August 6, 2020

Oregon DCBS, Building Codes Division                via email: Laura.L.Burns@oregon.gov
Attn: Laura Burns
PO Box 14470
Salem, OR 97309-0404

**RE:     Testimony for Program Delegation Rulemaking Advisory Committee, August 7, 2020**

Dear members of the rulemaking advisory committee and BCD staff:

By way of brief introductions, my name is Dan Carlson. I have been serving as the Building Official in Wilsonville for nearly 4 years. I served previously in Corvallis for 20 years. I served on the Oregon Building Code Structures Board by Governor Appointment from 2010 through 2018. I am an adjunct instructor and teach two terms of Building Department Administration 1 and 2 for Chemeketa Community College's 2-year Building Inspection Technology program.

I have watched the entirety of video and listened to the audio testimony from previous meetings and have read all legal opinions and correspondence provided on the BCD website to date. For your consideration, I am offering the following observations of the four topics in agenda item III regarding the draft rules:

**Topic 1 – Building Official Employment**

Text of Topic 1, Bullet 3:
*The appointed building official, alone or in combination with another directly employed person, must have:*

- *A valid A-level structural inspector certification or A-level plans examiner certification issued by the division, and:*
- *Five or more years of experience performing A-level structural inspections;*
- *Five or more years of experience performing A-level structural plan reviews; or*
- *A bachelor's or graduate degree in structural or civil engineering.*
  *[See OAR 918-020-0090(1)(m), 918-020-095(1)(e)]*

Topic 1 Issues:
- Certification vs Experience - The proposed rules deal with increasing the level of experience for individuals who serve as building officials, rather than beefing up the certification requirements. Experienced code professionals with A-Level certifications are growing increasingly scarce and

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much has been written about this topic. While somewhat dated, the 2014 ICC/NIBS nationwide survey of 3,850 code officials indicated that (in 2014) 30% were slated to retire in 5 years, and 80% in 15 years (see attachment 1). The survey thus far has been reasonably accurate and means the pool of potential candidates with experience has dwindled and continues to do so. Further restricting future building officials based on years of experience will leave Oregon with a widening shortage of qualified candidates. Experience levels need to be left where they currently are – within the job description of the hiring jurisdiction.

- The February 16, 2018, Legal Opinion from Assistant Attorney General Katherine Lozano, page 3, provides a first remedy that strongly emphasizes a need to increase building official certification requirements. She states in part:

  *Additionally, some of the several possibilities for remedying current issues include:*
  o *__Strengthen__ building official __certification__ requirements, to ensure building officials possess the __necessary technical qualifications__ to genuinely carry out discretionary powers for all of the program components in a building department, and to provide government accountability for decisions;…(emphasis added).*

  Again, in section VI Titled *Recommendations*, page 21, p2 in part:

  *…one possibility is for BCD to __substantially strengthen__ the __required technical qualifications__ for building official __certification__, to ensure that municipalities whose only building department employee is their building official still have the necessary expertise to exercise their own discretionary powers. (emphasis added).*

  The AG recommendation is to focus on strengthening certification to ensure building officials have the technical qualifications.

- Increasing **certification** requirements as a demonstration of competence in meeting technical qualifications should be the focus – not years of experience.

  I have mentored several talented individuals into building official positions across the state and they operate very successful programs. Under the proposed rules, most of these individuals would not have met the experience requirements. I myself would not have met the proposed experience thresholds before becoming the Corvallis Building Official. Please do not refocus this issue on experience.

- Current statute requires a training program and a method for determining practical experience equivalent. BCD should have a program in place for training building officials, which includes courses or subjects for instruction, and standards for determining a practical experience requirement. BCD does not have such a program.

  ORS 455.720 Standards and Qualifications of Personnel
  (1) In accordance with applicable provisions of ORS chapter 183, to promote effective and uniform enforcement of the state building code by improving the competence

of building officials and inspectors, the Director of the Department of Consumer and Business Services, with the advice of the advisory boards, shall:

    (a) Establish for building officials and inspectors reasonable minimum training and experience standards, including but not limited to courses or subjects for instruction, facilities for instruction, qualification of instructors and methods of instruction. The standards shall include provisions for determining a practical experience equivalent.

    (b) Establish a procedure to be used by municipalities to determine whether a person meets minimum standards or has minimum training to be appointed or employed as a building official or inspector. The procedure shall allow for a field examination of a person to determine if the person meets the practical experience equivalent of a minimum standard.

- Oregon Building Official certification - Certification requirements to become an Oregon Building Official are seriously lacking and need to be strengthened.

  In 2016 I was required to take the Oregon Building Official class from BCD because I switched jurisdictions. It was 1½ days long and focused on ethics, Oregon laws, administering state codes, program administration, and customer service. At the time, there was no test and students were given the Oregon certification by virtue of sitting through the class. I understand from BCD staff that this class is now 4-days in length and covers much the same content, just expanded, and now includes a competency test. This training has a place and is important, but is certainly not enough.

- ICC Certified Building Official certification - In contrast, the International Code Council (ICC) provides a Certified Building Official (CBO) certification that the state should consider in addition to the Oregon Building Official certification. This CBO certification takes extensive training in critical areas and requires successfully passing three separate 2-hour exam modules (see attachment 2 for exam references and content) to include:
  1. **Technical** Module (9 books)
  2. **Management** Module (6 books)
  3. **Legal** Module (6 books)

These exams raise the bar significantly. They are very rigorous and challenging to pass. BCD should make the ICC CBO a required certification for all new building officials.

- In 2016 Chemeketa restarted the 2-Year Building Inspection Technology Program. The old program from 1978 was scrapped and new program completely modernized to provide the knowledge, skills and expertise for future code professionals to thrive in today's building department. This fully-accredited program reports to a 10-member advisory board and offers the following:
  - o Training in building, residential, fire, mechanical, fuel-gas, energy, ADA, and many other codes and standards.

- o Nearly 1,400 hours of instruction with lab classes and a 300-hour internship in a building department.
- o Students qualify to test for 8 ICC certifications, including the CBO.
- o Strong focus on customer service, communication skills, technical requirements, and integrating technology (electronic plan review, electronic field inspections).
- o Instructors are certified in the disciplines they teach and are actively working in their respective disciplines.
- o Chemeketa achieved ICC Preferred Education Provider status in 2018.
- o Chemeketa is a nationally recognized program and is one of the few offered in the US. The program resides primarily at the Polk Center in Dallas, just 13 miles from BCD.
- o Chemeketa is very open to working with BCD. Chemeketa and other programs could be recognized by BCD as meeting the training requirements for building officials in ORS 455.720 as previously mentioned.

Topic 1 Summary: 5-years of experience as an A-Level inspector, plans examiner, or degree in engineering (particularly civil engineering) is not an indicator of an individual's technical qualifications to be successful as a building official. There are a great many legal, financial, customer service, and human resources related topics, in addition to technical code expertise, that building officials must be skilled and competent in. A rigorous program of study, practicum, and certification is what is needed to mentor the next generation of building officials. Allowance should be made for a focused 2-year AAS degree in Building Inspection Technology, and require the ICC CBO certification as a "significant strengthening" of certification requirements, in addition to keeping the Oregon Building Official certification.

**Topic 2 – Conflicts of Interest and Third Party Requirements**

Text of Topic 2, Bullet 2:
- *Additional conflict of interest requirement for building officials, plan reviewers, and inspectors. [See OAR 918-030-XXXX] (Copied below)*

  *OAR 918-030-XXXX (New)*
  *Conflict of Interest*
  *A person, regardless of how employed or contracted for, who is licensed or certified to perform plan review, building inspection services, or building official services for a municipality is, in addition to any other requirements or prohibitions in these rules, prohibited from taking any action or making any decision or recommendation that would be to the private pecuniary benefit of the person or the person's relative or any business with which the person or a relative of the person is associated, or to the pecuniary detriment of any person or any business with whom the person or the person's relative or any business with which the person or a relative of the person is in competition. The official compensation package as determined by the public body the person serves is not included in this prohibition.*

Topic 2 Issue:
- HB 2420 took care of this issue for third parties. **C**onflict of interest rules are addressed for all public officials in ORS Chapter 244, which deals with Code of Ethics, Gifts, Nepotism, and Conflicts of Interest. With regard to concerns with potential third-party conflicts of interest, HB 2420 added, "*A person, regardless of how employed, who performs plan review, building*

*inspection services or building official services for a municipality is a public official for the purposes of ORS chapter 244."*

Topic 2 Summary: While I strongly support proper controls, this text is redundant and not necessary. With the passage of HB 2420, and new language noted above, private third-party code professionals are subject to the same rules as public officials.

## Topic 3 – Process

Text of Topic 3, Bullets 1 & 2:
- *In addition to certification, a building official must be registered to work for a municipality (or group of municipalities). The municipality and building official will submit a form to BCD to register the building official for the municipality, showing they meet necessary requirements. The registration will be renewed yearly with the annual data request form.*
  *[See OAR 918-020-0015(2), 918-020-XXX1, 918-020-0090(1)(L)]*

- *All municipalities will apply for renewal of their programs by January 1, 2021, unless they request and receive an extension. Renewal will include initial building official registration.*
  *[See OAR 918-020-XXX2]*

Topic 3 Issue & Summary:
- No mention has been made in previous hearings that there is a proposed new registration process for jurisdictions to complete.
- HB 2420 does not include reference to a program registration and registration of building officials.
- If approved, this would be the third regulatory licensing mechanism imposed on building officials by the Division (4th for third parties). The first two being the Oregon Inspector Certification and Oregon Building Official Certification.
- BCD already has the ability to impose corrective measures of building officials such as issuing sanctions, invalidating certifications, or suspending certifications.
- While not opposed to program registration, there is no rationale or explanation offered for the need of a third mechanism for BCD to further regulate building officials.
- Additional information and proposed program details are needed including but not limited to, why a new registration program is needed, why current licensure/certification is not adequate, and proposed jurisdictional costs for registration so the financial implications can be considered.
- Registration should only be required if BCD has a robust program review process in place as well.

## Topic 4 – Fiscal Impact
- If program and building official registration is to move forward, there should be no financial impact to municipalities. ORS 455.210 (4) provides a revenue source through the 4% surcharge collected by jurisdictions and remitted to BCD for purposes of defraying state administrative costs.
- There has been no discussion of what will be required in the registration documents, including data reporting. More information is needed on this new program so financial impacts, including staff time, data gathering, report generation, overhead, and other costs can be estimated.

**Related Issues**

Operating Plans
- OAR 918-020-0090 Program Standards (1)(a) (page 3)
  - The term "an approved" is stricken and replaced with "its" in reference to an operating plan.
- OAR 918-020-0180 Reporting Periods (8) (page 10)
  - The phrase, "submit a copy of the amended operating plan to the division" is stricken.
- BCD has previously maintained that it does not approve operating plans. These changes and others in the proposed rules reflect this direction.
- Why does BCD *not* approve operating plans?
- BCD oversight of jurisdictions should ensure there is compliance with the basic program standards of OAR 918-020-0090 Program Standards. Evaluating and approving operating plans seems to be a prudent action to ensure jurisdictions are consistent and in compliance with program standards.

Program Reviews
- OAR 918-020-0190 Program Review
  - This OAR was not addressed in the rulemaking
  - It is unclear if BCD performs program reviews as identified in this OAR but it is believed BCD does not.
- Many of the perceived administrative issues in local jurisdictions could be easily confirmed, identified and addressed in a productive manner, through regular program reviews without need for extensive rulemaking or legislation.
- The current program review process is non-existent or at best, broken. Please reinstate program reviews for all jurisdictions. I will personally offer to assist with creating an Oregon Program Registration or Program Certification that encompasses regular program reviews. This would ensure quality assurance audits to include the following potential areas:
  - Financials – ensuring jurisdictions are appropriately using funds
  - Licensing – ensuring licensing compliance is occurring in the office and in the field
  - Checklists – ensuring consistency of plan reviews and inspections through minimum checklists
  - Write & Cite – ensuring written corrections appropriately cite code sections is occurring in plan review and inspections
  - Operating Plan – ensuring consistent and up-to-date operating plans
  - Conflicts of Interest/Ethics – ensuring appropriate measures are in place
  - Staff Certifications and Continuing Education

Thank you for your time and your consideration of this testimony.  I hope this is helpful.


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Building Official

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Att:     Attachment 1, 2014 ICC/NIBS Survey of Code Officials
         Attachment 2, ICC Certified Building Official Certification Exam Content (3 modules)
         Link: Chemeketa Building Inspection Technology Program:
               https://www.chemeketa.edu/programs-classes/program-finder/building-inspection/

# INTERNATIONAL CODE COUNCIL®

**People Helping People Build a Safer World®**

# THE FUTURE OF CODE OFFICIALS

*Results and Recommendations from a Demographic Survey*

National Institute of BUILDING SCIENCES

**AUGUST 2014**

## INTRODUCTION

For more than a century, jurisdictions across the United States have implemented building codes to protect the health, safety and welfare of their communities. As communities have recognized the impact buildings have on sustainability and resilience goals, the scope of building codes has expanded.

To be effective, codes must have both a robust development process and an enforcement infrastructure. America's code administration and enforcement professionals serve as the backbone of such a code development and enforcement process. However, there is a growing concern among code developers and the building industry at large that demographic shifts in the makeup of the code-related workforce will challenge the current building regulatory system.

These concerns largely grew out of on-the-ground observation by code officials—department staffs were getting older, without additional younger participants entering the job pool, and participants at professional organization and code development meetings were generally older. The International Code Council (ICC), a model code developer and advocate for the adoption of codes leading to safe and healthy communities, wanted to take action to address these important issues. However, to help validate these initial observations, and to support a well-informed response to these perceived threats, more concrete information was needed. The ICC approached the National Institute of Building Sciences, a non-profit organization established by the U.S. Congress to work across the many stakeholders within the built environment, to assist in this effort.

As the first step, the Institute surveyed code officials to determine the current state of the profession, the educational and career pathways for entering the profession as well as retirement expectations of current code professionals. Following the compilation of survey results, the Institute will develop a summit to bring together leaders from the code profession; stakeholders who rely on the existence of a robust workforce of code officials; and other building industry representatives to discuss the findings and offer recommendations for addressing identified issues.

The Institute conducted the survey from March 17 to May 15, 2014. The Institute sent requests to participate to professionals in code administration and enforcement through invitations, newsletters and press releases. The survey received 3,850 responses, with representatives from all 50 states, Australia (2), Canada (3) and India (4). A copy of the survey questions is available in Appendix I of this report.

In general, the survey results confirmed the observations of code organizations and on-the-ground code officials. However, there are a few unexpected results that highlight areas where the ICC and others may wish to focus efforts to attract the next generation of code officials. This survey did not address issues of diversity (either by gender or ethnicity), which are certainly related to the development of a robust workforce. However, for this particular effort, it was determined that understanding the educational pathways and retirement plans of the current cadre of code officials was fundamental, with diversity issues to be addressed at a town hall meeting in September 2014 and in future research efforts.

## THE "TYPICAL" CODE PROFESSIONAL

While it is unlikely that any respondents fit the description of a "typical" code professional exactly, understanding the most common attributes of a code professional may help bring clarity to the discussion of issues and the ensuing recommendations. As indicated previously, the survey did not cover gender or ethnicity.

The typical code professional is between the ages of 55 and 64 (See Figure 1). He works at the local level as a jurisdiction employee (rather than a third-party provider) in a one- to nine-person department that serves a community of less than 75,000 people. He earns an annual salary of between $50,000 and $75,000. He has between 26 and 35 years of experience within the building industry, but only five to 15 years spent as a code official. He entered the code profession while in his 30s, and held between one and three jobs before becoming a code professional. His first job was as a tradesperson.

He may possess a bachelor's degree (27 percent) or may not have pursued additional education beyond high school (25 percent). If he earned a bachelor's degree, it is probably in engineering but it could be in some form of business (management, accounting, finance, etc.). He currently does not hold any trade licenses, but does have a professional license, certificate, certification or other credential. His most likely reason for pursuing a job as a code official is job security, with other reasons such as salary/benefits and respect for the profession also high on the list.

His current role in building regulation is as an inspector (general, building or residential), plan reviewer or in departmental management. Given the relatively small size of the typical department, it is not surprising that he may serve in some or all of these roles simultaneously. Finally, he expects to leave the building regulatory profession within the next five to 15 years (See Figure 2).
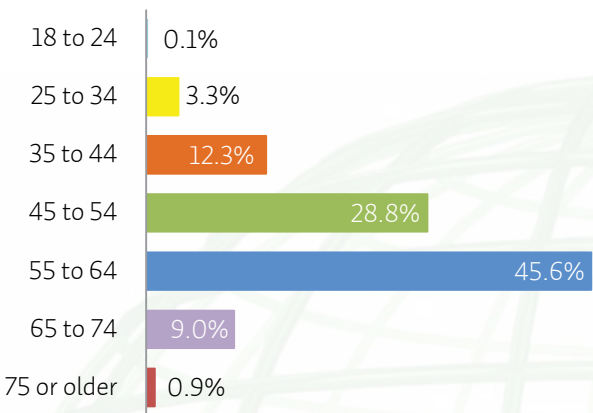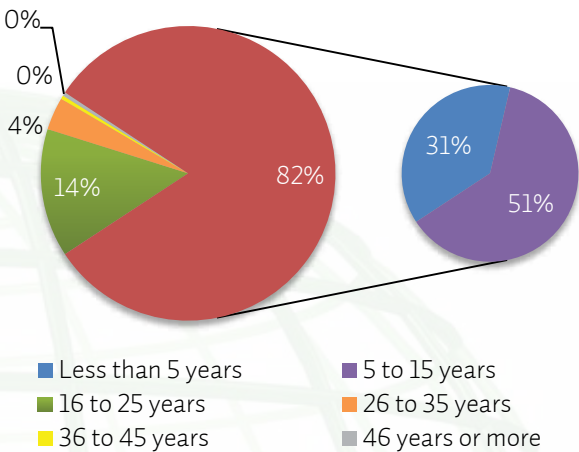
### Figure 1: Age of Respondents

| Age | Percent |
|-----|---------|
| 18 to 24 | 0.1% |
| 25 to 34 | 3.3% |
| 35 to 44 | 12.3% |
| 45 to 54 | 28.8% |
| 55 to 64 | 45.6% |
| 65 to 74 | 9.0% |
| 75 or older | 0.9% |

### Figure 2: Plans to Leave the Building Regulatory Profession

0%
0%
4%
14%
82%
31%
51%

- ■ Less than 5 years
- ■ 5 to 15 years
- ■ 16 to 25 years
- ■ 26 to 35 years
- ■ 36 to 45 years
- ■ 46 years or more

Attachment 1
Carlson, Testimonty

## KEY RESULTS AND ANALYSIS

While the survey reveals many important pieces of information about the code professional workforce, two data points are worth highlighting from the very beginning—retirement expectations and educational backgrounds.

### AN AGING WORKFORCE

It comes as little surprise that the current workforce is aging and making plans for retirement. However, the actual numbers are a bit alarming. Nearly 85 percent of the respondents are currently over the age of 45 (See Figure 1, Page 2).  More importantly, more than 80 percent of the existing code professional workforce is planning on retiring in the next 15 years, with more than 30 percent in the next five years (See Figure 2, Page 2). The impact of such retirements may be exacerbated by the small size of most code departments—a third of which have one to four members and more than half have nine or fewer members. While other findings from the survey may temper such alarm, the fact remains that a significant number of code professionals will be leaving the workforce without an equivalent number of younger professionals already involved in the profession to take their place—only about 15 percent of the respondents are under 45 years old, with only about three percent under 35. The retirement of multiple members in such a department over a short timeframe would result in a significant loss of institutional memory and capacity.

### MULTIPLE PATHS TO THE PROFESSION

The range of educational pathways that current code officials have taken to become code officials is quite interesting. In developing the survey, the survey team anticipated that most of the respondents would have entered the code professions through building-related educational programs. While this was true in the majority of cases, educational experience in seemingly disconnected fields—particularly business-related programs (business, management, administration, finance, etc.)—was significant. More than 27 percent of the total respondents reported earning a bachelor's degree, with 27 percent of them holding business-related degrees. Only engineering degrees were cited more often, with 30 percent (See Figure 3, Page 4).
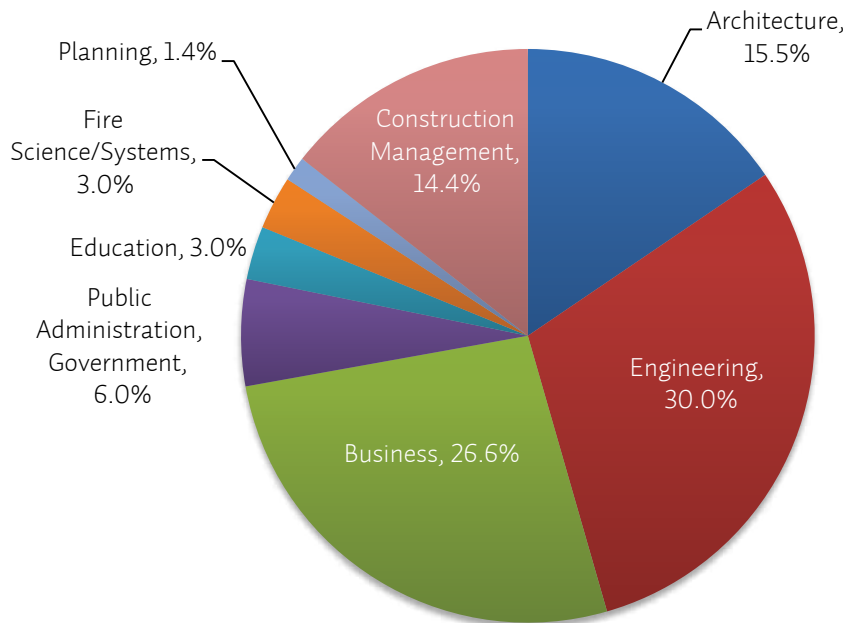
This finding suggests that introducing codes (and the related topic of standards) into the curriculum of business schools may be a means for actively introducing building regulatory careers to a new group of students. Such an approach would have the added benefit of highlighting the roles of codes and standards and code departments in business decision making. It could also help facilitate attempts by code departments to shift from a perceived adversarial process to a more cooperative engagement with the design, construction and overall business communities.

 Additionally, this result may suggest that effective code professionals may find skills beyond understanding design and construction processes valuable. While not covered in this survey, it may be worthwhile to explore how the various educational paths (along with other additional training programs) have prepared code professionals for their day-to-day functions. The results of such an exploration could assist training and certification programs in focusing in on the most valuable and effective information.
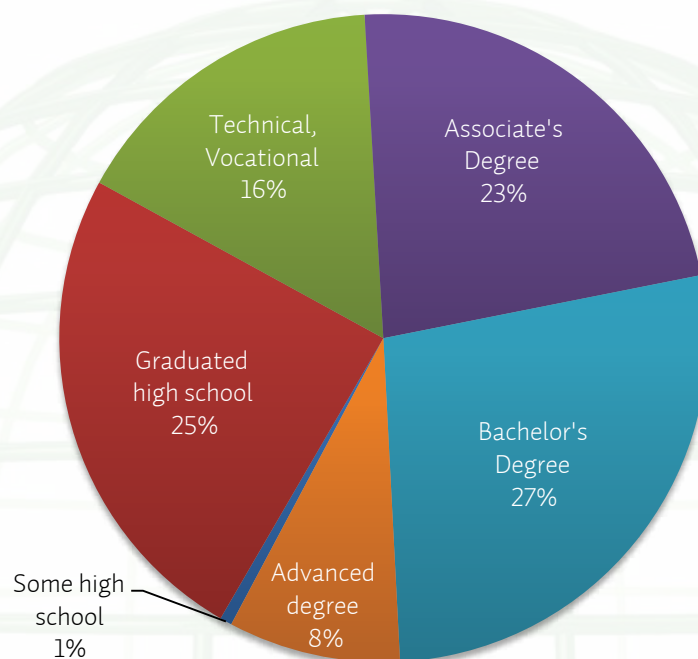
## Figure 3: 4-Year/Bachelor's Degree Program Completed

Planning, 1.4%

Fire Science/Systems, 3.0%

Education, 3.0%

Public Administration, Government, 6.0%

Construction Management, 14.4%

Architecture, 15.5%

Engineering, 30.0%

Business, 26.6%

More than a quarter of code professionals hold bachelor's degrees (27 percent). High school diplomas (25 percent) follow closely behind as the main educational background and then community college and associate's degrees (23 percent). Technical or vocational programs were cited by 6 percent of the respondents and advanced degrees were earned by almost 9 percent (See Figure 4). Figures 5 through 7 (on Page 5) feature the breakdown of program areas pursued within the other educational pathways.

## Figure 4: Educational Experience

Technical, Vocational 16%

Associate's Degree 23%

Graduated high school 25%

Bachelor's Degree 27%

Some high school 1%

Advanced degree 8%

Attachment 1
Carlson, Testimonty

## Figure 5: Technical/Vocational Programs

Fire Systems 2%

Inspection, Codes 4%

Drafting 3%

HVAC 17%

Electrical 21%

Plumbing 22%

Carpentry 31%
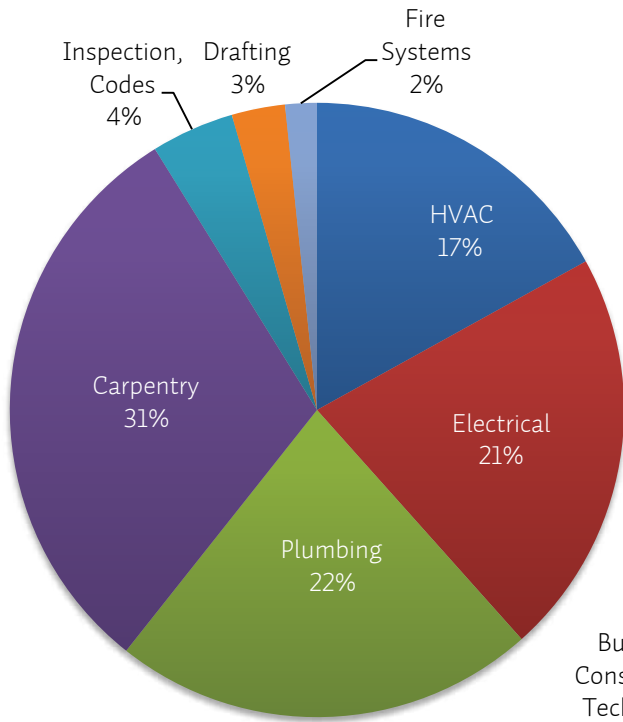
## Figure 6: 2-year/Associate's Degree Program

Fire Science, Systems 10%

Building, Construction Technology 4%

Construction Management 21%

Architectural Technology 16%

Engineering Technology 20%

Trades 13%

Codes, Inspection 16%
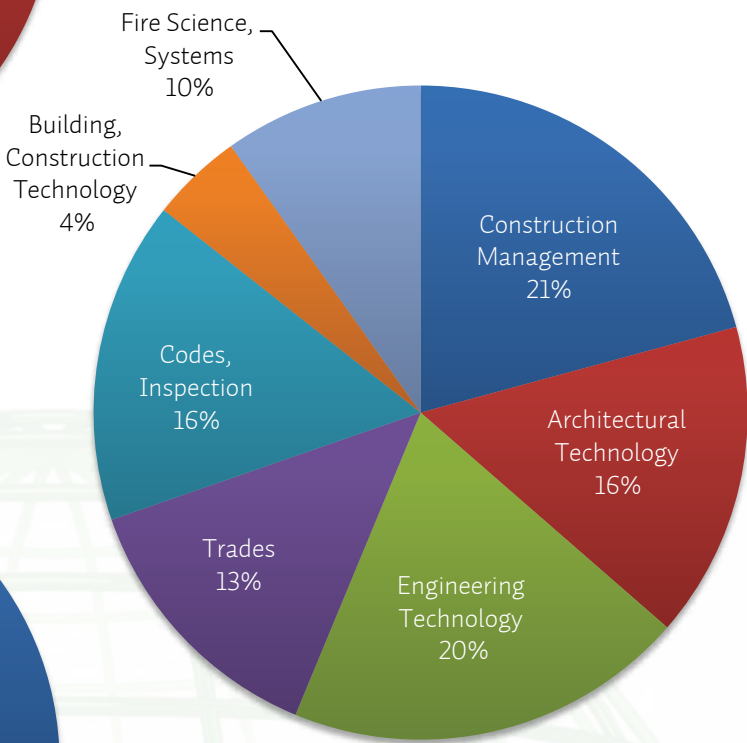
## Figure 7: Advanced Degree Programs
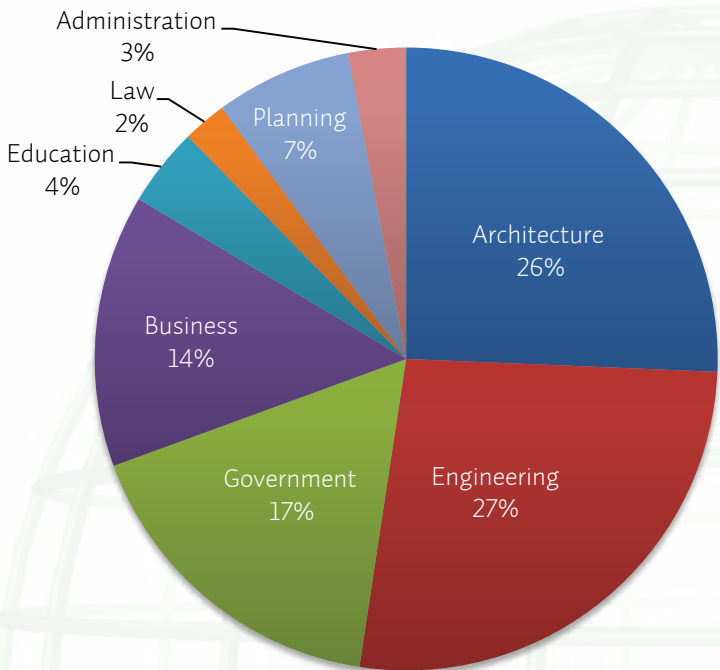
Administration 3%

Law 2%

Education 4%

Planning 7%

Architecture 26%

Business 14%

Government 17%

Engineering 27%

## AGE AND EXPERIENCE

As discussed previously, 45 percent of respondents were between the ages of 55 and 64 and another 29 percent were between 45 and 54 (See Figure 1, Page 2). Only 16 percent were younger than 44 years old. While these results may be disconcerting, based on the ages of current code professionals when entering the field, there may still be hope for bringing experienced members of the workforce into the profession. Nearly 35 percent of survey respondents entered the profession in their thirties, and another 28 percent while in their forties (See Figure 8). Engaging today's mid-career professionals in code-related jobs may be possible as a temporary stop-gap measure. However, such an approach could potentially slow the integration of emerging technologies in transforming the code regulatory process to meet 21st century design and construction needs.

**Figure 8: Age Upon Entering the Profession**

| Age | Percentage |
|-----|-----------|
| 20-29 | 22.4% |
| 30-39 | 35.0% |
| 40-49 | 28.1% |
| 50-59 | 12.9% |
| 60-69 | 1.7% |
| 70 and up | 0.0% |

**Figure 9: Respondent Salaries**

| Salary | Percentage |
|--------|-----------|
| Less than $25,000/year | 3.9% |
| $25,000 to $49,999/year | 21.8% |
| $50,000 to $74,999/year | 41.3% |
| $75,000 to $99,999/year | 21.2% |
| $100,00 to $124,999/year | 7.7% |
| $125,000 to $149,999/year | 2.9% |
| $150,000 to $174,999/year | 0.7% |
| $175,000 or more | 0.7% |

## PROFESSIONAL SALARIES

The median salary for those code officials polled was between $50,000 and $74,999 per year (See Figure 9). This range remained consistent across the age of the respondents and their number of years of experience as a code professional (thus alleviating any concern that the salary numbers are artificially high due to the seniority of the current workforce). There also appears to be a sizable opportunity for salary growth, as one fifth of the respondents earn between $75,000 and $99,999 annually. Compared to the median household income of $51,017 reported by the U.S. Census Bureau for 2012, code officials can earn a respectable living. This point should be highlighted as one of the reasons to consider a career as a code professional (See Figure 10, Page 7). In fact, many of the respondents cited salary/benefits just behind job security as one of the main reasons they pursued a career as a code professional.

As identified in the key findings, most respondents (47 percent) began in the trades and almost another quarter (24 percent) immediately started their career as a code professional (See Figure 11, Page 7). A number of respondents skipped this question, however, which may indicate that their first paying job was not in a building-related career at all (this may be foreshadowed in Figure 3 on Page 4, showing the educational pathways they pursued). In future studies and surveys, the ICC may wish to examine these alternative pathways to the building industry and, specifi-cally, code-related careers in-depth.

While in general, current code professionals are familiar with the building industry, with a majority having over 25 years of experience (60 percent), their experience as code professionals is of significantly less duration—only 17 percent had more than 25 years' experience (See Figure 12, Page 7). Coupled with the age demographics, this tends to suggest that becoming a code professional is a career change made later in a person's overall career. Prior to becoming a code professional, however, a vast majority of respondents were in stable jobs, with 59 percent holding just one to three different positions (28 percent held four to six previous jobs; 11 percent held 7 or more).
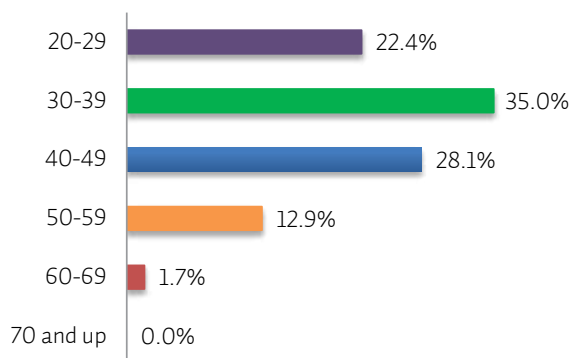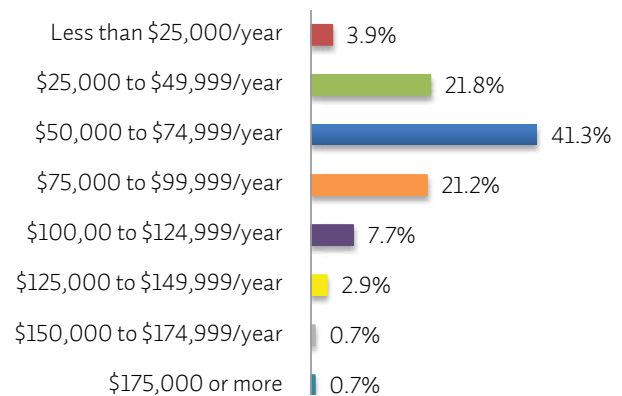
# THE FUTURE OF CODE OFFICIALS

*Results and Recommendations from a Demographic Survey*

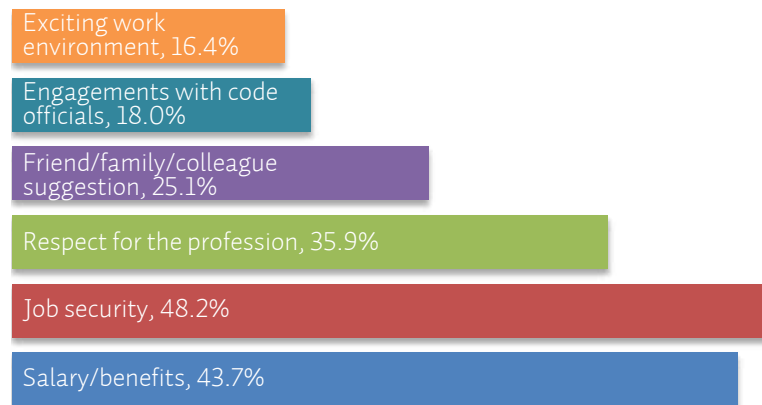**Figure 10:
Reasons for
Pursuing Career
as Code Professional**

- Exciting work environment, 16.4%
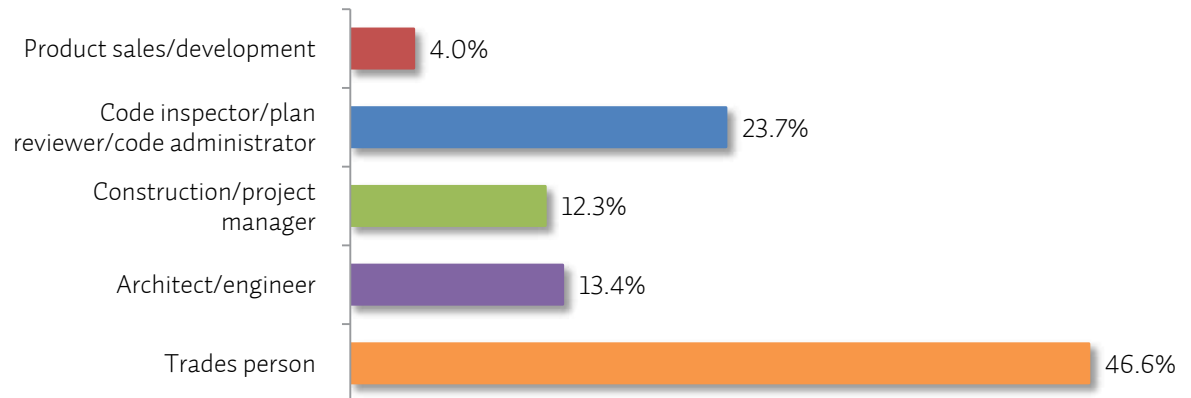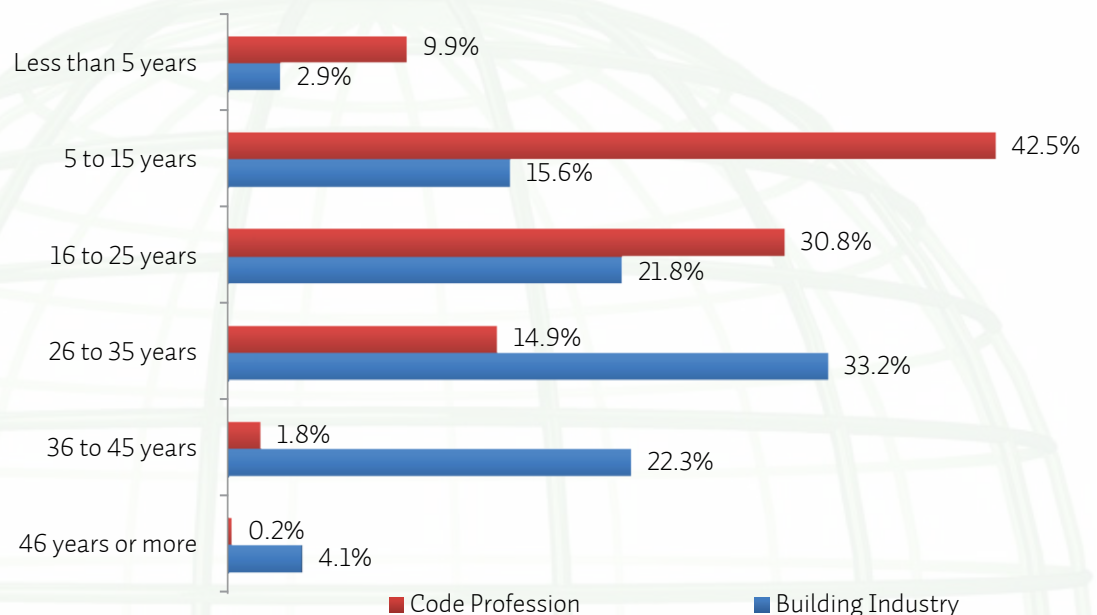- Engagements with code officials, 18.0%
- Friend/family/colleague suggestion, 25.1%
- Respect for the profession, 35.9%
- Job security, 48.2%
- Salary/benefits, 43.7%

**Figure 11:
First Paying Job**

- Product sales/development — 4.0%
- Code inspector/plan reviewer/code administrator — 23.7%
- Construction/project manager — 12.3%
- Architect/engineer — 13.4%
- Trades person — 46.6%

**Figure 12:
Time in Building
and Codes
Professions**

| Time | Code Profession | Building Industry |
|------|-----------------|-------------------|
| Less than 5 years | 9.9% | 2.9% |
| 5 to 15 years | 42.5% | 15.6% |
| 16 to 25 years | 30.8% | 21.8% |
| 26 to 35 years | 14.9% | 33.2% |
| 36 to 45 years | 1.8% | 22.3% |
| 46 years or more | 0.2% | 4.1% |

■ Code Profession  ■ Building Industry

## CODE DEPARTMENTS AND COMMUNITIES

In addition to understanding the demographics of individual code professionals, understanding their work environment is important for attracting and retaining the future workforce. While the survey did not probe respondents' attitudes toward their work environment, it did capture information about where future code professionals are likely to be needed.

As previously identified, most departments are very small (a third house between one and four staff; nearly a quarter have between five and nine). These findings raise concerns about the ability to replace senior staff; opportunities for mentoring new entrants into the profession; and the maintenance of institutional knowledge when staff retires. One potential benefit of bringing new professionals into small offices is the ability to update technologies and practices in conjunction with the change in personnel, thus limiting disruption in the existing workforce. Model code developers, code professional organizations, building information modeling (BIM) advocates, smart city product providers and other stakeholders may wish to come together to work collectively in realizing such a cross-industry transformation.

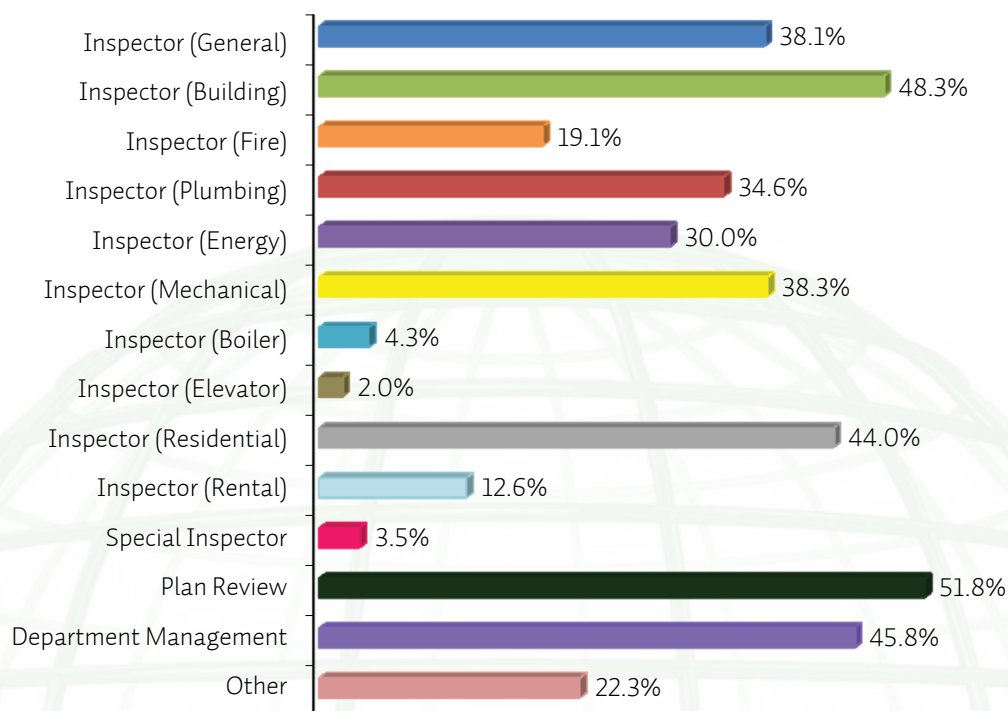**Figure 13: Size of Communities and Departments**
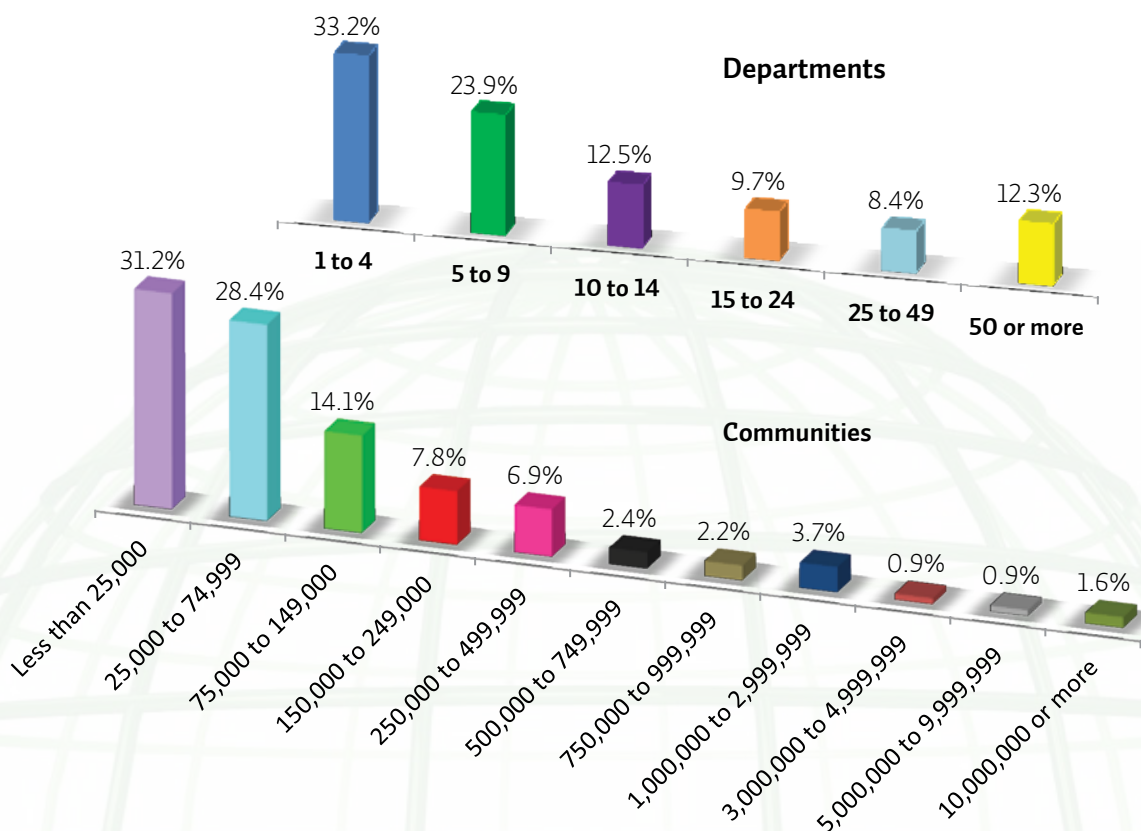
The relatively small size of building departments reflects the size of the communities they serve (See Figure 13, Page 8). Nearly 60 percent of the respondents' communities have less than 75,000 residents, including 31 percent under 25,000. Implementing new technologies in these small communities may be difficult given budget constraints. Demonstrating the value such transitions may provide would be necessary to facilitate such changes. Communities may consider utilizing third-party providers to fulfill some or all of the roles previously conducted by retiring code professionals. The survey revealed that only five percent of respondents are third-party providers, but it did not capture information on the trends related to the use of third-parties. This may be an important area to examine in subsequent surveys.

Within departments, code professionals fulfill a variety of roles. Given the size of departments and the number of areas covered, many professionals have responsibility in numerous areas. Over half of the respondents (52 percent) had responsibility for plan review, with over 48 percent serving as building inspectors and 46 percent in department management (respondents could select as many roles as applied to them). In-depth analysis reveals that 71 percent of the respondents who conduct plan reviews are also building inspectors; 66 percent are residential inspectors; 58 percent are mechanical inspectors; 56 percent are general inspectors; 51 percent are plumbing inspectors; 50 percent are energy inspectors; and 48 percent serve in department management. This tends to suggest that plan review is not a separate specialized function, but is often included in the responsibilities of inspectors.

## Figure 14: Roles in Building Regulation

| Role | Percentage |
|------|-----------|
| Inspector (General) | 38.1% |
| Inspector (Building) | 48.3% |
| Inspector (Fire) | 19.1% |
| Inspector (Plumbing) | 34.6% |
| Inspector (Energy) | 30.0% |
| Inspector (Mechanical) | 38.3% |
| Inspector (Boiler) | 4.3% |
| Inspector (Elevator) | 2.0% |
| Inspector (Residential) | 44.0% |
| Inspector (Rental) | 12.6% |
| Special Inspector | 3.5% |
| Plan Review | 51.8% |
| Department Management | 45.8% |
| Other | 22.3% |

## ADVICE TO THE FUTURE CODE PROFESSIONAL

In addition to demographic questions, the survey asked respondents to provide advice to high school students who may be considering a career as a code professional. More than 2,650 of the respondents provided advice, ranging from positive messages about joining the profession to negative recommendations to avoid entering the field. While negative comments did exist, the overwhelming majority of comments were positive.

Most of the responses focused on the value of education beyond high school—either in the trades or in an architecture, engineering or construction management program—and the importance of obtaining experience as a tradesperson, construction manager or designer. The value of certification and continuing education was highlighted frequently. Several respondents commented on the political nature of the position; some emphasized the need to be prepared for such realities; and others suggested the profession be avoided because of politics and bureaucracy. Comments representing the most common messages are featured below:

"Extremely rewarding, always helping people, always learning, never a dull moment, always in demand. If you stop and think about the inspection you just performed, the plans you just reviewed or the complaint you just settled, you can consider yourself a pre-first responder."

"Get all of the vocational training you can, and work in the building trades field, so you have a good understanding of how a structure should go together. Work for a good, reputable contractor for at least two years and train, train, train."

"This is an exciting, steady and rewarding career. For those that are either interested in the trades or being a professional engineer, building inspection and building department administration can be far more rewarding, as you maintain vigilance over all structures built in your jurisdiction to ensure they meet the minimum standards of the laws and codes."

"Research and understand the job responsibilities of a code admin and enforcement professional. Get a job that provides hands-on experience within one or two construction related fields, such as framing and concrete. Research and study the code books. Become familiar with procedures of constructing a building. Learn the nomenclature. Stay current on both current trends and the future direction of construction. Read, study and speak with people with long careers to gain advice and perspective. Never stop learning."

"Find something else. The politics of a local municipality are not worth the trouble."

"I believe that my 25 years in the field of commercial construction as an apprentice, journeyman, foreman and supervisor served me well when I made the decision to enter the inspection field. Some field experience as a tradesman or field supervisor is very important."

While the vast majority of respondents focused on advice to students who may be considering pursuit of a career as a code professional, some offered additional comments that may influence future efforts to attract new entrants:

"I would actually like to give advice to the building inspection departments around the country: get more involved in educating the high school students in what we do and have an open mind in regards to allowing drive-alongs for students/people interested in this profession. I was certified as an inspector for five years before I was finally blessed to be hired as one. In those five years, I could not get any building department to allow me to go on a drive-along with an inspector."

"Invest in having more females in this industry by either mentoring or hiring interns (if possible). During college, I mentored high-risk grade and high school students to become more interested in architecture. Hopefully this had an impact."

"Pay vs. Responsibility is currently totally unbalanced. Pay needs to increase to get qualified people."

"An active program of public education on the importance of life safety codes should be designed to encourage compliance with safety laws and sensitivity of unsafe conditions. An informed public facing a life-threatening situation is far more capable of taking appropriate action."

"It would be helpful to get the trade schools involved with an incentive program or have a course available to show the students in the trade schools what it is that code officials do. The class could incorporate the local building officials' chapters for assistance. Promote membership."

"Provide code books to them at no charge; have them read it in class; discuss what it means; test them on it; and then implement code readings during workshop projects or the field to physically see it in action. Teach the right and wrong ways to comply with the codes. And, most of all, take the politics out of the code process. Outside interference from people or agencies that do not know the importance of the codes should stand aside. Let us do our work!"

"Code officials need to take more care in fostering and promoting the need for building codes with the associated professions, including builders and designers, and especially with the elected and appointed officials that employ them. ICC needs to do the same, for that matter. The general public could care less about codes and ICC will never be a household name. But working closely with other stakeholders and policy makers at a sustained level is critical to explaining not only the safety benefits, but the economic benefits as well. Maybe after a while, the title "Building Official" or "Building Inspector" will draw its own students based on a level of professionalism, known and communicated benefits, and hopefully a sustainable middle-class wage."

Attachment 1
Carlson, Testimonty

## APPENDIX I

# Code Official Demographic Survey

There is growing concern within many sectors of the building industry that an insufficient number of new participants are entering the buildings workforce. Code officials and others that serve the building regulatory segment of the industry in particular are concerned.

On behalf of the International Code Council, the National Institute of Building Sciences is conducting a nationwide survey of participants in the building regulatory process to understand the current state of the industry, the pathways for entering such careers, and the long-term health of the profession. The data will help inform development of outreach and training activities and other efforts to expand the number of participants entering the building regulatory workforce. Responses will not be traceable to individuals and will only be reported in the aggregate. Thank you in advance for completing this survey to help ICC and others advance the building regulatory professions.

**1. What is your age?**

[ ▾ ]

**2. In what state or U.S. territory do you currently work?**

[ ▾ ]

Other (please specify)

[ ]

**3. Do you work primarily at the state or local level?**

◯ State

◯ Local

**4. What is your current salary?**

[ ▾ ]

**5. Please indicate your educational experience.**

◯ Some high school

◯ Graduated high school

◯ Technical/vocational school

◯ 2-year Community College/Associates Degree

◯ 4-year College/Bachelor's Degree

◯ Advanced degree/Masters, PhD, etc.

Other (please specify)

[ ]

**6. What Technical/Vocational School Program did you complete?**

☐ HVAC

☐ Electrical

☐ Plumbing

☐ Carpentry

☐ Other (please specify)

[ ]

## Code Official Demographic Survey

**7. What 2-year Community College/Associates Degree did you complete?**

○ Construction management

○ Architectural technology

○ Engineering technology

○ Trade (HVAC)

○ Trade (Electrical)

○ Trade (Plumbing)

○ Trade (Carpentry)

○ Other (please specify)

[                    ]

**8. What 4-year College/Bachelor's Degree program did you complete?**

○ Architecture

○ Engineering (Electrical)

○ Engineering (Mechanical)

○ Engineering (Structural)

○ Engineering (Plumbing)

○ Construction Management

○ Other (please specify)

[                    ]

**9. What Advanced Degree/Masters, PhD, etc. did you complete?**

○ Architecture

○ Engineering

○ Government

○ Other (please specify)

[                    ]

## Code Official Demographic Survey

**10. Upon completion of the education above, what was your first paying job?**

◯ Trades person

◯ Architect/engineer

◯ Construction/project manager

◯ Code inspector/plan reviewer/code administrator

◯ Product sales/development

Other (please specify)

[                    ]

**11. Do you hold a trade license?**

◯ Yes

◯ No

**12. Please indicate trade licenses held.**

[                    ]

**13. Do you possess any professional licenses, building industry certificates, certifications or other credentials?**

◯ Yes

◯ No

**14. Please indicate licenses, certifications, certificates or other credentials you hold.**

[                    ]

**15. How long have you been in the buildings industry?**

[         ▼]

**16. How many years have you been a code administration or enforcement professional?**

[         ▼]

**17. At what age did you become a code administration or enforcement professional?**

[         ▼]

**18. How many different jobs have you held before becoming a code official?**

[         ▼]

## Code Official Demographic Survey

**19. What led you to pursue a job as a code administration or enforcement professional?**

- ☐ Salary/benefits
- ☐ Job security
- ☐ Respect for the profession
- ☐ Friend/family/colleague suggestion
- ☐ Engagements with code officials
- ☐ Exciting work environment

Other (please specify)

[          ]

**20. What is your current role in building regulation? (select all applicable)**

- ☐ Inspector (General)
- ☐ Inspector (Building)
- ☐ Inspector (Fire)
- ☐ Inspector (Plumbing)
- ☐ Inspector (Energy)
- ☐ Inspector (Mechanical)
- ☐ Inspector (Boiler)
- ☐ Inspector (Elevator)
- ☐ Inspector (Residential)
- ☐ Inspector (Rental)
- ☐ Special Inspector
- ☐ Plan review
- ☐ Department management (director/administrator)
- ☐ Other (please specify)

[          ]

**21. What size community do you serve?**

[     ▼]

**22. Are you hired directly by the jurisdiction you serve or are you a third-party provider?**

- ○ Jurisdiction employee
- ○ Third-party provider

**23. What size department do you currently serve?**

[     ▼]

Attachment 1
Carlson, Testimonty

## Code Official Demographic Survey

**24. When do you plan on leaving the building regulatory profession either due to retirement or to pursue an alternative career?**

○ Less than 5 years

○ 5 to 15 years

○ 16 to 25 years

○ 26 to 35 years

○ 36 to 45 years

○ 46 years or more

**25. What advice would you provide a current high school student interested in becoming a code administration or enforcement professional?**

Attachment 1
Carlson, Testimonty

In addition to the advice provided as part of the survey, the ICC and the Institute will be conducting a town hall meeting during the 2014 ICC Annual Conference in September 2014 to collect additional ideas and discuss how to utilize the results from the survey to develop programs and outreach tools effective in engaging the next generation of code professionals. A separate report of findings and recommendations will be generated after that meeting.

Attachment 1
Carlson, Testimonty

# ICC CBO - Code Module

## SCOPE

The Certified Building Official is responsible for the development, administration, interpretation, application, and enforcement of the codes adopted by their jurisdiction. They will be able to manage their departments' budget and the certification and training of inspection staff. They will have an understanding of laws and regulations pertaining to human resources. They will have a thorough knowledge of customer service, develop and maintain effective relationships with all client groups, and be able to effectively communicate with contractors, homeowners, subordinates, superiors, news media, elected officials, and civic organizations.

The Certified Building Official shall be responsible for development and implementation of programs that provide for the review and inspections of all occupancies for, but not limited to, fire and life safety, interior finish, occupancy type, height and area limitations, construction type, and general fire safety, in accordance with Codes and Standards adopted by their respective jurisdictions. The Certified Building Official shall also develop and implement programs for plan review, permitting and enforcement to ensure compliance with adopted Codes and Standards.

## REFERENCES

1. 2018 International Fire Code®

2. 2018 International Building Code®

3. 2018 International Plumbing Code®

4. 2018 International Residential Code®

5. 2018 International Energy Conservation Code®

6. 2018 International Mechanical Code®

7. 2017 National Electrical Code

8. ICC/ANSI A117.1-2009 Standard on Accessible and Usable Buildings and Facilities

9. Special Inspection Manual, 2012 edition

### Exam Information

| QUESTIONS | 80 |
|---|---|
| TIME LIMIT | 2:00 Hours |

| Architectural Plan Review | 28% |
|---|---|
| Use and Occupancy Classification<br>Determine use and occupancy classification of structures for building code compliance. | 4% |
| Construction Classification<br>Determine required construction classification for code compliance. | 4% |

| | |
|---|---|
| Means of Egress Provisions<br>Determine compliance of the means of egress provisions of the structure with the building code. | 3% |
| Light, Ventilation, and Sanitation Provisions<br>Determine compliance with light, ventilation, and sanitation provisions of the structure with the building code. | 3% |
| Fire Resistance and Fire Protection Provisions<br>Determine compliance with fire resistance provisions of the structure with the building code.<br>Determine compliance with fire protection provisions for the structure with the building code. | 5% |
| Accessibility Provisions<br>Determine compliance with provisions for accessibility for the structure with the building code. | 5% |
| Environmental and Natural Hazard Provisions<br>Determine location for risk of, floodplain, seismic, wind, and snow of the structure with the building code. | 2% |
| Special Use/Occupancy Provisions<br>Determine compliance with special use occupancy provisions of the structure with the building code. | 2% |
| **Structural Plan Review** | **13%** |
| Structural Provisions<br>Evaluate building elements for compliance with required structural loads including wind, seismic, soil bearing capacity, and snow loads. | 8% |
| Material Standards and Construction Methods<br>Determine compliance for building materials and required methods of construction. | 5% |
| **Building Systems Plan Review** | **19%** |
| Mechanical Provisions<br>Determine compliance with the mechanical and fuel gas code. | 4% |
| Plumbing Provisions<br>Determine compliance with the plumbing code. | 4% |
| Electrical Provisions<br>Determine compliance with the electrical code. | 4% |
| Fuel Gas Provisions<br>Determine compliance with the fuel gas code. | 4% |
| Energy Provisions<br>Determine compliance with the energy code. | 3% |
| **Field Inspection** | **37%** |

CBO Codes Module, Page 2 of 3

| | |
|---|---|
| Site Inspection<br>Evaluate site for soil conditions, excavation, and public protection with the code and approved plans. | 2% |
| Foundation Inspection<br>Evaluate footings and foundations with the code and approved plans. | 4% |
| Structural Frame Inspection<br>Evaluate structural frame with the code and approved plans. | 4% |
| Building Envelope Inspection<br>Evaluate building envelope, insulation, and finishes with the code and approved plans. | 2% |
| Electrical Inspection<br>Evaluate electrical installation with the code and approved plans. | 5% |
| Plumbing Inspection<br>Evaluation plumbing installation with the code and approved plans. | 5% |
| Mechanical Inspection<br>Evaluate mechanical installation with the code and approved plans. | 4% |
| Fire Protection Inspection<br>Evaluate fire protection, smoke control, suppression, and alarm systems with the code and approved plans. | 4% |
| Final Building Inspection<br>Evaluate the completed structure and systems with the code and approved plans. | 4% |
| Special Inspection<br>Evaluate the project for compliance with special inspection requirements. | 3% |

# ICC CBO - Management Module

## SCOPE

The Management Module is one of three examinations required for candidates pursuing a Certified Building Official or Certified Fire Marshal combination designation.

## REFERENCES

| Exam Information | |
|---|---|
| QUESTIONS | 75 |
| TIME LIMIT | 2:00 Hours |

1. 2018 International Fire Code®

2. 2018 International Building Code®

3. 2012 Building Department Administration, 4th ed

4. A Budgeting Guide for Local Government, 4th ed.

5. Human Resources Management for Public and Nonprofit Organizations: A Strategic Approach, 4th ed.

6. Inspector Skills

## EXAM OUTLINE

| Customer Service and Communication | 30% |
|---|---|
| Soft Skills<br>Demonstrate skills including, but not limited to, decision making, problem solving, professionalism, integrity, honesty, and time management. | 7% |
| Communication<br>Communicate building and fire and life safety messages to the public using the appropriate media. | 5% |
| Interagency Cooperation and Reporting<br>Establish and administer policy procedures for communication and cooperation with other governmental agencies and to provide local governing authorities with departmental performance reports. | 6% |
| Public Service and Information<br>Establish and administer departmental policy for enhancing services, education, and information to the public, construction industry, and media. | 5% |

| | |
|---|---|
| Feedback Strategy<br>Create a strategy for acquiring and evaluating feedback from the community to improve public service. | 7% |
| **Financial Management** | **22%** |
| Budgets and Financing<br>Develop and administer departmental budgets and financing responsibilities consistent with implementation of directives of the governing authorities. | 11% |
| Cost and Revenue Control<br>Implement financial audits to ensure ongoing compliance with budgetary restrictions. Verify revenue generation and expenditures are consistent with budget projections and policies. | 11% |
| **Personnel Management** | **30%** |
| Job Descriptions and Personnel Recruitment<br>Establish and administer written job descriptions for all department employees, minimum qualifications for applicants, and standard recruiting procedures. | 7% |
| Personnel Supervision<br>Establish and administer responsibilities for direct and indirect supervision for each department employee, which includes work scheduling and effective job performance evaluations. Establish and administer personnel incentive to recognize exceptional individual and group performance and attainment of departmental goals and objectives. | 8% |
| Time-management Efficiency<br>Establish and administer policies and goals for department personnel in time management and work flow efficiency. | 7% |
| Employee Professional Development<br>Establish and administer criteria for assessment of employee professional development and training programs on technical skills, department policy, goals, objectives, and performance requirements of the position. | 8% |
| **Records Management** | **18%** |
| Employment Records<br>Manage procedures for generation and maintenance of all necessary employment records for all department employees. Manage policies for employee and public access to departmental personnel records, specifying which records are public information, and which records are not public information. | 9% |
| Code Enforcement Records<br>Manage procedures for generation and maintenance of inspection, plan review, fire investigation reports and records. | 9% |

# ICC CBO - Legal Module

## SCOPE

The Legal Module is one of three examinations required for candidates pursuing a Certified Building Official or Certified Fire Marshal combination designation.

## REFERENCES

1. 2018 International Fire Code

2. 2018 International Building Code

3. 2018 International Property Maintenance Code

4. 2012 Building Department Administration, 4th ed

5. 2017 Legal Aspects of Code Administration

6. Human Resources Management for Public and Nonprofit Organizations: A Strategic Approach, 4th ed.

### Exam Information

| QUESTIONS | 75 |
|---|---|
| TIME LIMIT | 2:00 Hours |

## EXAM OUTLINE

| Legislative | 11% |
|---|---|
| Code Adoptions and Amendments<br>Prepare recommendations for code adoptions and amendments, for consideration by local, state, or national governing authorities. | 6% |
| Alternative Methods<br>Establish a Board of Appeals to determine suitability of alternative materials, methods of construction, and code interpretations. | 5% |
| **Code Enforcement** | **50%** |
| Permits, Notices, and Orders<br>Establish and administer procedures for processing and approval of permit applications, issuance of permits, notices, and orders. | 8% |
| Right of Entry<br>Administer a policy for compulsory legal procedures required for entry to property for authorized purposes. | 8% |

| | |
|---|---|
| Hazard Abatement<br>Establish and administer policies for condemnation and abatement of structures and hazardous conditions. | 6% |
| Tort Liability<br>Administer a policy defining tort liability related to malfeasance, misfeasance, nonfeasance, and use of threat, intimidation, and coercion. | 7% |
| Legal Due Process<br>Administer a policy for implementing procedural and substantive due process of law for appeal of summary action and all other administrative orders to comply. | 6% |
| Court Prosecution<br>Establish and administer a policy defining criteria and procedures for pursuit of civil and criminal prosecution for noncompliance with mandatory construction standards. Administer policies related to statute of limitation, preparation of evidence, and witness standards. | 7% |
| Warrants<br>Acquire and document necessary permission or get a warrant to perform the duties of the code official. | 8% |
| **Human Resources** | **28%** |
| Anti-discrimination Policy<br>Administer a policy which ensures that treatment of all employees complies with applicable civil rights, disability accommodation, and other anti-discrimination laws. | 10% |
| Employee Working Conditions<br>Ensure that employee working conditions comply with applicable labor, health, and safety laws. | 9% |
| Employee Discipline and Grievances<br>Administer policies and procedures for handling of employee discipline and for administrative due process of employee grievances. | 9% |
| **Public Records** | **11%** |
| Reports and Records<br>Establish and administer procedures for generation and maintenance of inspection, plan review, fire investigation reports and records. | 6% |
| Code Enforcement Records<br>Establish and administer policies for public access to departmental code enforcement records. | 5% |