



**INTERNATIONAL
CODE COUNCIL®**

People Helping People Build a Safer World®

THE FUTURE OF CODE OFFICIALS

*Results and Recommendations
from a Demographic Survey*

AUGUST 2014



National Institute of
BUILDING SCIENCES

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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.



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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

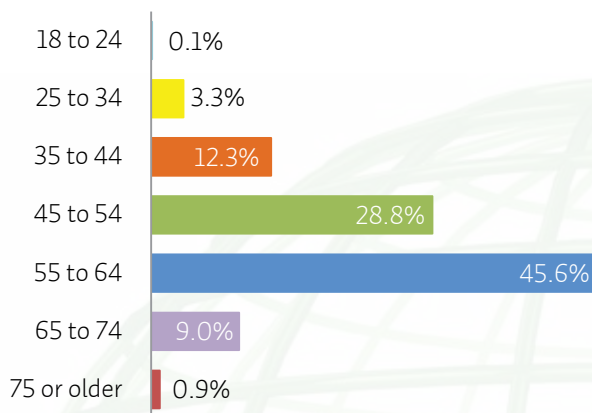
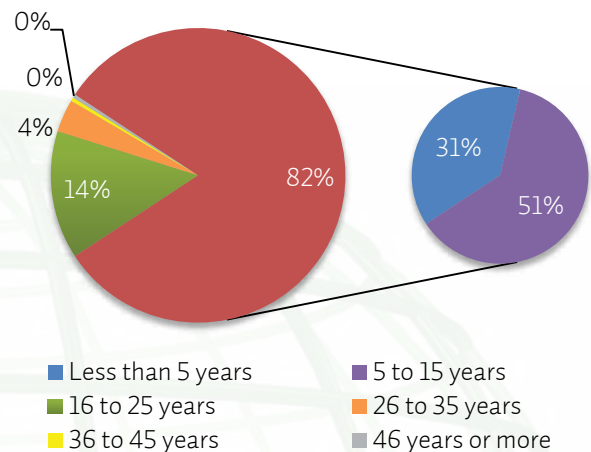


Figure 2: Plans to Leave the Building Regulatory Profession



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).

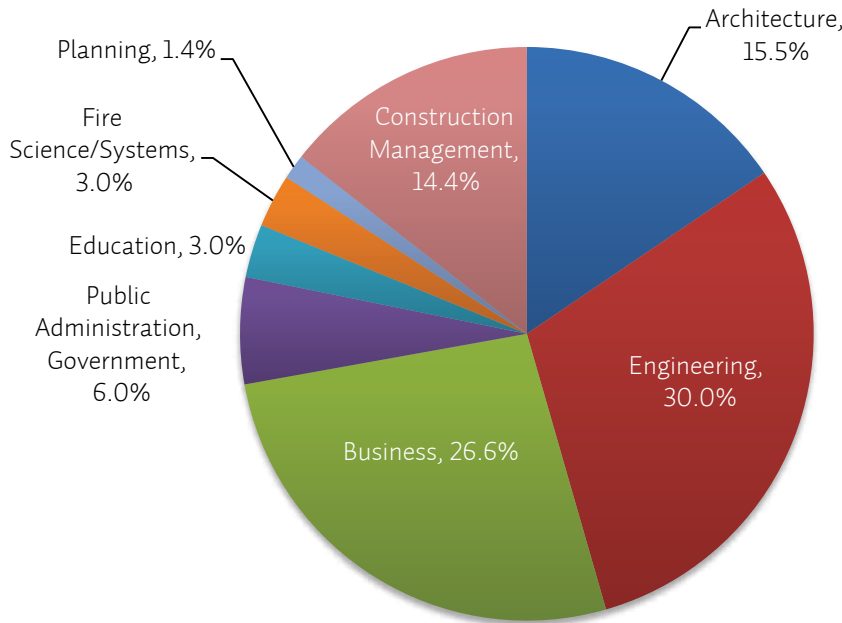
This finding suggests that introducing codes (and the related topic of standards) into the curriculum of business schools may be a means for actively introducing building regulatory careers to a new group of students. Such an approach would have the added benefit of highlighting the roles of codes and 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.

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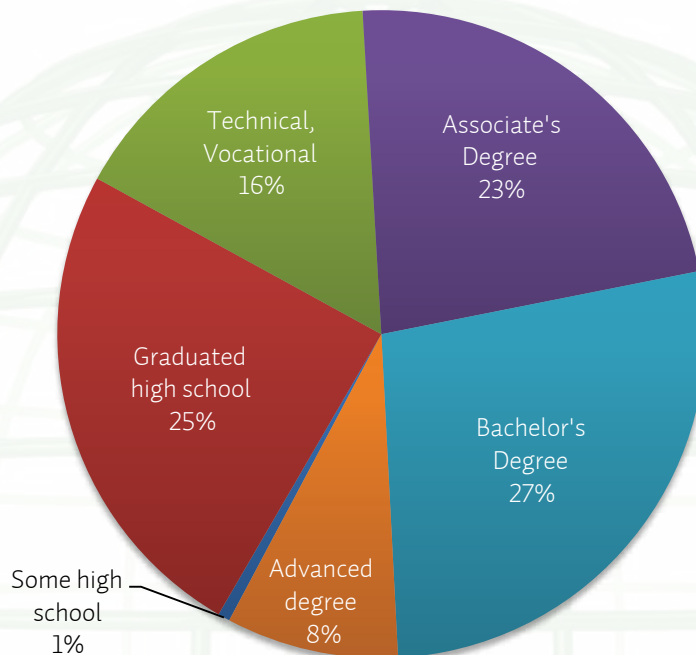
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Figure 3: 4-Year/Bachelor's Degree Program Completed



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



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Figure 5: Technical/Vocational Programs

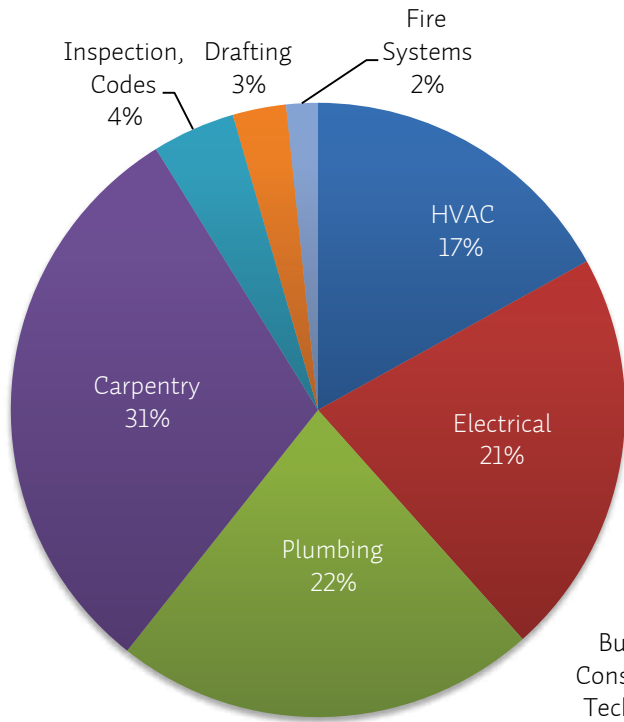


Figure 6: 2-year/Associate's Degree Program

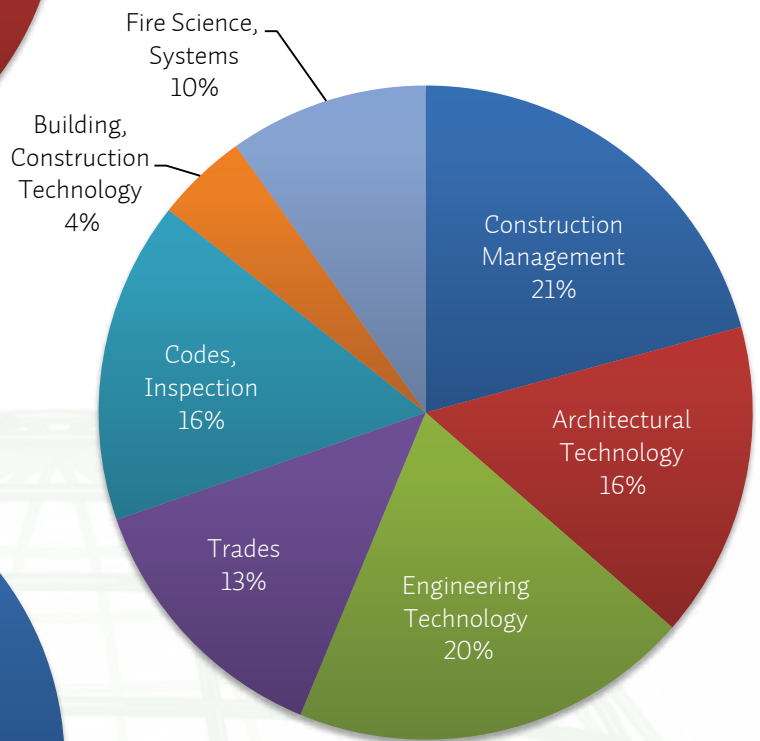
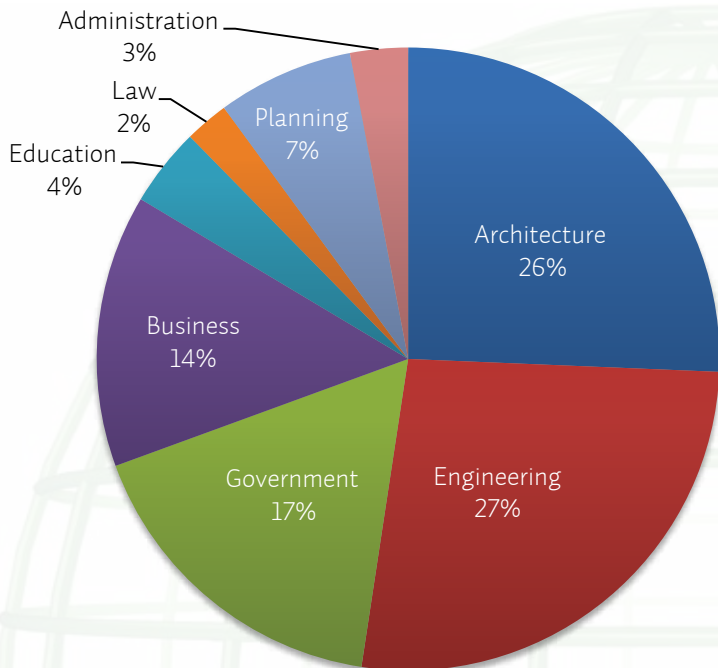


Figure 7: Advanced Degree Programs



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

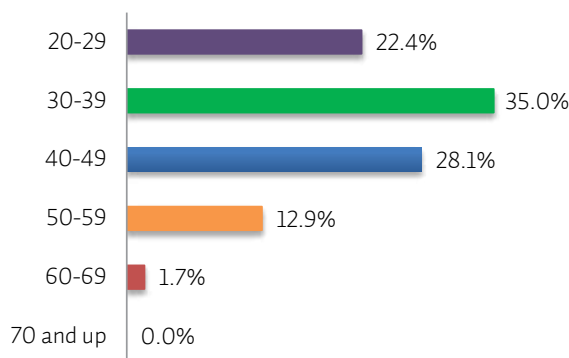
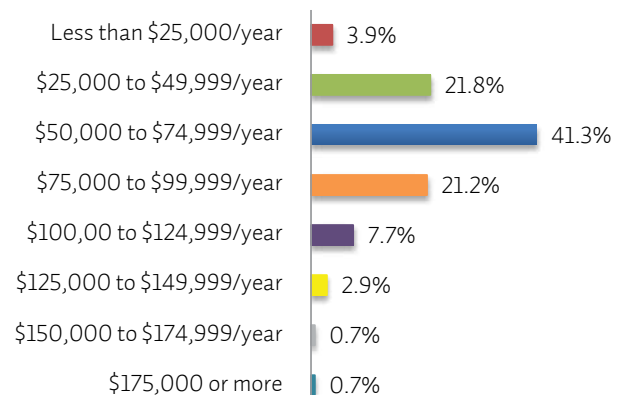


Figure 9: Respondent Salaries



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, specifically, 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).

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Figure 10:
Reasons for
Pursuing Career
as Code Professional

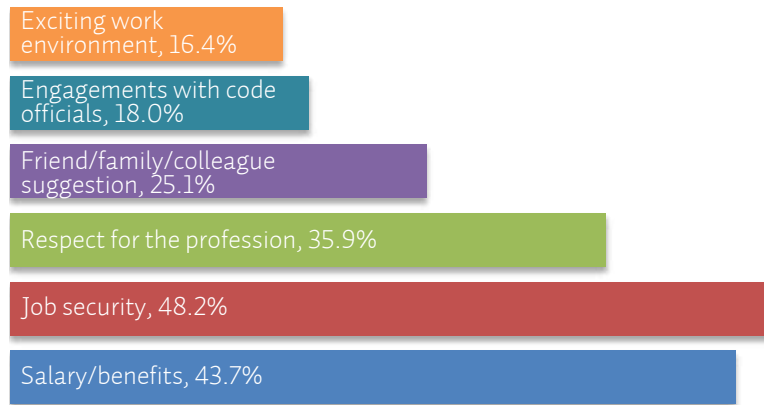


Figure 11:
First Paying Job

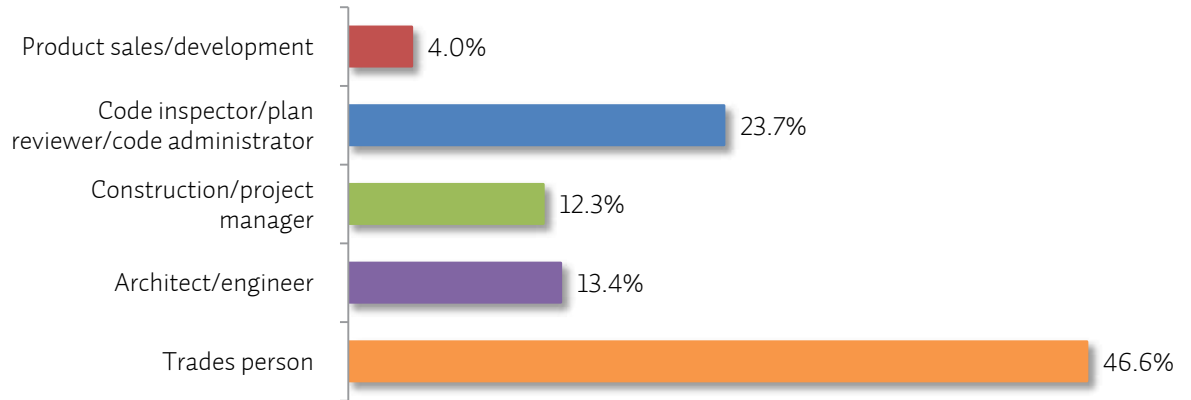
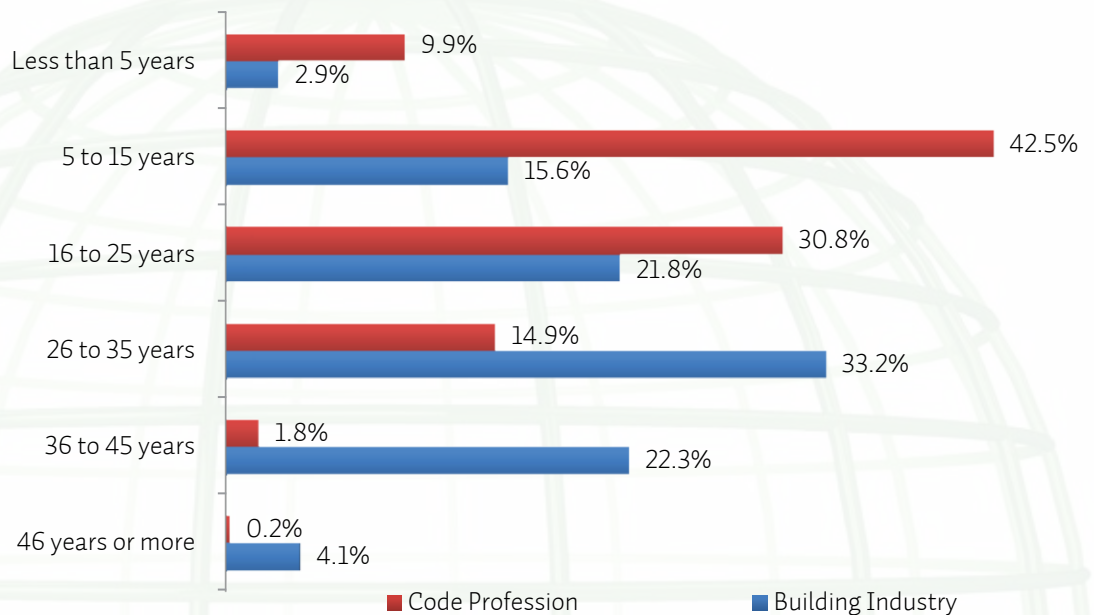


Figure 12:
Time in Building
and Codes
Professions

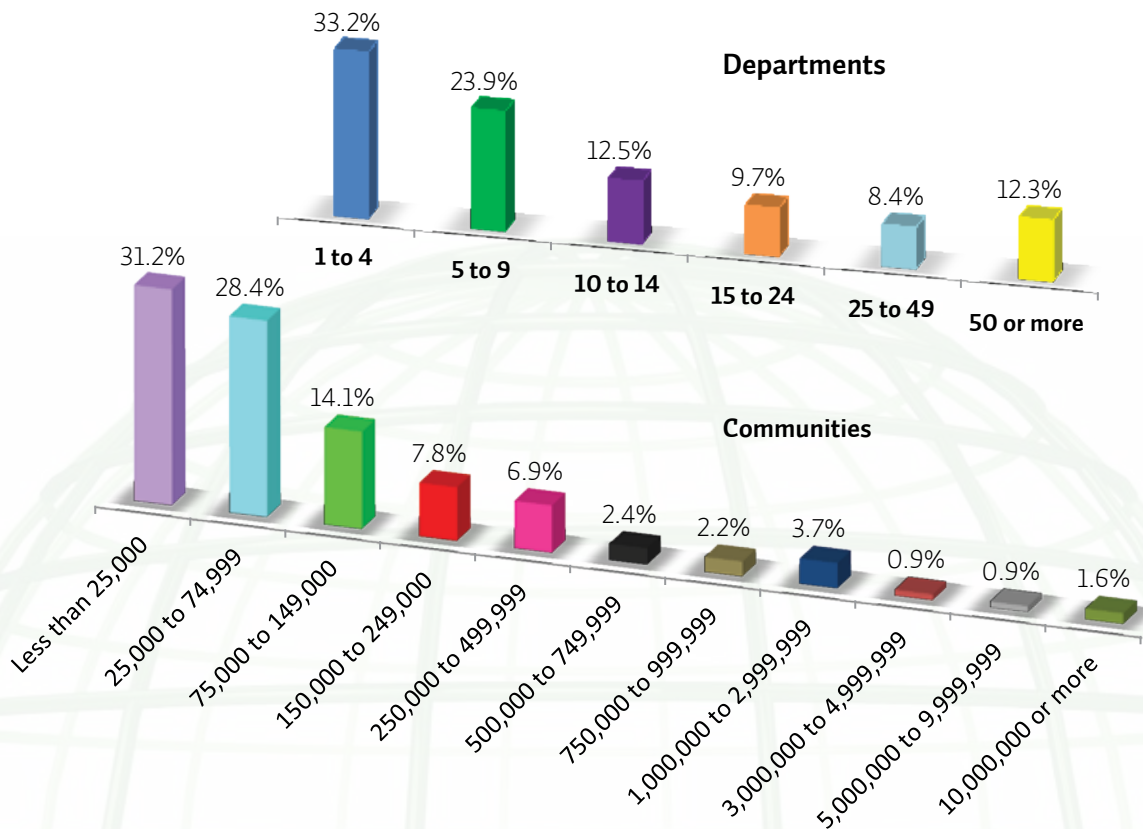


CODE DEPARTMENTS AND COMMUNITIES

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 have 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



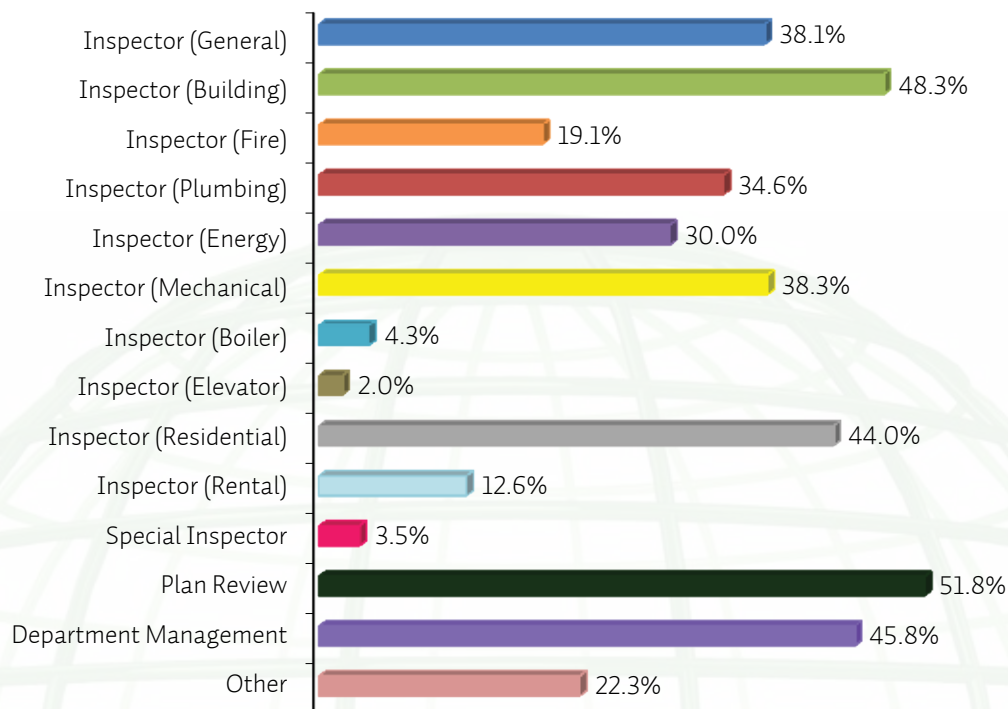
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The relatively small size of building departments reflects the size of the communities they serve (See Figure 13, Page 8). Nearly 60 percent of the respondents' communities have less than 75,000 residents, including 31 percent under 25,000. Implementing 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



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.”

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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.”

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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?

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?

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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.