteer worked on; discounts on publication orders; free on-line codes and standards documents; 20% discount to annual meetings; and shirts and jackets. ASME offers a program to committee members where volunteers receive credit for attending committee meetings which then gives them professional development hours required to maintain professional registration.

Volunteers are recognized many different ways depending upon the organization. Some recognize those volunteers who have worked on a committee for an extended period of time at association-wide meetings. Other volunteers receive plaques from the organization which are sometimes given out at an awards dinner. Another group gives out lapel pins to their volunteers with the number of years of committee service. Other signs of recognition are printing the participant’s names in the front of the code document, and giving out gifts such as a flashlight or tools. ASTM recognizes their volunteers with an extensive awards program which includes ribbons on badges at conferences; press releases to recognize volunteers; photos of volunteers receiving their awards; plaques; and sometimes a letter of recognition to employers. One respondent thought that the recognition gifts were most effective in motivating volunteers while another respondent thought that the awards were the most important factor.

None of the organizations formally recognize the companies who sponsor the volunteers. However, one SDO has given out society awards to organizations based upon the company’s overall volunteer contribution. At another SDO, a committee will sometimes recognize a company if they have volunteered a large number of its employees.

Technology has been used in facilitating the process of codes and standards development by all of the SDOs. One SDO mentioned that the various new technologies have assisted in keeping the committee process moving, particularly in light of budget cuts. Half have used webconferencing (e.g., Go-to-Meeting, Webex, Live Meeting …) for their meetings. Of those, three out of four have found that webconferencing worked successfully or very successfully in fulfilling the committee’s needs. One SDO found that webconferencing did not facilitate well and was too expensive. However, another SDO stated that it allowed them to do more work.
between meetings. While one organization expressed that webconferencing didn’t replace face-to-face meetings, it did allow them to add more meetings. However, committee members still wanted the face-to-face meetings for networking and social interactions and for consensus development on difficult issues.

The majority (75%) of the SDOs have used electronic document processing. Of those who have used it, all but one rated it as very successful or successful. Some of the SDOs use electronic document processing quite extensively with working documents.

All of those interviewed have used electronic balloting with seven out of eight finding it very successful in fulfilling the committees’ needs. For one SDO, electronic balloting has allowed their international members easier participation with real-time voting and participants are able to view comments during the balloting period. For three SDOs, participants can see the ballot comments only after the balloting is closed. For four SDOs, participants can see comments while the balloting is open, with one SDO stating that the leader can also respond to the comments. At only one SDO, participants cannot see the ballot comments at all.

Some of the organizations also have used other types of technology during the codes and standards process such as Webex, project management software, web casting, webinars, and Microsoft Live Meeting. Of those who have used these other products, they have found them to be successful or very successful in helping the committees do their work. One group used Webinars for information and panel discussions. Web casting has been used with international members where they can have real-time document editing and be able to discuss technical issues. This has helped to reduce overall costs and has been very effective in fulfilling the committees’ needs. Project management software has been used to send reminders to committee members about target dates. Other on-line collaboration tools have been used to post documents, leave comments and to start discussions.

Six out of the eight organizations have noticed increased participation due to the use of these technologies. Two of the SDOs expressed that technology has helped increase participation by international committee members as well as those groups who have travel constraints. One SDO observed that technology has also decreased the development process time for them. Technology has also allowed them to facilitate longer meetings. Another SDO has found that voting has increased and that more people are participating when they use teleconferencing. Technology has also allowed one SDO to have increased public comments on their documents.

All of the respondents agreed that there are some negative consequences to the use of technology. Several of the respondents stated that technology should not replace face-to-face meetings. One respondent expressed concern that remote participation changes the dynamics of the group and that committee members prefer to network in person. Teleconferencing can be a problem because it is not personal enough; people like face-to-face meetings where they can see committee members and documents at the same time. One respondent believes that it is more productive to have everyone
physically together for one to two days in order to effectively work on the issues. By being away from regular work obligations, committee members can focus on the issues. Another person commented that there needs to be face-to-face meetings at first but, once the process has started, using other technologies works fine. One respondent stated that webconferencing has helped for those members who can’t travel. However, by using those technologies the face-to-face interactions and networking that physical meetings have are lost.

Using technology can also be a problem for older committee members. Several people mentioned that there can be a steep learning curve to using technology and that computers aren’t as easy for older members to use. Other committee members don’t like the fact that others can view their comments for liability reasons and don’t want their name used.

One SDO observed that the cost of technology is increasing. One respondent stated that electronic document processing and electronic voting have helped reduce costs because it is much cheaper than having to mail documents. The downside is that if there is a technical problem, this can delay the process. Another group observed also that sometimes the technology has limitations and doesn’t always allow them to work in the way they want. If there is a problem, it takes time for the IT staff to fix the problem.

Another group has found that committee members like to use just email to link to documents as opposed to learning new technology platforms. Language can be an issue for international members in translating documents. NFPA conducted a survey of its members and found that they prefer having access to documents on-line, but that they want the ability to work off-line because they may not always have Internet access. They are currently working to make the codes and standards processes easier for the volunteer to participate.

Respondents had many suggestions on how to increase volunteer participation on codes and standards committees. One suggestion is to increase the number of committees that address current or “hot” issues that are more relevant now and eliminate older issues. Another way to attract new members would be by identifying new issues which would be more interesting to members. Currently, governments are increasing public and private partnerships which could increase government participation on committees. New government regulations can often increase participation on committees because companies then need to address those new issues. There also needs to be a better way to demonstrate to senior management at companies that it benefits them to have employees participate on codes and standards committees. ANSI observed that there is increased participation when the economy is better and companies have more time and money for their employees to participate on committees.

Another suggestion is to be more flexible in how committee members participate. ASME, who has international members, created an independent international working group in India which meets in their own country. ASME also uses other options on their
committees in which there is more input whether the person is a voting member or not. Another suggestion is to allow remote participation for smaller meetings with a more technical focus. If there are too many people at a meeting, it can be difficult to get things accomplished. Showing visible progress in the process to the volunteer and the company may also get more people to participate.

Having a more personal approach to recruiting new committee members by having other committee members or SDO staff to recruit volunteers is another suggestion to increase participation. It was also suggested to continue recognizing volunteers via plaques or other methods to help attract new volunteers. Another respondent stated that the volunteer is the most valuable asset to the SDO. They are attempting to make participation on a committee easier for the volunteer by providing staff support and absorbing or reducing as much overhead expenses, such as food, meeting, and hotel costs as possible in order to make it more cost-effective. Another group is also trying to streamline the process to make it easier for the volunteer committee member. Sharing information between codes and standards development organizations could also help increase volunteer participation.
Electronic Surveys

The third task was to conduct two on-line surveys. The first was a survey of current volunteers participating in the standards development process of several of the main SDOs. The second survey was of students who are potentially some of tomorrow’s committee volunteers. The existing participants on-line survey questionnaire was developed to focus on why existing participants volunteer time and resources to engage in the standards development process, including why their employers are or are not willing to fund the time and travel expense of standards committee participation. The questionnaire also explored whether the current system of interest categories and balance of interests represents a real obstacle to participation by those most willing to commit funds. The student questionnaire looked at why students/young professionals would or wouldn’t participate in the standards development process including perceived obstacles and benefits to participating.

Each of the surveys was organized in sections, with parallels to the SDO interview information, to establish;
- basic background and demographic factors;
- experience with one or more types of codes and standards development methods;
- perceived and/or real obstacles to participating in the codes and standards development process;
- the potential for and attractiveness of changing basic process elements such as using emerging communications platforms; and,
- suggestions on improving volunteer participation.

The on-line survey questionnaire used similar methods as the phone interview with a combination of select, scaled and open-ended questions. Data analysis methods were used to explore correlations among data to find trends. The two surveys can be found in Annexes B and C.

Current Volunteer Survey

An on-line survey of current codes and standards committee members was conducted for just over a two-week period during the first half of July 2010. Participants were from the American Society of Mechanical Engineers (ASME), ASTM International, International Association of Plumbing and Mechanical Officials (IAMPO), National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), and Underwriters Laboratories (UL). Each organization randomly selected 1,000 participants from their codes and standards committees to take the survey. Because IAMPO only had approximately 75 people on their committees, they sent the survey to all of the committee members.
There were 39 survey questions (Annex B). This survey asked questions about
demography and their experiences on codes and standards committee. Respondents
were asked questions based only on their experiences on the committee of the
organization which sent them the survey. Questions types were select, open-ended,
scaled, and rank questions.

Of the 5,075 potential respondents, 1,352 completed the survey. This was a 27%
response rate which is about what was expected. The margin of error for the survey is
+- 2.28% with a 95% confidence level. Please note that respondents were only
required to answer the first question, therefore, not all respondents answered every
question.

The highest response rate for the survey was from NFPA members with 32% of the
respondents being from this group. Twenty-five percent of the respondents were
volunteers with ASME, followed by 15% from ASTM. The response rates are
summarized in Table 1.

Table 1 Response Rate by Organization

<table>
<thead>
<tr>
<th>Organization</th>
<th>Percentage of Total Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASME</td>
<td>25%</td>
</tr>
<tr>
<td>ASTM</td>
<td>15%</td>
</tr>
<tr>
<td>IAMPO</td>
<td>2%</td>
</tr>
<tr>
<td>NEMA</td>
<td>12%</td>
</tr>
<tr>
<td>NFPA</td>
<td>32%</td>
</tr>
<tr>
<td>UL</td>
<td>13%</td>
</tr>
</tbody>
</table>

Survey respondents are concentrated in the older age groups with those aged 61 years
of age or older comprising 29% of all respondents (Figure 1). Seventy-one percent of
survey takers are 51 years old or older. Ninety-three percent of respondents are male.
The large majority of respondents (91%) live in the United States. Those living in the Midwest comprised 27% of those living in the US, followed by 24% living in the Northeast. Twenty-percent live in the South with only 14% of US respondents living in the West and 7% in the Southwest. Nine percent of US respondents did not specify the state in which they live. Four percent of respondents live in Canada. Other respondents live in Africa (1); Asia (20); Australia/New Zealand (4); Central America (8); Europe (31); and South America (3).

The highest percentage of level of education for respondents was a bachelor's degree (47%). Twenty-seven percent of respondents had earned a master's degree while 12% held a post-graduate degree and 11% had a high school diploma.

Thirty-two percent of respondents are engineers, followed by 21% are managers and 15% are consultants. Each of the other professions comprised less than 5% of respondents’ careers. Other positions mentioned are: academic (2%); consumer; enforcing authority (5%); government (non-enforcer) (4%); installer (1%); lab technician; lawyer; marketing (1%); researcher (1%); retired (3%); scientist (3%); architect; business owner; contractor; director; president, CEO, or vice president (2%); and sales.

The manufacturing industry makes up 34% of respondents’ employer. Eighteen percent of survey respondents work for a consulting firm while 6% of respondents each work for government (non-enforcer) or for an enforcing authority. Table 2 shows the composition of the type of businesses that the respondents work for.
Table 2 – Distribution of Volunteers by Employers n=1345

<table>
<thead>
<tr>
<th>Employer Type</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor Organization</td>
<td>4</td>
<td>0.3%</td>
</tr>
<tr>
<td>Aerospace</td>
<td>5</td>
<td>0.4%</td>
</tr>
<tr>
<td>Architecture</td>
<td>5</td>
<td>0.4%</td>
</tr>
<tr>
<td>Consumer</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>Non-profit</td>
<td>26</td>
<td>2%</td>
</tr>
<tr>
<td>Academia</td>
<td>30</td>
<td>2%</td>
</tr>
<tr>
<td>Standards Development Organization</td>
<td>32</td>
<td>2%</td>
</tr>
<tr>
<td>Supplier</td>
<td>33</td>
<td>3%</td>
</tr>
<tr>
<td>Research/Technical labs</td>
<td>35</td>
<td>3%</td>
</tr>
<tr>
<td>Insurance</td>
<td>36</td>
<td>3%</td>
</tr>
<tr>
<td>Installer/Maintainer</td>
<td>39</td>
<td>3%</td>
</tr>
<tr>
<td>Utility</td>
<td>42</td>
<td>3%</td>
</tr>
<tr>
<td>Producer</td>
<td>45</td>
<td>3%</td>
</tr>
<tr>
<td>Research and Development</td>
<td>51</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>65</td>
<td>5%</td>
</tr>
<tr>
<td>Enforcing Authority</td>
<td>75</td>
<td>6%</td>
</tr>
<tr>
<td>Government (non-enforcer)</td>
<td>83</td>
<td>6%</td>
</tr>
<tr>
<td>Consulting Firm</td>
<td>236</td>
<td>18%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>459</td>
<td>34%</td>
</tr>
</tbody>
</table>

The large majority of respondents (71%) have worked in their current profession for 21 or more years. Ten percent have worked in their current profession for between 16-20 years. Only 21% have worked in their current profession for 15 years or less.

Most of the respondents are currently working on between one and three codes and standards committees. However, 17% of people are serving on between four and six committees. Twenty-seven percent have served on a committee of the organization that sent them this survey for between one and five years, while 23% have served for six to ten years and 16% have served for eleven to fifteen years. However, 16% of respondents have been serving on their current committees for 21 or more years.

Fifty percent of the survey respondents volunteered for the committee that they are currently serving on. Thirty-four percent of volunteers were placed on the committee by their employer, followed by 25% who were recruited by another committee member. Six percent were recruited by the standards development organization and 1.5% of volunteers were recruited by another organization. (Note that respondents could select more than one response.)

Forty percent of volunteers spend between 0 and 50 hours per year on committee work on average with 10% spending between 0 and 10 hours per year. Twenty-five percent of survey respondents spend between 51 and 100 hours per year working on committee
activities. Hours worked on average per year ranged from 0 to 3,000 hours. Figure 2 shows the average number of hours respondents spend in a year on committee work.

![Average Number of Hours Spent on Committee Work Per Year](image)

**Figure 2 – Committee Member Average Annual Workload**

Forty-one percent of employers paid 100% of the respondents hours worked on committee work while 37% of employers paid 50% or less of survey respondents’ committee work. However, 18% of respondents stated their employer paid nothing for their work on the committee. Of those whose employers paid less than 100% of committee expenses, 26% worked for a manufacturer and 22% worked for a consulting firm. The numbers for the rest of the employers were too small to be valid. These results are not particularly surprising considering that 34% of respondents work for a manufacturer and 18% work for a consulting firm. Figure 3 shows the percentage of hours worked that were paid for by their employer. The results from the next question about the percentage of committee work that was on their own personal time confirmed these results.
Most of the survey respondents, 65%, do not have an alternate who attends committee meetings and submits ballots. Thirty-three percent do have an alternate and 3% did not know if they have an alternate. Seventy-three percent of volunteers stated that their employer paid for the alternate to attend meetings. Thirteen percent responded that the alternate’s employer paid for the alternate’s participation; 7% responded that another organization paid for the alternate; 4% stated that the alternate paid for himself; and 3% did not know who paid for the alternate’s expenses.

Thirty-eight percent of respondent’s employers encourage them to find and recruit a successor to replace them on the committee. Thirteen percent stated that their employer has an active succession program to replace them and 7% plan to terminate their involvement on the committee when they retire. However, 45% responded that this question was “not applicable.”

Eighty-two percent learned about the codes and standards development processes and procedures by participating. Twenty-seven percent of respondents were taught by a colleague who also participates on a committee and who the respondent replaced; 12% learned by attending training offered by the SDO. Of those survey respondents who selected the response “other,” 2% learned because it was part of their job; 2% learned by reading or researching about codes and standards; 1% or less learned through a course in college or through another organization or other people.
The most important benefit for the employer was the ability to influence the content of codes and standards with 30% of respondents selecting this as their top choice. Overall, 66% of the volunteers stated this reason as one of the top three benefits for their employer. The second most important (28%) benefit for their employer was the contribution to improved safety and performance of products and issues covered by the standard. Fifty-five percent of respondents selected this reason in their top three most important benefits. Fourteen percent of respondents selected early awareness of new or revised requirements as their top benefit. Fifty percent selected this as their one of their top three benefits for their employer. Table 3 shows the order of benefits to the employer. Of those who choose “other” benefit, the most frequently mentioned were to gain in-depth knowledge of codes and standards; protect the public; give back to society; and exposure of company as industry expert.

Table 3 – Ranking of Employer Benefits of Committee Participation

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Percent Chosen as a Top 3 Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to influence content of codes/standards</td>
<td>66%</td>
</tr>
<tr>
<td>Contribution to improved safety and performance of products/issues</td>
<td>55%</td>
</tr>
<tr>
<td>Early awareness of new or revised requirements</td>
<td>52%</td>
</tr>
<tr>
<td>Representing or protecting my organization’s/industry’s interest</td>
<td>44%</td>
</tr>
<tr>
<td>Networking with industry professionals</td>
<td>33%</td>
</tr>
<tr>
<td>Minimizing risk that standard’s requirements will be incompatible with employers</td>
<td>29%</td>
</tr>
<tr>
<td>Improved quality/efficiencies</td>
<td>12%</td>
</tr>
<tr>
<td>Market access for products</td>
<td>4%</td>
</tr>
<tr>
<td>Cost savings</td>
<td>3%</td>
</tr>
</tbody>
</table>

N=1183

The most important personal benefit was professional development, with 61% of respondents selecting this. Overall, 92% of volunteers selected this reason in the top three. This was followed by 26% selecting professional networking as their most important benefit. Eighty-six percent selected this benefit in their top three. The third most popular personal benefit was professional recognition with 6% selecting this as their top benefit and 49% overall selecting in the top three. Table 4 shows the percentage who selected each benefit as their top three most important. Other benefits that were mentioned were: influence safety or make the world a better place; expand personal knowledge or education; personal satisfaction; learn from other industry experts/committee members; and contributing to the profession.
Table 4 – Ranking of Personal Benefits of Committee Participation

<table>
<thead>
<tr>
<th>Personal Benefit</th>
<th>Percent Chosen as a Top 3 Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional development</td>
<td>92%</td>
</tr>
<tr>
<td>Professional networking</td>
<td>86%</td>
</tr>
<tr>
<td>Professional recognition</td>
<td>49%</td>
</tr>
<tr>
<td>Access to free or reduced cost of SDO documents</td>
<td>24%</td>
</tr>
<tr>
<td>Travel experience</td>
<td>16%</td>
</tr>
<tr>
<td>Discount at annual meetings/conferences</td>
<td>3%</td>
</tr>
<tr>
<td>Plaques or awards (recognition by SDO or committee)</td>
<td>2%</td>
</tr>
<tr>
<td>Recognition gifts</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

N=1209

Ninety-one percent have found their committee experience to be at least somewhat rewarding with 39% of respondents stating that it was extremely rewarding as shown in Figure 4. Of those respondents who found their committee work unrewarding the most often cited reason was that the committee took too long to accomplish tasks. Others commented that the process was too political. Yet other respondents stated that they did not feel as though they were being rewarded for their contribution. Several respondents stated that they had general frustrations with the process, such as there was a lack of professional expertise on the committee and there was poor management by committee leaders.

Figure 4 – Satisfaction Level of Committee Participation
Eighty percent of respondents have not had to wait for an appointment or been denied an appointment to a committee because the interest group in which they belong was full. A majority, 82%, also do not think that the balance of interest groups on their committee has hindered the overall process. Some of those who commented stated that the balance of interests is a necessary and good thing. However, 18% believe that it has hindered the overall process.

Some respondents stated that the committees are dominated by manufacturers and producers who are only looking out for their own self-interest and not the general interest of the group or overall safety issues the committee was trying to address. One respondent stated that, “one company – one vote should be an absolute rule on all committees.” There can also be pressure from interest groups who sometimes create a “block” vote to get issues passed. Other commentators explained that sometimes members misrepresent themselves on the committee such as “it is often misrepresented when a manufacturer is on the committee representing an association.”

Other comments included that there is a lack of participation by some groups such as consumers and government officials and that other interest groups are not very active. There is also a need for more technical experts as sometimes there are participants on the committees who lack the knowledge to really participate. Other comments were that the committees are sometimes too large and that some committee members stay on too long, thus sometimes blocking new initiatives. One respondent stated, “Too many long-retired people who do not realize the need for positive discussion and the advancement of documents.”

The majority of respondents, 52%, said that their employers are extremely supportive of their committee work. Only 10% of respondents expressed that their employer was not supportive. Seventy-eight percent of respondents stated that their employer was at least somewhat supportive of participation on committees that are developing standards covering newly emerging topics. Forty-one percent of employers are extremely supportive. Again, the majority of respondents, 80%, expressed that their employers were supportive of participation on committees that are maintaining standards that are undergoing only incremental changes.

Forty-six percent of respondents stated that their employer has had to limit their travel to committee meetings within the past two years due to the economy. The majority of respondents, 64%, stated that they have experienced no obstacles in participating. However, 26% responded that the fact their employer will not pay travel expenses to meetings has been an obstacle to participating on committees. Only 10% of respondents stated that their employer does not give time off to work on committee work was an obstacle. Employer does not value committee work was given as an obstacle to participation by 10% of respondents.

One reason given which hinders respondents’ participation on the committees was that they have too much other work to spend time on committee work. As one respondent stated, “increased work load has pushed committee work back.” Money also continues
Electronic Surveys

to be a factor for some volunteers. Several respondents are self-employed so, if they are at committee meetings or doing committee work, they are then not getting paid. Others have to use personal time to work on committee work and pay their own way to meetings. Other volunteers have been asked by their employer to reduce their costs by requiring them to use cheaper lodging. One employer asked his employee to push for conference calls versus in-person meetings to reduce costs.

Again the majority (62%) of volunteers stated that they had no personal constraints to participating. However, 17% of respondents find the development process frustrating as a constraint to them participating on the committee. Fifteen percent stated that it is a personal hardship for them to participate on the committee. Eleven percent found the document development process too time-consuming. Only 1% of respondents do not see a professional benefit to volunteering. Nearly 8% stated other reasons as personal obstacles to participation. Most of those expressed frustration with the overall committee process. One respondent explained that, “It took a long time to be accepted by members who had been around for decades, especially when I proposed or championed changes authored by some of these same people. It was good enough when I wrote it, it's still good enough today.” Again self-interest was a complaint: “Some selfish members only care about their companies.” Other personal constraints cited were that the volunteer had to pay their own expenses and use personal time to attend meetings.

Figure 5 shows the various technologies that committee members have used. Sixty-nine percent of volunteers have used electronic balloting; 63% have used teleconferencing; and 54% have used some type of electronic processing.

<table>
<thead>
<tr>
<th>Types of Technology Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic voting</td>
</tr>
<tr>
<td>Teleconferencing</td>
</tr>
<tr>
<td>Electronic document processing</td>
</tr>
<tr>
<td>Web conferencing</td>
</tr>
<tr>
<td>Videoconferencing</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

Figure 5 – Type of Technology used by Committee Members
Of those respondents who had used each technology, the majority found it at least somewhat easy to use. For those volunteers who had used video conferencing, 73% found it at least somewhat easy to use with 20% finding it extremely easy to use. Ninety-five percent of those who have used teleconferencing found it at least somewhat easy to use with 52% stating that it was extremely easy to use. For electronic document processing, 89% selected that it was at least somewhat easy to use with 32% also finding it extremely easy to use. Ninety percent of those volunteers who have used web conferencing found it at least somewhat easy to use and 34% stating that it was extremely easy to use. For electronic voting, 95% found it easy to use with 56% finding it extremely easy to use.

All of the technologies that participants have used have been at least somewhat effective in fulfilling the committee’s needs. Of those who have used video conferencing while on the committee, 68% found it at least somewhat effective. Eighty-five percent found teleconferencing at least somewhat effective with 27% finding it extremely effective. For electronic document processing, 89% of volunteers who have used it found it at least somewhat effective with 37% finding it extremely effective. Eighty-five percent found web conferencing effective for their committee with 32% stating that it was extremely effective. Ninety-three percent who have used electronic voting found it to be at least somewhat effective with 62% stating that it was extremely effective.

Seventy-six percent said that they have found no negative effects to using any of these technologies. However, 26% of those who responded to this question wrote in comments. The most frequent comment was that they still prefer face-to-face meetings. Some of the comments included, “It is very easy to get dragged into your daily business because you are in the office," and that, “Technology creates an impersonal atmosphere, no team.” Problems with teleconferencing included that it was difficult to follow along with only the voices and that, with longer conference calls, people are not always paying attention. One respondent commented that, “On teleconferencing, one misses body language facial expression, etc.” Another respondent stated that, “Teleconferencing is good for about an hour; after that, people start to drift away. Also need to do face to face meetings periodically; relationships are hard to build on the phone.”

For electronic document processing, one volunteer had problems because, “Not everyone can read all documents sent due to size or format.” Others found it to be too cumbersome and confusing. While some participants expressed that they have had difficulties using web conferencing, another person stated that, “WebEx is not as effective as face to face, but I feel that the savings in time and money make it a good option in many cases.” A few respondents expressed that electronic balloting does not always work due to technical issues. Nearly 100 of the respondents had general issues with using the various technologies. One comment was, “My company does not always allow access to the chosen medium for security reasons.” One participant commented that, “Dialog amongst participants is more difficult.” Another one stated that, “(It) does not facilitate the political half of standards work.” However, one person commentedated
that, “I feel that we should use more technologies to speed the efficiencies of the process along faster and easier for all involved.”

Eighty-seven percent of volunteers welcome email notifications: “They keep me abreast of important items and serve as good reminders.” However, 11% of respondents appreciate some email, but are growing frustrated that there is too much email relative to their committee activities.

As shown in Figure 6, the majority of respondents, 67%, think that face-to-face meetings are extremely valuable while only 3% found virtually no value in them.

![Figure 6 – Ranking of Value of Face-to-Face Meetings](image)

Thirty percent of respondents prefer to receive their codes and standards documents via hard copy. However, 24% do not want to receive a hard copy. Twenty-four percent like to receive these documents either on a CD or DVD and 64% prefer to be able to download them on-line. Respondents do not prefer to receive their documents via E-reader (32%) or PDA (41%). However, 35% of respondents had no opinion about using an E-reader and 34% had no opinion on using a PDA. Figure 7 shows how respondents currently prefer to receive their codes and standards documents.
When asked how they would like to receive their documents five years from now, 33% of respondents will not prefer to receive hard copies and 26% will not want them on a CD or DVD. Slightly more volunteers, 71%, envision wanting to access the documents through an on-line download. About the same percentage of respondents still do not foresee in the next five years that they will want to access documents using an E-reader (27%) or a PDA (37%). However, 32% of volunteers had no opinion on using and E-reader in the future and 33% had no opinion about using a PDA to access documents in the next five years. Figure 8 shows what respondent envision in five years their preference to receive documents will be.
Volunteers were asked what suggestions they had for attracting new committee members. A total of 556 volunteers responded to this question. Some commented that their committees were full or there was a waiting list and, therefore, there was no need to recruit new committee members. Several people suggested having current committee members recruit new volunteers. Quite a few felt that the personal touch is more effective at attracting new volunteers. One participant suggested, “invite(ing) them to attend a meeting in their area.” Another suggestion was to, “assess and recruit from non-committee members that are commenting on proposed standards. If they are commenting, they have opinions and are willing to share, are they willing to participate?” Also contacting other organizations to help recruit people was mentioned as a possible solution.

One respondent commented that, “Contacts through other technical committees might help to attract new members. Other suggestions are to advertise in trade journals and on websites. Several respondents suggested having booths at conferences and trade shows. One volunteer suggested, “plac(ing) something in the codes themselves telling people how to get involved in the code committee process.” Other suggestions included showing the positive aspects of volunteering, such as “promoting access to industry experts” and free access to codes’ documents. Many respondents suggested making it easier for people to participate. Reducing the cost of attending meetings was mentioned many times as a way to attract new volunteers. Ways to do this included: reducing the costs of traveling to meetings; paying for travel and hotel expenses for meetings; and having meetings in less expensive places. Other suggestions to cut costs were to use technology, such as Web conferencing and teleconferencing, more to minimize travel expenses to meetings. Another volunteer commented that they should “schedule meeting right after or before trade shows or code meetings like NPGA or...
NFPA technical meetings.” Improving the efficiency of meetings and keeping the process simple were also suggestions.

One volunteer commented that the SDOs should “reduce frustration; don't micro-manage the process; reform the management of style; focus on clarity and content.” Another way to attract new members by improving the committee was to “free up space on committees by removing members that do not actively participate.” Bringing a greater awareness to companies of the advantages to their employees and company was mentioned by several respondents. One way to do this is to “thank managers of existing members for supporting the SDO often, and encourage them to send younger employees to observe process (for “training”).” Finding ways to encourage younger members was also suggested such as sending “representatives to schools to talk to students.” Dealing with more interesting or relevant topics to the potential volunteer was also suggested as ways to attract new volunteers.

The typical volunteer’s three most important benefits for his employer are: (1) the ability to influence content of codes/standards; (2) contribution to improved safety and performance of products/issues covered by standard; and (3) the early awareness of new or revised requirements. Personally, his top three benefits of volunteering are: (1) professional development; (2) professional networking; and (3) professional recognition. His employer has not had to limit his committee travel due to economic concerns and he has not experienced any obstacles to participation from his employer, nor for personal reasons. In regards to technology, he has used teleconferencing, electronic document processing, and electronic voting while on the committee. He has found all of these technologies easy to use and effective in fulfilling the committee’s needs. This volunteer also received the right amount of email regarding committee work and has observed no negative consequences to using technology. However, he still thinks that face-to-face meetings are extremely valuable. He prefers to receive codes and standards documents as a hard copy, CD or DVD, or on-line download. However in five years, he foresees that he will mostly prefer documents that he can download off the Internet.

**Student Survey Report**

An on-line survey of students who are members of the American Society of Mechanical Engineers (ASME), ASTM International and the Society of Fire Protection Engineers (SFPE) was conducted in a two-week period during July 2010. ASME and ASTM distributed the survey to 2,000 randomly selected student members. The remaining sponsor SDOs do not have identifiable student member lists. Therefore, SFPE was asked, and agreed to send the survey to their entire approximately 400 student members to increase the respondent pool. While SFPE is not a formal sponsor of the project, they are a similar engineering society and work extensively with NFPA which does not have student memberships.

The survey consisted of 16 questions (Annex C) which asked demographic questions as well as questions regarding the respondents’ knowledge of and their attitudes towards codes and standards committees. Most of the questions were select questions; others were scaled questions; and one was a rank question.
Out of the possible 4,400 respondents, a total of 440 people responded to the survey which is a 10% response rate. While we were hoping for a higher response rate, a possible reason for the low response rate is that the survey was sent out in the summer when most students are not in school and many may even be on vacation. Due to time constraints for the project deadlines, we could only keep the survey running for just over two weeks. Because the survey was sent to two organizations who randomly selected students to take the survey and one organization which sent it to all students, the margin of error is approximately +/- 5%. Due to the fact that only specific groups were polled, any conclusions would only be applicable to these groups.

Fifty-three percent of the respondents are members of ASME while 31% are members of ASTM, and 16% are student members of SFPE. As shown in Figure 9, persons between 22 and 25 years of age represented 30% of respondents, followed by 29% of respondents between 18 and 21 years old. Twenty-one percent of respondents are 31 years or older and 20% of the respondents are between 26 and 30 years old. The large majority of respondents are male (83%). Sixty percent of survey respondents live in the United States with 22% of them attending school in the Northeastern part of the United States. (See Annex B for states in each US region.) Thirty-eight percent of respondents attend school outside of the U.S. and 3% did not respond to the question.

![Figure 9 – Student Age Distribution](image)

Figure 10 shows the majority of respondents (51%) are currently working towards their bachelor’s degree. Twenty-four percent are enrolled in master’s degree programs; 17% are in post-graduate degree programs and only 4% are working towards a technical
degree. The vast majority (92%) are studying engineering. This is not surprising since two of the associations are for engineers. Other fields of study included: geology, architecture, laboratory science, retail studies, information systems, material science, interior design, anthropology, mathematics, physics, chemistry, biology and business.

The majority of respondents (51%) have been a member of their organization for less than one year. However, 46% have been members for between one and five years. Only 3% of respondents have been members for six or more years.

A large majority (73%) of the student respondents have learned about or discussed in their classes the role of standards in regulation, in enhancing public safety, providing standard industry practices or in ensuring the interchangeability of products.

Figure 11 shows 58% of survey respondents were either somewhat familiar or very familiar with the role of technical standards in regulation, manufacturing or global trade. However, 57% of respondents are not familiar with the process of codes and standards development and maintenance by volunteer committees. Thirty-five percent were somewhat familiar to very familiar with the process and 9% did not know. Therefore the students appear to be familiar with the role of standards, but are not familiar with the process of developing standards.
Figure 11 – Familiarity with the Role of Standards in Regulation, Manufacturing, or Trade

As shown in Figure 12, 76% of respondents were either likely or very likely to volunteer for a codes and standards committee within their field if their employer offered them the opportunity as a part of their regular duties and paid the associated expenses to travel to meetings.

Figure 12 – Students Likelihood of Participation with Employer Support
The majority (62%) of students see a personal benefit to volunteering for codes and standards committees. However, 25% of respondents did not know if there was a personal benefit. Eighty-five percent of respondents perceive a professional benefit to volunteering for codes and standards committees while 10% did not know.

Survey respondents were asked to rank possible benefits that they may receive by volunteering on a codes and standards committee. They were asked to rank the top three benefits in order of importance to them with one being the most important. Apparently, this question was confusing for some respondents because only 352 of them answered it properly. Professional development was selected by 44% of the respondents as the most important benefit to volunteering with 80% of respondents choosing it in their top three most important benefits. This was followed by 16% of respondents selecting professional networking as number one with 56% of respondents selecting this as one of their top three benefits. Eleven percent selected satisfaction of contributing to globally-recognized standards as their first choice with 45% choosing it in the top three benefits to volunteering. Table 5 summarizes the ranking all of the possible benefits.

**Table 5 – Ranking of Personal Benefits of Committee Participation by Students n=404**

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional development</td>
<td>1</td>
</tr>
<tr>
<td>Professional networking</td>
<td>2</td>
</tr>
<tr>
<td>Satisfaction of contributing to globally recognized standards</td>
<td>3</td>
</tr>
<tr>
<td>Professional recognition</td>
<td>4</td>
</tr>
<tr>
<td>Access to free or reduced cost of SDO documents</td>
<td>5</td>
</tr>
<tr>
<td>Travel experience</td>
<td>6</td>
</tr>
<tr>
<td>Discount at annual meetings/conferences</td>
<td>7</td>
</tr>
<tr>
<td>Plaques or awards (recognition by SDO or committee)</td>
<td>8</td>
</tr>
<tr>
<td>Recognition gifts (i.e. flashlight, tool)</td>
<td>9</td>
</tr>
</tbody>
</table>

The majority of respondents (66%) would not want to volunteer for a committee if their employer did not pay travel expenses to the committee meetings and if the employer would not give time off to work on committee work (54%). However, fewer would not join a committee if their employer did not see the value in committee work (30%). Even fewer students see the lack of effective use of technology for committee work (24%) as a reason to not volunteer. Other comments on why they would not volunteer for a committee included: as a student, they lack time to work on a committee; couldn’t pay their own travel expenses; commercially-dominated interests that discount the public safety; and the perception that it is a long and drawn-out process.

Forty-three percent of respondents thought of no personal reason that would prevent them from volunteering for a committee. However, 33% of respondents perceived that it
would be a personal hardship for them to travel to committee meetings. Twenty-one percent of respondents think that the document development process is too time-consuming and that the document development process is frustrating would cause them to not volunteer. Other reasons why they would not volunteer included: the perception that the process favors individuals or corporation’s interests and not to simply find the most effective solution; those who develop standards have lost sight of who is reading the standards, and performing the work associated with them; lack of knowledge about applicable codes and standards or the process in general; documents are not easy to access, students should get free access; and committee meetings are difficult for one respondent because he is hearing-impaired, so he would prefer electronic forms.

Data analysis was performed by cross tabulating possible differences by demographic factors and answers to the attitude questions. However, once respondents were segregated by the various demographic factors, sample sizes were too small to be statistically valid.
Case Studies

Selected case studies were developed to compare and contrast the specific characteristics based upon the factors established during Tasks 2 and 3. Based on the data analysis from both the phone interviews and on-line survey, case studies were developed for the “typical” current volunteer and “typical” potential volunteer based on the demographic characteristics and attitudes found.

Case Study 1: The “Typical” Current Standards Committee Volunteer
The typical, current codes and standards committee volunteer is male, 61 years old or older, has a bachelor’s degree and lives in the Midwest part of the United States. He is an engineer who works for a manufacturer and has worked in his current profession for 21 or more years. He currently volunteers on between 1 and 3 codes and standards committees, but has been serving on the current committee for one to five years. This volunteer most likely volunteered himself to be on the committee and he learned about codes and standards by participating on the committee. This volunteer works an average 50 hours or less on committee work a year with 100% of his time being paid for by his employer. He does not have an alternate who attends meetings in his place. Overall, his committee experience has been extremely rewarding. His employer is extremely supportive of his volunteer work as well as participation on committees which are dealing with new topics and committees that have only small changes.

Given his age, the typical, current volunteer will retire within the next decade and, since he does not have an alternate, there is no explicit succession path. His work load on committee activities is not significant, but increases in regular work might press his ability to get everything done. He considers his experience extremely rewarding and his employer is extremely supportive, so it should be fairly easy for him to recruit a replacement from within the organization. It would be beneficial for the SDOs to encourage such recruitment, perhaps by naming the recruit as an alternate for one cycle (which would permit the principal to train the alternate) after which he would get the principal slot. This would be especially attractive to volunteers in interest categories that are generally full.

Case Study 2: The “Typical” Future Standards Committee Volunteer
The typical student answering the survey attends school in the northeastern United States, is male, between 18-25 years old, and is seeking a bachelor’s degree in engineering. He has been a member of the organization who sent the survey for less than five years. He has learned about and discussed the role of standards in his classes and he is at least somewhat familiar with the role of technical standards in regulation, manufacturing, or global trade. However, it is inconclusive how familiar he is with the process of codes and standards development. He is also likely to volunteer in the future for a codes and standards committee if it is part of his job and his employer pays for the associated expenses. The typical student from the survey also sees that there is a personal and professional benefit to volunteering. Professional development,
professional networking and the satisfaction of contributing to globally recognized standards are his top three most important benefits to volunteering. He also would not volunteer if his employer did not pay for his travel expenses to meetings or his employer does not give him time off work to work on committee projects. There are no overriding personal reasons why he would not volunteer, except possibly that it would be personal hardship to travel to meetings.

Given the fact that the student is somewhat familiar with the role of standards and feels that there are personal and professional benefits to volunteering on standards committees, it should be possible to encourage this by providing web-based training on the standards development process to address that knowledge gap. The greatest barrier might be with the employer who would prefer to replace a retiring volunteer with a mid-level employee with some years of experience in the industry. If the assignment of especially promising, young employees can be sold as a “fast track” path to industry recognition for the volunteer and a retention benefit to the company for younger employees who are more likely to change jobs early in their career, this approach may have benefits to both parties.
Review of Technological and Communication Platforms

Background
Globalization and international trade have brought a desire to increase participation by those in other countries in US-based codes and standards development. This, along with economic pressures to reduce the financial burden of travel even by US-based participants, is driving interest in virtual meetings, video conferencing, web-based document collaboration, and electronic voting that might be useful in some aspects of code and standard development. The popularity of social networking is leading people to ask if there is a role for these in the process as well.

Interviews of administrative staffs of several US standards developers revealed that most have utilized Internet-based technologies to facilitate the work of their committees. Specifically mentioned were:

- Teleconferencing, including conference calls and applications such as Go-to-Meeting and Webex;
- Web-based document collaboration, including Word using “track changes,” and documents posted on password-protected sites used by the committees; and,
- Electronic voting, with some systems permitting viewing of votes and comments prior to closing the vote and some not.

Discussion Topics
The following list of questions was provided to the respondents in advance of the telephone interview to get them thinking about the key topics. The interviews did not solicit answers to the specific questions but rather allowed the respondents to provide information on current technologies used, their experiences with them, and new technologies being evaluated.

Teleconferencing
Teleconferencing has some obvious limitations. Meetings cannot practically run longer than a few hours. There is a feeling among some that it is difficult to achieve consensus on difficult or complex issues in other than a face-to-face format.

Issues addressed in the interviews included:
1. Have any organizations utilized video feeds during teleconferences? If “yes,” has this helped with consensus building where the faces of speakers can be seen by others?
2. Have any organizations utilized a series of teleconferences across a short time frame to address more issues than can be worked in single session?
3. Have any organizations utilized commercial video conferencing systems with large screens that are intended to simulate a face-to-face meeting? If yes, was
the equipment in-house or at a commercial site, and how were the costs addressed?

4. Have any SDOs attempted to use Go-to-Meeting or Webex for document development where a single person is editing a document that can be seen by others in real time?

5. What other teleconferencing approaches are on the horizon that may be useful by standards committees?

6. One issue with international participation is time differences that result in teleconferences being held at inconvenient times for some. Has any SDO experimented with a virtual meeting in which discussions are carried out by posting questions and responses in a discussion thread on an electronic mailing list?

Web-based document collaboration
Since Microsoft Word is a generally accepted standard, it is assumed that all committee members have access to Word and can use the track changes function to make labeled changes to documents in legislative text. Multiple copies of the base document can be merged to create a comprehensive text, but multiple changes to the same text can create conflicts. Some SDOs use applications like Microsoft SharePoint where individuals can “check out” a document for editing which is then “read only” while it is out for editing. This enforces a sequential editing process that prevents conflicts.

1. Are there other applications like Microsoft SharePoint that are being used (or might be used) for collaborative document development?

2. Do any SDOs write documents in real time by committee, or is this process normally carried-out off-line with real time collaboration limited to review and editing?

3. Are any SDOs considering publishing documents for electronic readers like Kindle that could support html formats with linked references and be used by AHJs in the field?

Electronic voting
All SDOs interviewed have implemented electronic voting since US laws were revised to address legal issues. Some permit voters to view the votes and comments of others before the vote closes and some only after closure. Some SDOs recirculate negatives (with comments) and permit changes to votes based on being persuaded by these arguments. Some SDOs send voting members an email when the vote opens, a reminder before it closes, and a third when it is closed.

1. Is the reason that some SDOs do not permit voters to see the votes and comments of others while the voting is open an artifact of the software or is there a policy reason?

2. Do any SDOs limit email notifications to members because of complaints about too many emails?

3. Are there any outstanding issues that are limiting the full implementation of electronic voting by any voting member in any country?
General

1. Are there any additional technologies on the horizon that might be useful in support of standards development?
2. Do these technologies have any significant limitations (bandwidth, end user training, blocked on corporate network, home-based users troubles, etc.) that would need to be addressed prior to implementation?

The following are summaries from interviews with technical representatives of the various SDOs.

Richard Sterling, NFPA  (rsterling@nfpa.org)
Teleconferencing and virtual meetings
NFPA committees frequently hold “hybrid” meetings, with some members on phone but most are face-to-face. Live meeting with electronic document processing is a standard part of the process. Tried video conferencing utilizing Kinko’s conferencing centers, but there was just enough time delay (latency) to cause problems holding real-time discussions, even with state-of-the-art equipment. The commercial center also involves local travel to the centers. Bandwidth is a problem unless one spends a lot of money for equipment and services. Equipment at Quincy is used for training/webinars and that works well for one-way communication, but two-way is problematic unless limited to asking questions of the instructor. Skype presents security issues with regard to firewall settings. Chat capability has always been a part of the e-committee system, but is not well used.

Document processing
Staff liaison role and working through proposals and comments does not lend itself to traditional document processing, but the e-committee system supports it. Complete re-writes are often done by subcommittees utilizing Word with track changes. All documents are in XML to facilitate electronic publishing, and they are exploring epub formats for electronic readers. Both will support hot linked references within the text and should be attractive for enforcers and others who use documents in the field. They are conducting a trial with NFPA 1600 (distributed free) as an app for Ipad.

A Wikipedia model (XML editor) currently being implemented will allow people to see proposed changes in context. Current document format (XML) facilitates the implementation of such systems. In the future the entire system will be on-line and Web-accessible.

Voting
Within the NFPA system, voting can be a complicated process (e.g., vote limitations) that is problematic for full implementation of electronic voting. Members can submit votes by email or using Acrobat forms. This is not a technical problem, but reflects the fact that the system must support the process and the process cannot be driven by technology.
Teleconferencing
Training for committee officers and new members is commonly conducted using Webex. In addition, ASTM hosts about 1,000 Webex meetings per year for document development, strategic planning and task group work. They find that two hours is a practical limit for telephone/web conferences, but some committees hold weekly reoccurring meetings when developing document drafts. 800 plus online collaboration areas are also supported in their electronic committee system to provide asynchronous on-line communities for document development. Time delays (latency) was a problem in trials of video conferencing with high end systems.

Document collaboration
HTML documents permit change tracking and they are developing a custom software solution to edit in HTML for use with document creation and revision in the collaboration area. This custom software will have the ability to resolve conflicts created by multiple people changing the same text without the need for limiting edits to one person at a time. They are migrating to XML which has more features and will allow for content repurposing. They are converting 150 standards to eBook format as a trial for utilizing standards on electronic readers.

Electronic voting
In their system, one cannot see others’ ballots until voting is closed except for the chair and technical contact of the work item. This is primarily because, in their process, all negatives must be resolved, so a single negative can stop the process. They want to avoid multiple negatives for identical reasons by “agreeing.” Out of about 24,000 voting members, 280 request a paper ballot and these are largely retired people who may not have a computer or printer at home. They send an email notice when a ballot opens and reminders before it closes only to those who have not voted. They are careful to batch email traffic to avoid multiple, successive emails in a short time.

Long term technologies
Skype being discussed; they do not feel that the security issues are insurmountable in comparison to security needs for processing credit card payments. They are looking into smart phone applications for voting when a computer is not available. They are evaluating remote access to all meetings of a committee from a cost/benefit perspective. Long term, they are looking at virtual world software to see if there are any applications to committee activities.
Richard Olesen, UL  (Richard.A.Olesen@us.ul.com)

Teleconferencing
UL holds the occasional video conference, but face-to-face meetings are preferred because of a lack of synergy in video conferencing. There is a clear two hour “boredom limit” for teleconferences after which people on the phone drift off. UL uses Webex only internally for now, but might use for STPs later if there is a desire. West coast face-to-face meetings are used for Asian clients’ convenience rather than trying to hold teleconferences, but the current financial climate is making travel more difficult.

Web based document development
Looking into applications like SharePoint for document editing that eliminates conflicts introduced by overlapping edits, but currently the burden is on UL staff. Documents are formatted as pdf and HTML, assessing mobile books for some documents.

Electronic voting
In the current UL voting system, one can see comments but they hide the vote. Email reminders are sent when vote opens and closes. Sometimes parse votes to permit part (by issue) or full vote to prevent contentious issues from driving negative votes on non-controversial parts. They do not use Skype presently and are not really aware of security issues, but would look into such carefully before any adoption.

Jon Labrador, ASME  LabradorJ@asme.org
Teleconferencing
They use Live meeting, but in most cases limit meetings to 2-3 hours. It’s been observed that teleconferences become less effective past that time period. Web conferences are useful, but troubleshooting for less savvy members is common one hour before every session. International meetings and training (WebEx) are set to accommodate attendees so it may require origination in the wee hours of the morning here. Training sessions are recorded for playback at a convenient time. “How to” videos use Adobe Captivate to provide demonstration rather than static screen captures.

Document collaboration
They will soon be switching to an XML application to capture approved versions. Authorized people (staff, project managers and chairs) can post proposed versions on C&S Connect. Documents are generally available in locked pdf. The XML initiative will allow for possible expansion into other delivery formats (i.e.- eBooks). Larger format readers are increasing usability of electronic books. C&S Connect getting a revamp, more user friendly with additional self-service features for documents and collaboration where documents can be posted for discussion by any member.

Electronic voting
All balloting processed electronically via C&S Connect. Real-time balloting through C&S Connect via a central laptop while people are around a table is replacing paper minutes for administrative actions.
Sandy Birchler, Hydraulic Institute  sbirchler@pumps.org
The Hydraulic Institute is a trade association of pump manufacturers, suppliers, and system integrators that produces 26 industry standards. Standards committees are not balanced and committee volunteers are required to be Institute members. Standards are developed following the older ANSI canvas method. The Institute is currently studying methods for document collaboration. They are currently using SiteScape, and are evaluating SharePoint to address issues of overlapping edits. They are looking at XML as an improved electronic distribution medium to replace locked pdf. They have made some use of webinars but, as a small organization with all-member committees, they find face-to-face meetings and having an adequate numbers of volunteers do not present problems. The canvas method is not suitable for electronic voting and requires paper ballots.
Summary of Findings

This section presents a summary of the key findings of the research, organized by the critical issues of staffing committees, motivating volunteers and their sponsors, funding volunteer participation, and the implementation of new technologies intended to reduce the burden of time and travel on volunteers, as well as to facilitate more international participation.

Staffing Standards Committees
The discussions with staffs of the participating organizations indicated that there is currently no shortage of standards committee volunteers to work on projects dealing with hot or emerging topics. They occasionally experience shortages of volunteers that are motivated to maintain older standards unless these form an explicit part of their business. Most committee projects do not have vacancies, nor do they have waiting lists.

The value of preventing a single interest from having too much influence by classifying members by the interest that provides funding for their participation is widely recognized and is not perceived to create problems for staffing projects. Most SDOs classify committee volunteers in the interest category of the entity that is funding their participation, however some classify consultants as Special Experts (SE) while some SEs are paid to represent others, such as Manufacturers (M) or Users (U). The SEs are required to self-report the client on whose behalf they are working. Not all SEs are conscientious in reporting this interest. A few SDOs classify SEs in the interest category of their client, making the interest served more obvious. This might be considered by all since it would eliminate the need for self-declaration and would free up slots for volunteers that represent the independent technical experts.

Retirement of committee members results in vacancies for which there are usually no succession plans. A system that encourages planned succession through a one cycle alternate arrangement would be one solution. This would require some incentive for the sponsor, such as a guarantee that the alternate would receive the principal slot at the end of the cycle.

Sponsoring organizations are more likely to replace retiring volunteers with mid-level staff who have some experience on which to base their decisions, even where directed votes are utilized. It might be beneficial to begin educating potential future volunteers in the process by developing web based training modules (e.g., a recorded webinar) and posting these on the SDO web site. Since the process used by each SDO is unique, each organization would need to post its own module.
Summary of Findings

Use of Task Groups and Subcommittees
Task groups and subcommittees are utilized by every one of the SDOs but to different extents. Task groups and subcommittees are generally not required to meet balance requirements so they are not consensus bodies and cannot vote. Work performed by task groups and subcommittees are submitted to balanced parent bodies for review, modification, and ballot before advancing in the system.

Many SDOs find that task groups and subcommittees are of significant value in developing new documents or significant revisions to which the parent committee can react. It is important to note that there is a duty for the parent committee to avoid any perception that the work of the task group or subcommittee in any way restrains competition or unfairly benefits the business of members of that group.

Motivation of Volunteers and their Sponsors
Both current and potential future (student) volunteers reported that professional development, networking, and recognition were the primary personal motivators for participating on standards committees. Sponsors are more interested in the ability to influence and early awareness of changes to standards that affect their business, the ability to enhance the safety of products and representing their companies and industries in standards development. Continuing the current level of participation will require that these motivations be supported going forward. While most organizations have programs to recognize individuals, none currently recognize sponsors. Recognizing specific companies as industry leaders in promoting safety and public welfare might be seen as a positive factor in marketing and additional motivation to fund participation.

Funding Committee Participation
Committee workload is generally not sufficient to overload volunteers in relation to their other duties. Current volunteers are sometimes willing to donate time or pay some travel expenses themselves when funding is not available from employers. Future volunteers are less willing to contribute time and especially to pay expenses without reimbursement from employers. This observation places even more importance on existing programs that fund travel for certain interest categories such as enforcers (governmental) and consumers.

New Technologies
Embracing new technologies that can reduce the time and expense burden for volunteers is being pursued by every organization interviewed. All of the organizations reported that there is no substitute for face-to-face meetings when the work involves the resolution of technical issues or the development of consensus.

Internet conferencing applications such as Go-to-Meeting, WebEx, and Live Meeting are useful for training or for distributing information from an instructor to a group of attendees even when distributed over a wide geographical area. These applications, however, have limited usefulness for conducting meetings where many attendees are expected to contribute. Teleconferencing, even from high-end facilities with the best
equipment, can be problematic since there is still a need to travel to the local site and transmission delays can be disconcerting, even with the best equipment.

Electronic voting has been embraced by most SDOs, but implementation varies in relation to the individual process needs. The process drives the voting method which is exactly how it needs to be. Email notifications are used to remind members of their need to vote; such prompting is welcomed by volunteers and is not considered excessive.

Most SDOs are moving into electronic document formats such as portable document format (pdf), XML, and eBook that will permit hyperlinked internal and external references and the ability to see proposed changes in context. There is a general recognition that frequent users of codes and standards want to trade a shelf (or trunk) full of books for a device that facilitates rapid access to information when needed. The ability to see changes in context should reduce the instances of proposals that result in unintended consequences.

**Future Research**
In assessing the needs of future volunteers for codes and standards committees, there were some limitations to the study. One such limitation is that the six SDOs surveyed have different committee structures and procedures as well as different potential committee members. For potential future volunteers, only two of the SDOs have student members which severely limited the general conclusions that could be drawn to those two groups and possibly to NFPA (using SFPE data). The response rate to the student survey was also quite low. One possible reason could be because the survey was sent out in the summer when most college students are not taking classes.

In order for each SDO to draw additional conclusions, they will each receive the raw survey data for their members. While the report looked for general trends in the data, analyzing each SDO’s member responses should yield some additional insights into the specific issues which affect them.

Based on the results from each survey, the “snapshots” are really of distant future volunteers and people who have been volunteering for quite some time. Based on the data, the majority of codes and standards volunteers are 51 years of age or older and have been working in their profession for 21 or more years. In order to capture what the demographics, needs, and opinions are of the immediate future volunteer, it is suggested that each SDO conduct a survey of their membership who are between 25 and 50 years old and are not currently working on a codes and standards committee. This cohort is the more immediate volunteer who will be replacing those who resign from committee work. These potential volunteers are already members of the organization and are therefore interested in the mission of the SDO, but are not currently volunteering. This survey could then include questions specific to each SDO’s situation. These types of surveys of current as well as the immediate future pool of volunteers should be conducted frequently to assess additional issues.
Summary of Findings

In addition to surveying immediate potential volunteers, SDOs could also survey employers to further explore their motivations for funding codes and standards work. Possible questions could include motivations for funding and qualities that they look for in a volunteer.
Conclusions and Recommendations

A primary goal of the sponsors of this study was to identify and address any issues that might affect their ability to attract committee volunteers in the future. From the telephone interviews it appears that the SDOs are not currently experiencing problems except with some older standards projects where the document(s) are largely on maintenance. Multiple cycles in which a document is repeatedly recertified (to meet the five year requirement) can result in a lack of interest.

One process that might be useful in maintaining interest is to periodically solicit input from users of the standard as to any problems that they encounter in their use. Going beyond a call for proposals, this could be modeled after the users’ groups that are in place for several test methods. Those using the standard in their daily business are best suited to identify problems and the practicality of potential solutions.

The authors were surprised to learn that, while every organization recognized volunteers, none recognized their sponsors. Such recognition might encourage sponsoring organizations to increase (or at least maintain) their financial support of employees to participate fully in committee activities.

Concerns about the loss of experienced volunteers upon retirement might be addressed by encouraging succession plans that provide some incentive for retiring volunteers to recruit and train their replacements. The longer term grooming of potential volunteers might be facilitated by the development of web-based training modules (recorded webinars) that educate potential volunteers on the standards development process.

While some are more ambitious than others, every organization is exploring new technologies to streamline the workload and to reduce travel. Some technologies are beyond the abilities of some volunteers, and each organization has mechanisms to accommodate these. It is expected that these issues will continue to decline as younger, more tech-savvy volunteers take over. However, every organization reported that there is still no substitute for face-to-face meetings, especially where it is necessary to reach consensus on complex issues.

While the cost of a volunteer’s time generally exceeds the travel costs, sponsors are more concerned about the latter. Most organizations do a good job of obtaining reduced hotel rates and discounts on airfares. Some might do more by entering into agreements with lodging chains to hold multiple meetings at their properties in exchange for lower rates, complimentary meeting spaces with smaller guarantees of room-nights, or refreshments.
Annex A - Phone Survey Questions for SDO Representatives

Questions for Phone Survey

Part I:

1. Name of interviewee:

2. SDO interviewee is affiliated with (employed by):

3. What is your current position?

4. Approximately how many members does your SDO have?

5. Approximately how many standards and codes committees does your SDO currently have?

6. Approximately how many standards and codes documents does your SDO produce?

7. What types of professionals are your typical standards and codes volunteers? (list)

Part II:

8. Within the past 5 years, has your organization experienced increasing difficulty in obtaining enough volunteers to work on codes and standards committees? (Y/N)

9. If yes, has this difficulty been a general problem with all groups or has it been limited to volunteers representing specific interest categories? (General, specific interests)

10. If yes (to #9), please list the specific interest groups.

11. Do you limit the size of your committees? (Y/N)

12. If yes, do any of your committees have waiting lists for appointments? (Y/N)

13. If yes, approximately what percentage of committees has waiting lists?

14. Do you have any committees with vacancies? (Y/N)

15. If yes, approximately what percentage of committees has vacancies?
16. Is it possible for a committee volunteer to participate on a committee without attending all meetings? (Y/N)

17. If yes, how many meetings is a committee member required to attend in one document cycle? (number)

18. Does your organization pay travel expenses for any committee volunteers? (Y/N)

19. If yes, how is this determined?

20. Does your organization provide any other benefits to committee volunteers (such as free or discounted access to publications, or discounted registration at events)? (Y/N)

21. If yes, what types of benefits are offered?

22. Have you noticed a particular problem attracting or retaining in the system, younger professionals (early career) to replace more experienced volunteers as they retire? (Y/N)

23. Has your organization attempted to determine the reasons for the decline in participation? (Y/N) *(possible narrative to list any survey reports)*

24. What were the results of your organization’s research?

25. Do your committees use task groups or subcommittees that are not required to be balanced to draft working documents that are then balloted to a (balanced) parent committee as a means to reduce workload on committee volunteers? (Y/N)

26. The following statements are possible obstacles to volunteer participation on codes and standards committees. After I read them, please tell me if you have heard that these are reasons why people have not volunteered. (Y/N answer)

27. **External influences**

   Employer will not pay travel expenses.
   Employer will not give time off from regular work to attend meetings.
   Employer will not give time off from regular work to work on volunteer activities.
   Employer does not see value in volunteer work.

28. **Personal/internal influences**

   I don’t see a professional benefit to me volunteering.
I am too busy personally (i.e. family commitments) to travel unless it is necessary for my job.
I have found the process of volunteering on a committee frustrating.
I have found that the process takes too long to get things accomplished.

29. Are there any other reasons that you have observed for the decline in volunteering?

Motivation:

30. How does your organization recognize volunteers? (cite examples)

31. Please rank them in order of how effective you think they are in motivating volunteers (1 = being most effective).

32. Does your organization have awards or other recognition of entities that sponsor volunteers by paying for their time and travel to participate? (Y/N)

33. If yes, cite examples.

34. Have you observed people more willing to volunteer for committees which are working on more interesting topics? (Y/N)

Technology:

35. Out of the following list of new technologies, which one(s) has your organization used in the codes and standards process? (Y/N)

   Videoconferencing
   Teleconferencing
   Electronic document processing
   Electronic voting

36. Have you used any other technologies?

37. In your experience, how successful do you think each technology has been in fulfilling the committee’s needs?

38. (scale 1-4 with 1 = very successful; 4 = not at all)

39. If you have used electronic voting, does the system include the ability to view ballot comments by others? (Y/N)

40. Have you noticed any increased participation when using these technologies? (Y/N)
Annex A

41. Do you foresee or have you observed any negative consequences to using any of the above technologies? (Y/N)

42. If yes, what were the negative consequences?

43. What other suggestions do you have that might increase volunteer participation on codes and standards committees?

5/20/10
Annex B - On-line Survey for Current Codes and Standards Volunteers

Please answer the following survey questions based upon your experience on the codes and/or standards and committee of the SDO that sent you this survey. The survey should take you 30 minutes.

1. Which organization sent you this survey?
   ASME
   ASTM
   IAPMO
   NEMA
   NFPA
   UL

2. What is your age?
   21-25
   26-30
   31-35
   36-40
   41-45
   46-50
   51-55
   56-60
   61+

3. Please select your gender:
   Male
   Female

4. Where do you currently live?
   Africa
   Asia
   Australia/New Zealand
   Canada
   Central America
   Europe
   South America
   United States (please specify state)

5. What is your highest level of education?
   High School diploma
   Bachelor’s Degree
   Master’s Degree
   Post-graduate degree
   None of the above
6. What is your current position?
   - Academic
   - Consultant
   - Consumer
   - Enforcing authority
   - Engineer
   - Government (non-enforcer)
   - Installer
   - Lab technician
   - Lawyer
   - Manager
   - Marketing
   - Researcher
   - Retailer
   - Retired
   - Scientist
   - Standards Professional
   - Other, please specify:
   - Not applicable

7. What type of business is your employer in?
   - Academia
   - Consulting firm
   - Consumer
   - Enforcing authority
   - Government (non-enforcer)
   - Installer/Maintainer
   - Labor Organization
   - Manufacturing
   - Non-profit
   - Producer
   - Research and Development
   - Research/Technical labs
   - Standards Development Organization (SDO)
   - Supplier
   - Other, please specify:
   - Not applicable

8. How many years have you worked in your current profession?
   - Less than 1 year
   - 1-5 years
   - 6-10 years
   - 11-15 years
   - 16-20 years
   - 21+ years
9. How many codes and standards committees are you currently serving on?
   - 1-3
   - 4-6
   - 7-9
   - 10 or more
   - None of the above

10. How many years have you been serving on this organization’s codes and standards committee?
    - Less than 1 year
    - 1-5 years
    - 6-10 years
    - 11-15 years
    - 16-20 years
    - 21 or more years
    - None of the above

11. How did you start on this committee? (Select all that apply.)
    - Employer placed me on the committee
    - Recruited by SDO
    - Recruited by another committee member
    - I volunteered
    - Other, please specify:
    - Not applicable

12. On average, what is the total number of hours that you spend on committee work in a year? (Number)

13. What percentage of the hours you worked on the committee was paid for by your employer? (Percentage)

14. What percentage of the hours you worked on the committee were on your own personal time? (Percentage)

15. Do you have an alternate for any of your committee assignments who attends meetings and submits ballots if you are unable? (Y/N/Don’t know)

16. If “yes” to Question 15, who funds the alternate’s participation?
    - My employer;
    - Other source; please specify:

17. Which of the following does your employer use as a succession program for replacing representatives on committees due to attrition? (Select all that apply.)
    - Have an active program;
Encourage you to find and recruit successor;
Plan to terminate involvement;
Not applicable.

18. How did you learn about the codes and standards development process and procedures? (Select all that apply.)
   Learned by participating
   Taught by a colleague who also participates on committees or who I replaced
   Attended training offered by the SDO
   Other, please specify:
   Not applicable

19. The following are some benefits that your employer may have received by you volunteering on this committee. Please rank the top 3 benefits in order of importance (1 = most important):

Organizational benefits:
   Ability to influence content of codes/standards;
   Contribution to improved safety and performance of products/issues covered by standard;
   Cost savings;
   Early awareness of new or revised requirements;
   Improved quality/efficiencies;
   Market access for products;
   Minimizing risk that standard’s requirements will be incompatible with employer’s products/services;
   Networking with industry professionals;
   Representing or protecting my organization’s/industry’s interest;
   Other; please specify:
   None.

20. The following are some personal benefits that you may have received by volunteering on this committee. Please rank the top 3 benefits in order of importance to you (1 = most important):

Personal benefits:
   Access to free or reduced cost of SDO documents;
   Discount at annual meetings/conferences;
   Plaques or awards (recognition by SDO or committee);
   Professional development;
   Professional networking;
   Professional recognition;
   Recognition gifts (e.g., flashlight, tool);
   Travel experience;
   Other; please specify:
   None.
21. Overall, how rewarding has your committee experience been? (Scale 1-6 with 1 = not at all rewarding and 6 = extremely rewarding; 7 = No opinion.)

22. If answer to Question 21 was “1,” “2” or “3,” why have you found your committee experience unrewarding? (Open-ended answer.)

23. Have you had to wait for an appointment or been denied an appointment to a committee because the interest group in which you are classified was full? (Y/N)

24. Do you think that the balance of interest groups on your committee hinders the overall process? (Y/N) (space for additional comments)

25. Overall, how supportive has your employer been in regards to your committee work? (Scale 1-6; 1 = not at all supportive; to 6 = extremely supportive; 7 = Don’t know.)

26. How supportive is your employer of participation on committees that are developing standards covering newly emerging topics? (Scale 1-6; 1 = not at all supportive; to 6 = extremely supportive; 7 = Don’t know.)

27. How supportive is your employer of participation on committees that are maintaining standards that are undergoing only incremental changes? (Scale 1-6; 1 = not at all supportive; to 6 = extremely supportive; 7 = Don’t know.)

28. Within the past 2 years, has your employer had to limit your travel to committee meetings due to the economy? (Y/N)

29. While on this committee, have you experienced any of the following obstacles to participation? (Select all that apply.)
   - Employer will not pay travel expenses to committee meetings;
   - Employer will not give time off to work on committee work;
   - Employer does not see value in committee work;
   - Other; please specify:
     None.

30. Personally, are any of the following constraints to you volunteering on the committee? (Select all that apply.)
   - It is a personal hardship for me to travel to committee meetings;
   - Professionally, I don’t see any benefit to me being on the committee;
   - I find the document development process too time-consuming;
   - I find the document development process frustrating;
   - Other; please specify:
     None.
Annex B

Technology

31. Which of the following technologies have you used while participating on this codes and standards committee? (Select all that apply):
   - Videoconferencing;
   - Teleconferencing;
   - Electronic document processing (e.g., on-line workspace, document sharing, project management);
   - Web conferencing (e.g., Webex, MS Live meeting, webcasting, webinars);
   - Electronic voting;
   - Other; please specify:
     None.

32. How easy was each technology to use? (1-6 scale; 1 = not at all easy; and 6 = extremely easy; N/A.)
   - Videoconferencing;
   - Teleconferencing;
   - Electronic document processing (e.g., on-line workspace, document sharing, project management);
   - Web conferencing (e.g., Webex, MS Live meeting, webcasting, webinars);
   - Electronic voting;
   - Other; please specify:

33. How effective do you think each one was at fulfilling the committee’s needs? (1-6 scale; 1 = not at all effective; and 6 = extremely effective; N/A.)
   - Videoconferencing;
   - Teleconferencing;
   - Electronic document processing (e.g., on-line workspace, document sharing, project management);
   - Web conferencing (e.g., Webex, MS Live meeting, webcasting, webinars);
   - Electronic voting;
   - Other; please specify:

34. Have you found any negative effects of using any of the above technologies? (Y/N) (Additional comments, open ended)

35. How would you describe your view of email notifications about committee activities? (Select one.)
   - I welcome email notifications; they keep me abreast of important items and serve as good reminders.
   - I appreciate a moderate volume of email, but I am growing frustrated by the increasing volume of email I am being sent relative to committee activities.
   - I would prefer not to receive email notifications; I can easily check what I need to on websites or by contacting the organization.
   - No opinion.
36. Please rate each of the following formats based upon how you currently prefer to receive codes and standards documents. (1 – Don’t prefer, 5 – prefer, No opinion)
   - Hard copy paper;
   - CD/DVD;
   - On-line download;
   - E-reader;
   - PDA.

37. Please rate each of the following formats based upon how you would prefer to receive codes and standards documents five years from now. (1 – Don’t prefer, 5 – prefer, No opinion.)
   - Hard copy paper;
   - CD/DVD;
   - On-line download;
   - E-reader;
   - PDA.

38. How valuable do you think face-to-face meetings are? (1-6, 1 = not at all valuable; and 6 = extremely valuable; 7 = No opinion.)

39. How do you think your SDO could attract new committee members? (Open-ended)

Thank your for taking this survey!
Annex C - On-line Survey for Students

The survey should take you 30 minutes.

1. Which organization sent you this survey?
   - ASME
   - ASTM
   - SFPE

2. What is your age?
   - 18-21
   - 22-25
   - 26-30
   - 31+

3. Please select your gender:
   - Male
   - Female

4. Where do you attend school?
   - United States (please select state)
   - Other country, please specify:

5. What degree are you currently seeking?
   - Technical degree
   - Bachelor’s degree
   - Master’s degree
   - Post-graduate degree
   - None of the above

6. What is your field of study?
   - Engineering
   - Physics, Chemistry, Biology
   - Mathematics
   - Business
   - Other, please specify:
   - Not applicable

7. How many years have you been a member of this organization?
   - Less than 1
   - 1-5
   - 6 or more years
Annex C

8. Have you learned about or discussed in classes the role of standards in regulation, in enhancing public safety, providing standard industry practices or in ensuring the interchangeability of products. (Y/N; don’t know.)

9. How familiar are you with the role of technical standards in regulation, manufacturing, or global trade? (Scale 1-4; 1 = Not at all familiar; 4 = Very familiar; 5 = Don’t know.)

10. If you answered “3” or “4” to Question 9, how familiar are you with the process of codes and standards development and maintenance by volunteer committees? (Scale 1-4; 1 = Not at all familiar; 4 = Very familiar; 5 = Don’t know.)

11. How likely would you be to volunteer for a codes and standards committee within your field if your employer offered you the opportunity as a part of your regular duties and paid your associated expenses to travel to meetings? (Scale 1-4; 1 = Not likely; 4 = Very likely; 5 = Don’t know.)

12. Do you see a personal benefit to volunteering for codes and standards committees? (Y/N; don’t know.)

13. Do you see a professional benefit to volunteering for codes and standards committees? (Y/N; don’t know.)

14. The following are some benefits that you may receive by volunteering on a codes and standards committee. Please rank the top 3 benefits in order of importance to you (1 = most important):
   - Access to free or reduced cost of SDO documents;
   - Discount at annual meetings/conferences;
   - Plaques or awards (recognition by SDO or committee);
   - Professional development;
   - Professional recognition;
   - Professional networking;
   - Recognition gifts (e.g., flashlight, tool);
   - Travel experience;
   - Satisfaction of contributing to globally recognized standards;
   - None.

15. In deciding to volunteer for a committee, which of the following would cause you to conclude that you will not participate? (Select all that apply.)
   - Employer will not pay travel expenses to committee meetings;
   - Employer will not give time off to work on committee work;
   - Employer does not see value in committee work;
   - Lack of effective use of technology for committee work;
   - Other; please specify:
   - None of the above.
16. Personally, would any of the following constraints cause you to not volunteer on a committee? (Select all that apply.)
   - It is a personal hardship for me to travel to committee meetings;
   - Professionally, I don’t see any benefit to me being on the committee;
   - I find the document development process too time-consuming;
   - I find the document development process frustrating;
   - Other; please specify:
   - None of the above.

Thank you for taking this survey!