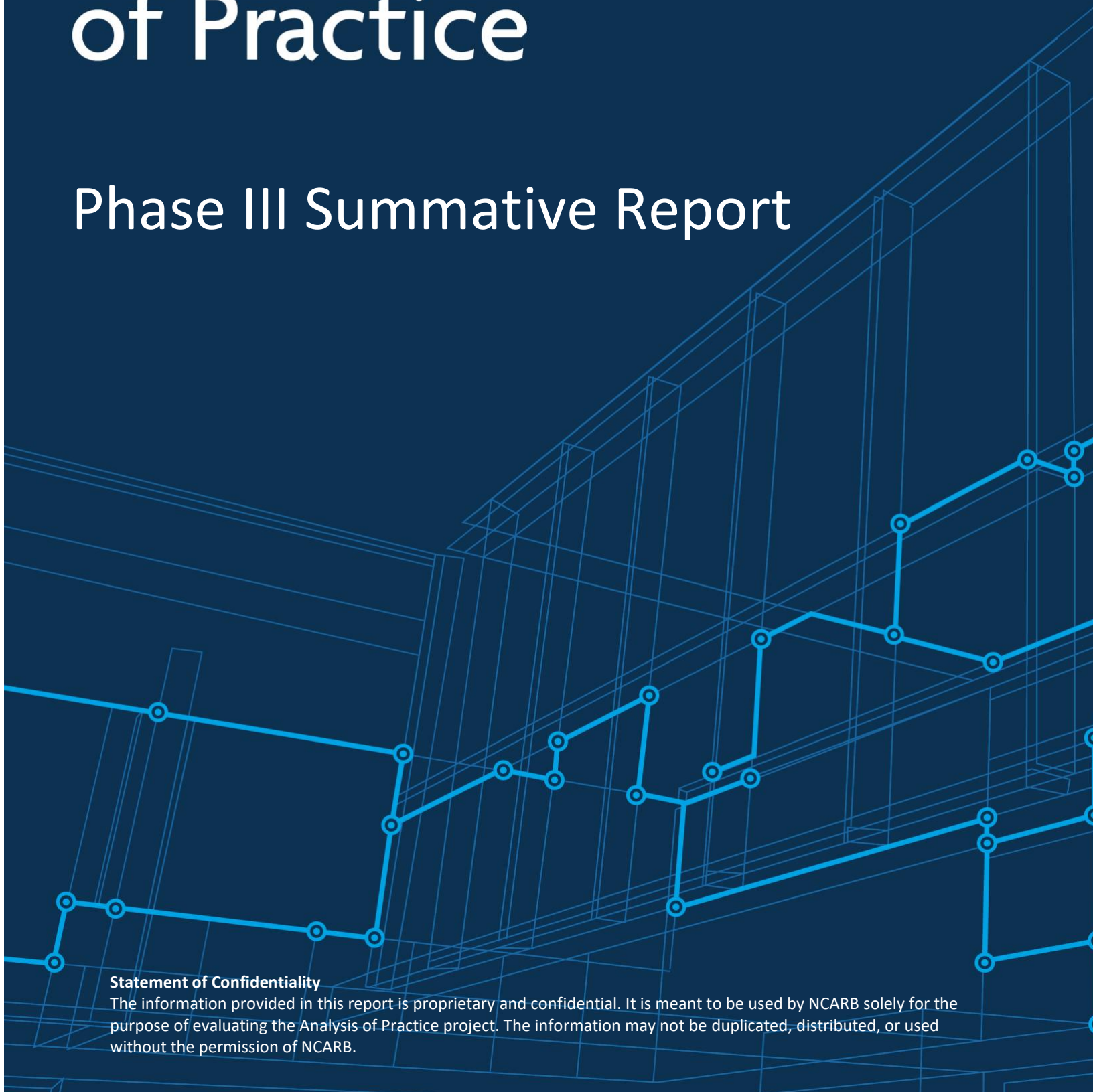
NCARB

Analysis of Practice

Phase III Summative Report



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Executive Summary of Key Points

A summary of the Phase III findings is provided below. Supporting evidence for all Phase III work is included in the attached appendices.

Value of Licensure

This section addresses questions related to how, when, and why an architectural license is valuable. The analysis for this section was filtered to include only individuals who currently work in the field of architecture or individuals who are students in the field of architecture or a related field. The bullet points below provide a high-level summary of the results. The Value of Licensure section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Survey respondents agreed that there is high value in licensure and that licensure retains that value, regardless of workplace location, size, or culture.
- Just over 60% of survey respondents rated the professional (61%) and personal (64%) value of a license as a 10 out of 10.
- Most survey respondents (68%) reported that the value of their license was evident immediately upon licensure.
- The reason(s) individuals highly value a license in architecture differ, but include:
    - Opportunities that become available upon licensure (e.g., being able to start one's own firm, take on an ownership role in a workplace, and/or complete freelance work).
    - Reasons they initially chose to pursue licensure (e.g., to achieve personal goals/fulfillment, be called an architect, and/or increase their career advancement/professional opportunities).
    - Its current value (e.g., it provides evidence that they meet professional standards, indicates their competence to protect the health, safety, and welfare of the public, and/or increases their credibility).
- The reason(s) some individuals do not value a license in architecture include:
    - A license does not add value for tasks in which a license is not required.
    - The licensure hurdles some individuals face are a greater barrier to them than the license's perceived value (e.g., the licensure process being too large of a time commitment [63%], too expensive [55%], and inequitable [51%]).
    - Respondents with specialized skills tend to see less value in a license, since firms will hire them for those skills versus their licensure status.

- Most respondents (56%) decided on architecture as a career path before graduating high school.
- Respondents noted that a license increases an architect's exposure to liability (87%), their role in mentoring (67%), their participation in client relations (60%), and their responsibility in project administrative tasks (57%).
- The professional value of a license to architects increases with years since initial licensure, years of experience in architecture, and age.

Path to Licensure

This section addresses questions related to the expectations of the knowledge, proficiencies, and experiences of licensure candidates. The analysis for this section was filtered to include only individuals who currently work in the field of architecture or individuals who are students the field of architecture or a related field. The bullet points below provide a high-level summary of the results. The Path to Licensure section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- The top three areas in which respondents believed licensure candidates should possess intermediate to expert knowledge include the areas of life safety (88%), construction documents (81%), and accessibility (81%).
- The top three areas in which respondents believed licensure candidates should have intermediate to expert levels of proficiency include professionalism (80%), critical thinking (78%), and problem-solving (80%).
- The top three areas in which respondents believed licensure candidates should gain moderate or extensive experience include working on a project team from start to end (81%), working on different construction types (73%), and working with interdisciplinary professionals (70%).
- Most respondents (76%) indicated that licensure candidates should work under the supervision of an architect for either 3, 4, or 5 years.
- There was broad agreement that candidates should gain competency at a basic to intermediate level in such areas as building envelopes, building systems, building performance, written and verbal communication, decision making, and working with different construction types and different project types.
- The areas in which candidates need only basic knowledge, proficiency, or experience include geotechnical understanding, cost estimation, scheduling, practice management, and practice and project financials.
- Respondents indicated that licensure candidates should not be required to have knowledge, experience, or proficiency in areas such as marketing, technology skills (including 3D modeling and rendering, virtual reality, and augmented reality), sketching skills, networking, and multitasking.

- Respondents indicated that candidates should not be required to have specialized experience or work with diverse individuals (based on demographics such as age, ethnicity, or race).
- Respondents who are pursuing a license and have fewer years of experience in architecture were more likely to believe that licensure candidates should demonstrate knowledge and proficiencies at an expert level or have extensive experience.
- Women, non-white respondents, and Hispanic, Latino, or Spanish respondents tended to have uniformly higher expectations for licensure candidates.

Hiring Decisions: Qualifications of Architects and Unlicensed Contributors

This section addresses questions related to the qualifications and general expectations for new hires at junior, intermediate, and senior experience levels. The analysis for this section was filtered to include only individuals who currently work in the field of architecture and only those responsible for hiring. The bullet points below provide a high-level summary of the results. The Hiring Decisions section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Most respondents (75%) agreed or strongly agreed that their workplace actively seeks diversity when hiring architects.
- Most respondents (78%) agreed or strongly agreed that their firm will hire a technical (licensed or unlicensed) employee who has not earned a degree from a NAAB-accredited program.
- Respondents indicated that their workplace values a technical employee with a Bachelor of Architecture degree just as much as one with a Master of Architecture degree.
- Respondents indicated that the most common tasks experienced, non-licensed contributors may be hired to complete at a workplace include cost estimation, business development, tasks requiring a specialization, and tasks related to performing specification writing.

Junior-Level Architects

- The top three areas in which respondents indicated that junior-level architects must be knowledgeable include: technical drawing (CAD/BIM) (88%), technology (including 3D modeling and rendering, virtual reality, and augmented reality) (80%), and design (69%).
- Respondents indicated that junior-level architects must have the skills and abilities to complete a variety of tasks, the three most common of which are CAD/BIM-related tasks, production work, and sketching.
- The top three soft skills in which respondents indicated that junior-level architects must demonstrate proficiency include the ability to learn new software (92%), openness to critiques (92%), and collaboration/teamwork (89%).
- Respondents indicated that an average of 2.28 years of experience are required to be considered a junior-level technical employee (licensed or unlicensed) at their workplace.
- Respondents indicated that certifications tend not to be essential at this level.

Intermediate-Level Architects

- The top three areas in which respondents indicated that intermediate-level architects must be knowledgeable include: construction documents (92%), documentation (90%), and detailing (90%).
- Respondents indicated that intermediate/senior-level architects would be hired to work on complex projects (97%), HSW (health, safety, and welfare) accountability (96%), and regulatory tasks (e.g., signing and sealing documents) (95%).
- The top four soft skills in which 91% of respondents indicated that intermediate-level architects must demonstrate proficiency include collaboration/teamwork, professionalism, problem solving, and verbal communication.
- The top three areas in which respondents indicated that architects (licensed) at this level must have experience include working on a project from start to end (78%), working with an interdisciplinary group of professionals (74%), and working with clients (69%).
- Respondents indicated that an average of 5.10 years of experience are required to be considered an intermediate-level technical employee (licensed or unlicensed) at their workplace.
- Respondents indicated that certifications tend not to be essential at this level.

Senior-Level Architects

- Senior-level architects were expected to be knowledgeable in a wide range of knowledge, skills, and abilities; demonstrate proficiency in many areas; and have extensive experience to be hired.
- According to survey respondents, the top area in which senior-level architects must be knowledgeable is contracts (90%). However, respondents agreed that most of the knowledge areas available in the study are equally important at this level. For example, 88% of respondents indicated that senior-level architects must be knowledgeable in coordination, life safety, constructability, legal implications, codes, risk management, and construction administration/observation.
- Respondents indicated that intermediate/senior-level architects would be hired to work on complex projects (97%), HSW (health, safety, and welfare) accountability (96%), and regulatory tasks (e.g., signing and sealing documents) (95%).
- Ninety-one percent (91%) of respondents indicated that senior-level architects must demonstrate proficiency in such areas as decision-making, leadership, project management, and many more.
- Respondents indicated that senior-level architects must have a variety of experience. Some of the most common experience requirements include working with clients (91%), working on a project from start to end (89%), and experience with project financials (88%).
- Respondents indicated that an average of 9.25 years of experience are required to be considered a senior-level technical employee (licensed or unlicensed) at their workplace.

- Certifications were preferred by some respondents. Specifically, about 40%-50% of respondents indicated a preference for senior-level architects to hold a LEED certification or have a specialization/specific project typology experience. About 20% indicated that a specialization or specific project typology experience is a requirement to be hired at this level.

For all levels, the responses to the hiring decision questions were similar across demographic groups.

Roles and Responsibilities of Architects

This section addresses questions related to the job roles and responsibilities of architects at different times in their careers in comparison to other contributors in the built environment. Additionally, this section examines how these roles and responsibilities are changing over time, especially in the context of new technological developments. The analysis for this section was filtered to include only individuals who currently work in the field of architecture or students in the field of architecture or a related field. The bullet points below provide a high-level summary of the results. The Roles and Responsibilities section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Respondents indicated that the roles and responsibilities junior-level architects assume in the workplace include being mentored (86%), drafting (CAD/BIM) (81%), and physical modeling (68%). The least commonly identified roles and assignments are related to project financials and business management.
- Respondents indicated that the roles and responsibilities intermediate-level architects assume in the workplace include developing, modifying, and reviewing construction documents (70%), participating in large and complex projects (70%), sketching (68%), working independently (68%), and developing, modifying, and reviewing production drawings (67%). The least commonly identified roles and assignments are related to project financials and business management.
- Respondents indicated that senior-level architects assume the greatest number of roles and responsibilities in the workplace. At least 85% of respondents identified interacting with clients and maintaining client relations, participating in large and complex projects, leading projects, serving as a mentor, presenting to clients, and supervising/delegating tasks as job roles of senior architects. Respondents noted it is less common for senior architects to assume roles and assignments related to physical modeling and being mentored.
- Respondents indicated that the roles and responsibilities other contributors to the field of architecture assume in the workplace include marketing/business development, participating in large and complex projects, performance modeling, and completing project financials. Respondents noted that it is less common for these individuals to serve as a mentor and to supervise/delegate tasks.

- Respondents felt that the assignment of project roles and responsibilities at their workplace is equitable and fair (87% agreed/strongly agreed) and is based on experience and qualifications (90% agreed/strongly agreed).
- Respondents indicated either an architect or contributor (or an architect in collaboration with a contributor) could be responsible for most activities listed on the survey. The primary exception is signing/sealing/stamping documents: 88% of respondents indicate architects only could be responsible.
- The areas where the highest proportions of respondents indicate a contributor only would be responsible include design (civil/MEP/FP/structural), surveying, procurement, construction scheduling, and inspections (30-42%).
- Respondents indicated that the most important elements to consider when setting up a team is the complexity of the project (74%), team member experience with similar projects (68%), and the overall communication plan (64%).
- Respondents identified project type as the most influential factor for choosing the leader of a project team. Factors that produced large changes in the coordination of team members over the past 10 years include technological software tools (e.g., BIM, CAD, visualization; 77%), digital communications (e.g., email, virtual meetings; 73%) and electronic documents (e.g., electronic submittals, drawings; 61%).
- Respondents agreed/strongly agreed that there is a continued and greater need for well-developed soft skills (92%), there is an increased need for cross-functional knowledge (engineering, contractors) (90%), more women are entering the profession (89%), and practitioners are more aware of and advocate for sustainability (84%).
- The top areas respondents believed have become more important during the past 10 years include: Material and labor cost volatility (89%), sustainability (74%), resiliency/ building performance (69%), accessibility (61%), and material understanding (59%).
- Respondents indicated that technology significantly changed the job assignments of architects over the past 5 years and noted increases in many technology areas, most frequently identifying: use of 3D modeling, rendering, and simulation (89%), marketing tasks (presentations, virtual meetings, social media, client resource management) (68%), use of virtual and augmented reality (68%), use of parametric software (66%), and performance modeling tasks (59%).
- Respondents indicated that automation significantly changed the roles and assignments of architects during the past 5 years in the following areas: performance modeling (80%), building models (physical and/or virtual) (79%), presentation drawings (78%), perspective drawings (77%), and clash detection/conflict resolution (76%).

Specializations in Architecture

This section addresses questions related to the benefits of specializations, the current and future importance of specializations, how specializations are valued, and specialist versus generalist comparisons. The bullet points below provide a high-level summary of the results. The specialization section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Most respondents indicated that specializations are becoming more necessary (68%) and can lead to career advancement (74%).
- In general, respondents viewed specializations as most beneficial to senior- and intermediate-level architects. However, some demographic groups had additional opinions:
    - Respondents who are pursuing a license, non-white respondents, and Hispanic, Latino, or Spanish respondents indicated that specializations are very beneficial for both licensure candidates and junior-level architects.
    - Respondents who have never been licensed (and are not planning to pursue a license) were more likely than those with a current license to believe specializations are very beneficial for non-licensed contributors[1] (44% versus 28%).
- Respondents indicated that clients (76%) and large architectural firms (76%) are most likely to value specialization.
- Respondents indicated that architects are most likely to have specializations in large urban and suburban workplaces.
- Respondents indicated that the following specializations are currently important: code compliance (85%), waterproofing (83%), space planning (82%), roofing (81%), construction administration (81%), and project/program management (80%).
- A majority of respondents indicated that they expect the following specializations are among those that will become more important in the next 3-5 years: energy compliance/modeling (63%), adaptive reuse (60%), sustainable design/accessibility (58%), infrastructure (57%), digital design software (54%), BIM (54%), renovations/alterations (54%), and data center architecture (53%).

[1] For the survey, a non-licensed contributor was defined as, “An individual who works primarily within the field of architecture but does not possess a license to practice architecture and, therefore, cannot officially refer to themselves as an architect.”

- Respondents indicated that they expect the following specializations are among those that will become less important in the next 3-5 years: retail (41%), religious (39%), parking structure (34%), residential/single family (27%), masonry (24%), and workplace (24%).

Professional Development and Mentorship

This section addresses questions related to the experiences and beliefs related to training methods, continuing education (CE) requirements, learning formats, and benefits provided to employees preparing for their licensure exams. The analysis for this section was filtered to include only individuals who currently work in the field of architecture or students in the field of architecture or a related field. The bullet points below provide a high-level summary of the results. The professional development and mentorship section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Most respondents agreed or strongly agreed that continuing education (CE) builds awareness of new products (88%), helps architects stay up to date on important competencies (78%), and promotes innovation and advancement (68%).
- Most respondents (81%) agreed or strongly agreed that CE requirements should focus on specific topics related to the health, safety, and welfare (HSW) of the public.
- Most respondents (78%) agreed or strongly agreed that CE requirements are an important part of the licensure framework.
- Most respondents (85%) indicated that their workplace provides opportunities for training. The most frequent types of training activities are informal on-the-job training, informal mentorship, and online continuing education courses.
- Respondents indicated that workplaces were most likely to support lunch and learn (69%) and webinar (59%) training formats in the workplace.
- A majority of respondents (60%) indicated a strong preference for CE related to building code/regulatory requirements. The next most popular topics included building and material science (44%), building systems/technology (35%), and accessibility/universal design (35%).
- Respondents identified several different types of mentorship offered at their workplaces. Informal internal mentorship (75%), site visits (72%), and advice on professional development goals/licensure (63%) were the most common mentorship types.
- Respondents from small workplaces and those who identify as Hispanic, Latino, or Spanish reported much less access to mentorship opportunities than others.
- Respondents indicated that workplaces most commonly provide time off from work to take exams, payment of exam fees, mentorship, and study materials to licensure candidates.

Health, Safety, and Welfare (HSW)

This section addresses questions related to the meaning ascribed to health, safety, and welfare (HSW), as well as the role of HSW in the profession. The bullet points below provide a high-level summary of the results. The health, safety, and welfare section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Respondents reported that architects consider health, safety, and welfare most or all of the time.
- Respondents most commonly related the meaning and importance of "health and safety" to public/fire safety, code compliance, preventing dangerous conditions, and protecting against loss of life or property.
- Respondents most commonly related the meaning and importance of "welfare" to accessibility/universal design; creating a sense of safety and security; promoting mental, physical, and emotional health and wellness; and contributing to the greater good of the community/society.
- Respondents indicated that the biggest drivers of changes in HSW over the past 10 years include public safety events/threats, environmental concerns (e.g., sustainability, natural disasters), and policy changes (e.g., administrative and building codes).
- Respondents indicated that codes and regulations related to the environment (e.g., energy performance, carbon footprint) and resiliency should be strengthened.
- Respondents indicated that HSW codes could be improved by decreasing ambiguity, clarifying application, and consolidating/increasing consistency.
- Respondents identified client demands, value engineering, and financial considerations as the areas that pose the greatest challenges to the ability of architects to protect the HSW of the public.

Ethics

This section addresses questions related to an architect's ethical responsibilities and related challenges that have occurred or may have occurred in the workplace. The analysis for this section was filtered to include only individuals who are currently working in the field of architecture or students in the field of architecture or a related field. In addition, the data were filtered to only include those who are pursuing, active, or retired license holders. The bullet points below provide a high-level summary of the results. The ethics section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Nearly all respondents (96%) agreed/strongly agreed that an architect's primary responsibility is protecting the health, safety, and welfare of the public.

- Most respondents agreed/strongly agreed that licensure requirements have a component of ethical responsibility (92%) that aligns with their ability to make decisions (84%).
- Most respondents agreed/strongly agreed that an architect's ethical responsibilities are clearly defined (83%), outlined by professional organizations more so than by state licensures (70%), and exist in perpetuity, long after the project is completed (69%).
- Most respondents indicated that architects have a clear ethical responsibility to being responsible to the client (87%) and being honest/having integrity (87%).
- About half (51%) of respondents indicated that they had encountered situations in which their job assignments had challenged their ethical responsibilities.
- The percent of respondents who agreed to the statement: "Are there situations in which your job assignments have challenged your ethical responsibilities?" increased with years since initial licensure and age.

Diversity, Equity, and Inclusion (DEI)

This section addresses questions related to respondents' views on DEI-related issues within the architecture profession, the fairness of the licensure process, and experiences with discrimination. The bullet points below provide a high-level summary of the results. The DEI section provides a more detailed executive summary, as well as an analysis of each survey question asked in this section.

- Most respondents rated their places of employment and educational institutions as moderately/very successful in addressing DEI in architecture (82% and 75%, respectively).
- 38% of women respondents identified the profession as a whole as moderately/very successful in addressing DEI, compared to 60% of men.
- 28% of Black or African American respondents identified the profession as moderately/very successful in addressing DEI, compared to 55% of white respondents.
- Respondents identified many DEI issues that exist within the profession that have not been adequately addressed. The top three include: Lack of outreach to underrepresented communities/schools (60%), socioeconomic barriers (60%), and lack of exposure to the architecture profession (59%).
- Most respondents (87%) indicated that diversity is increasing within the profession.
- Most respondents (79%) indicated that a diverse, inclusive profession is better able to protect the health, safety, and welfare of the public.
- The top four statements about diversity within the profession that survey respondents agreed/strongly include: increasing the number of real-world experiences that involve working with a diverse group of professionals will help address DEI (89%), diversity is increasing in the field of architecture (87%), addressing DEI starts with firm culture (87%), and outreach efforts to a more diverse population needs to begin early in the education cycle (including, but not limited to elementary education) to introduce them to architecture (87%).

- More respondents reported witnessing/experiencing discrimination in the field of architecture generally, instead of at their own workplace.
- The most common types of discrimination respondents indicated that they have witnessed/experienced include gender discrimination (48% in the field, 22% at their workplace) and age discrimination (44% in the field, 19% at their workplace).
- Women were nearly three times as likely as men to indicate that they have witnessed/experienced gender discrimination at their workplace (41% versus 14%).
- Black or African American respondents were nearly 5 times more likely than white respondents to indicate that they have witnessed/experienced racial discrimination at their workplace (42% versus 9%).
- More than 75% of respondents describe each part of the licensure process (experience, examination, education, and overall licensure process) as somewhat or very fair, and 34-40% describe each part as very fair.
- Respondents pursuing a license were more likely to have witnessed/experienced discrimination and less likely to describe the licensure process as fair.
- Respondents at larger workplaces were more likely to witness/experience discrimination at their workplace.
- Respondents with fewer years of experience were less likely to describe the examination as somewhat/very fair.
- Respondents with fewer years of experience were more likely to believe that DEI issues are not adequately addressed in the field of architecture.

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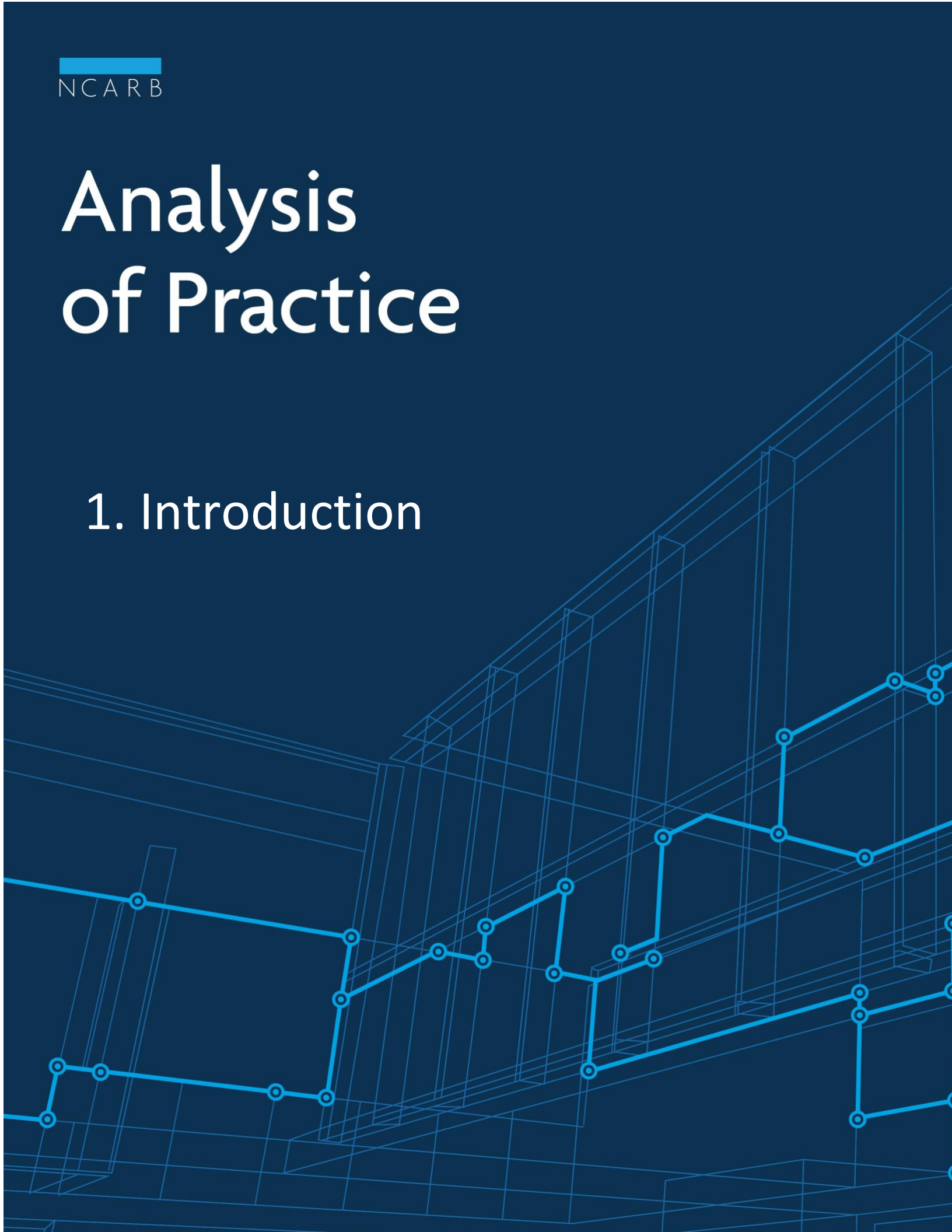

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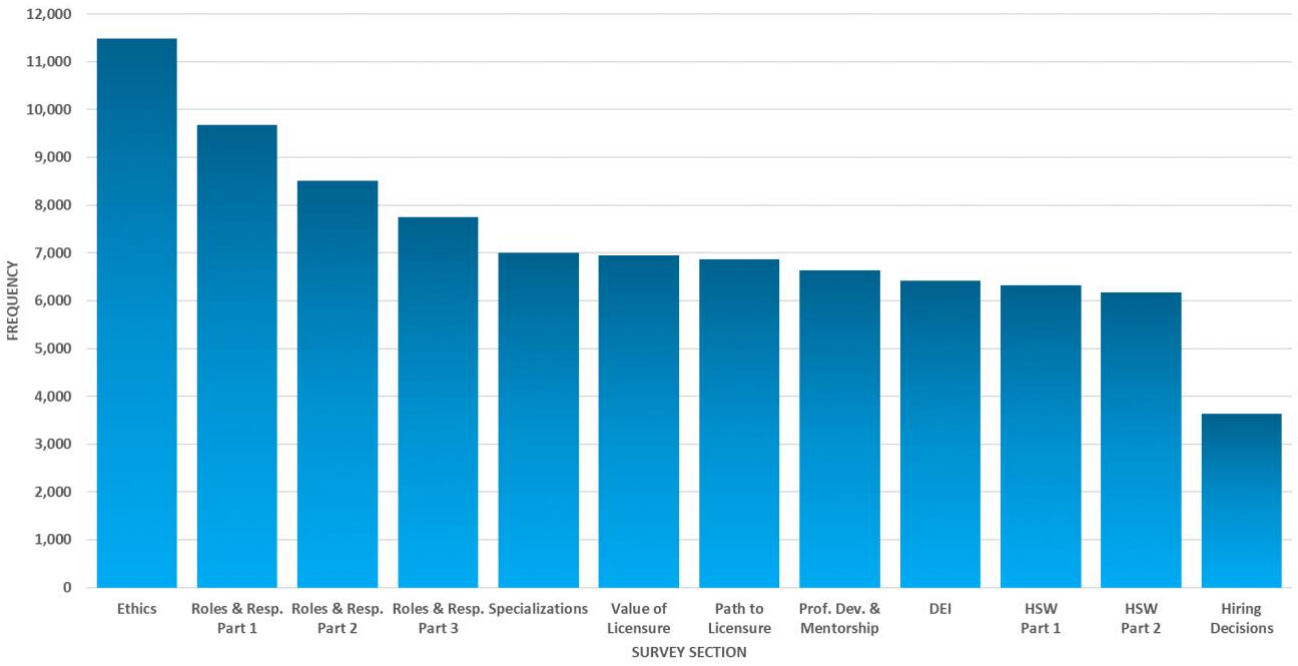
Data Sources

Table 1.1 summarizes the data collection activities and sample sizes for activities completed throughout the Analysis of Practice (AOP). Figure 1.1 breaks down the number of individuals who responded to each of the 12 sections of the AOP[2] survey.

Table 1.1. Data collection methods.

Phase	Method	Sample Size
I	Background Research	27
II	Small Group Activities	385
	Large Group Activities	10,909
III	Participants[2]	13,446
TOTAL[3]		**24,767**

Figure 1.1. Number of participants completing each survey section.



[2] Based on number of individuals who completed the demographic section of the survey, which is the first section required of all participants.
[3] If an individual completed more than one activity, then that individual is counted multiple times.

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Explanation of Methods

Phase I – The purpose of Phase I was to provide background research for the AOP project. This research set a foundation for the project and supported the transition to the active data collection occurring in Phase II. The background research included literature reviews on the current and future direction of the practice of architecture, as well as reviews of position descriptions, requests for proposals or qualifications, requirements from educational institutions offering degrees in architecture, conference topics, and current and upcoming technology trends in architecture.

Phase II – The purpose of Phase II was to actively collect data from individuals in the field of architecture through a variety of methods. The goal was to gain insight into the practice of architecture via both small and large group activities. These data collection activities included ethnographies (questions answered verbally through a mobile app while on the job), individual stories on topics related to the practice of architecture, an online bulletin board, short interviews at conferences, one-on-one web interviews, webinars focused on audience engagement, and a series of mini-engagement surveys on a variety of topics, as well as social media questions. The different methods provided a way to reach individuals at a personal level and a large, diverse audience; accommodated different schedules and personalities; and allowed data to be gathered in both breadth and depth.

Phase III – The purpose of Phase III was to validate the findings from Phase I and Phase II and to dig more deeply into demographic differences via a large survey. The questions from the survey were derived from the Phase I and Phase II work. While most of the questions were drawn from Phase II, some of the Phase I background research was also incorporated. The draft survey was brought to an Editorial Review Committee (ERC) of subject matter experts to be reviewed and refined. This survey was then administered to over 10,000 individuals within the field of architecture on nine topics: value of licensure; path to licensure; hiring decisions: qualifications of architects and unlicensed contributors; roles and responsibilities of architects; specializations in architecture; professional development and mentorship; health, safety, and welfare; ethics; and diversity, equity, and inclusion. A series of demographic questions were also asked of each respondent for analysis purposes. This report details the findings from this analysis.

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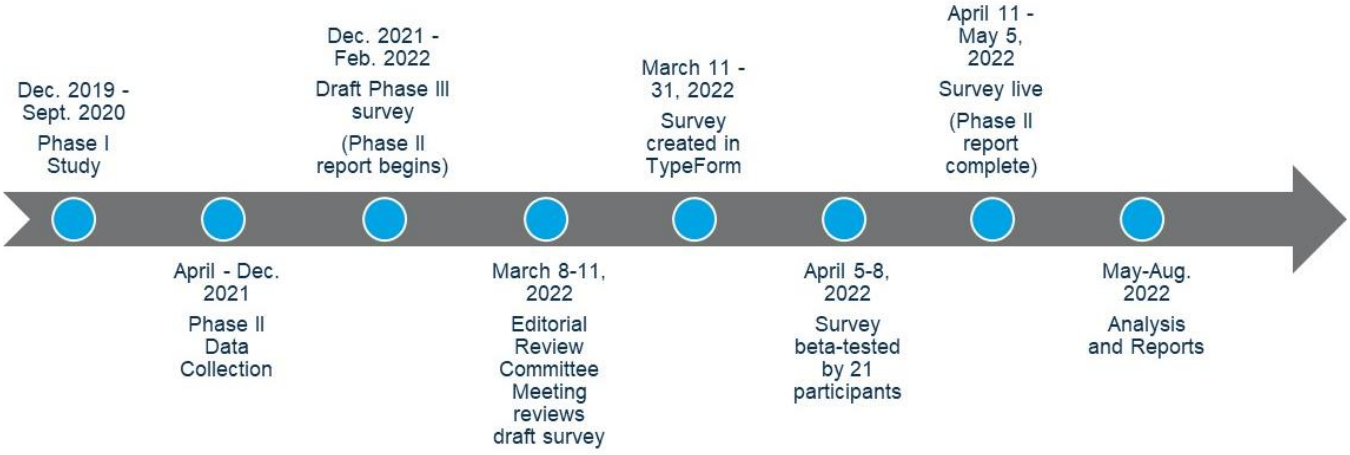
Survey Development

The Phase III survey was developed from the previous AOP reports. The Phase II report was divided into the nine survey sections (see previous paragraph and Figure 1.1). Each section contained the questions and responses asked and analyzed during Phase I and II. The Phase III survey was developed from these same questions and served as a means to validate the results with a larger population.

Upon completing a draft of the Phase III survey, it was preliminarily reviewed by NCARB and then reviewed during an in-person meeting with an ERC (see the Editorial Review Committee section).

Following the edits by this committee, additional internal reviews and edits were completed. NCARB then set up the framework for the survey in TypeForm, and Alpine entered the survey questions into this online survey tool. Final read throughs occurred again and the survey was beta tested with a group of professionals in the field of architecture. Based on the results, minor edits were made to the survey, and the survey went live. Several reminders were sent to potential respondents throughout the live phase of the survey. Data was collected for approximately 3½ weeks from over 13,000 individuals. A timeline of the survey development is shown in Figure 1.2. A copy of the questions on the final survey is provided in Appendix A-1.

Figure 1.2. Timeline of Phase III survey development



Editorial Review Committee

The purpose of the Editorial Review Committee (ERC) was to review and edit the draft Phase III survey. The ERC met on March 8-11, 2022, in Charlotte, North Carolina. Some attendees were virtual. On March 8, Dr. Amanda Wolkowitz (Alpine) gave a welcome presentation to orient all 37 committee members to the meeting's goals and purpose. Andy McIntyre (NCARB) provided some additional background information for the members at this time. The ERC members then divided into four preset groups of 9-10 members each based on demographic characteristics (e.g., years since licensed,

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geographical location, architect vs contributor, gender, race) and remained in these groups on March 8-9. Virtual attendees joined their assigned groups via Zoom. Alpine facilitators led each group [Sarah Hughes (Group 1), Dr. Casey Johnson (Group 2), Dr. Kshawna Askew (Group 3), Brent Reif (Group 4)]. During these days, the groups reviewed pre-assigned sections of the survey. If time permitted, the groups reviewed additional sections of the survey. Table 1.2 displays the sections reviewed by each group. Demographic details of the ERC members are provided in Appendix A-2 (bios) and Appendix B (demographic summary).

After these two days, all but seven of the ERC members went home. On March 10, the ERC did not meet; instead, Alpine had a working day in which comments from the four individual groups were consolidated into a revised draft survey. This draft was then presented on March 11 to the seven ERC members who had remained for this one final day of review. This group contained members from each of the four individual groups. This group met to review the feedback from the individual groups, make final edits, and approve the final draft of all sections of the survey. More details of the meeting activities are described in Appendix C.

Other attendees who were present during the meeting for logistical purposes included Vanessa Williams (NCARB), Laura Brooks (Alpine), and Susan Cooley (Alpine).

Table 1.2. Survey sections review by the ERC

	Group				
	March 8-9				March 11
	1	2	3	4	5
Value of Licensure	●	●			●
Path to Licensure	●	●			●
Hiring Decisions	◖	●			●
Roles and Responsibilities – Part I (Teams and Assignments)		●			●
Roles and Responsibilities – Part II (Project Size, Team Setup, and Level of Experience)		●			●
Roles and Responsibilities – Part III (Coordination, Trends, and Technology)		●			●
Specializations		◖	●	●	●
Professional Development and Mentorship			●	●	●
HSW – Part I (Definition of HSW)			●	●	●
HSW – Part II (Beliefs on HSW and the Public)			●	●	●
Ethics		●		●	●
DEI		●		●	●

● = Reviewed entire section
◖ = Reviewed part of section

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Survey Analysis

Multiple analyses were performed on the survey data based on the demographic analyses of interest (see Appendix A-3)[3]. Unless otherwise specified, the data were filtered to include only those in the field of architecture and students either in architecture or a related field. Full results broken down by demographic group are included in Appendix A-5.

The survey contains both single- and multi-part questions. For single-part questions, provided statistics include:

- n - The number people who responded to the question from a given demographic group.
- Frequency distribution – The percent of respondents selecting each response option.
- Likelihood value, r – Response percentages across groups are compared by taking their ratio, r. For example, if in one group 60% of respondents agree with a particular statement and in another group 35% of respondents agree, then r = 60%/35% = 1.7.
    - Values of r less than 1 indicate the demographic group is less likely to provide the indicated response than the comparison (reference) group.
    - Values of r equal to 1 indicate the demographic and comparison (reference) groups are equally likely to provide the indicated response.
    - Values of r more than 1 indicate the demographic group is more likely to provide the indicated response than the comparison (reference) group.

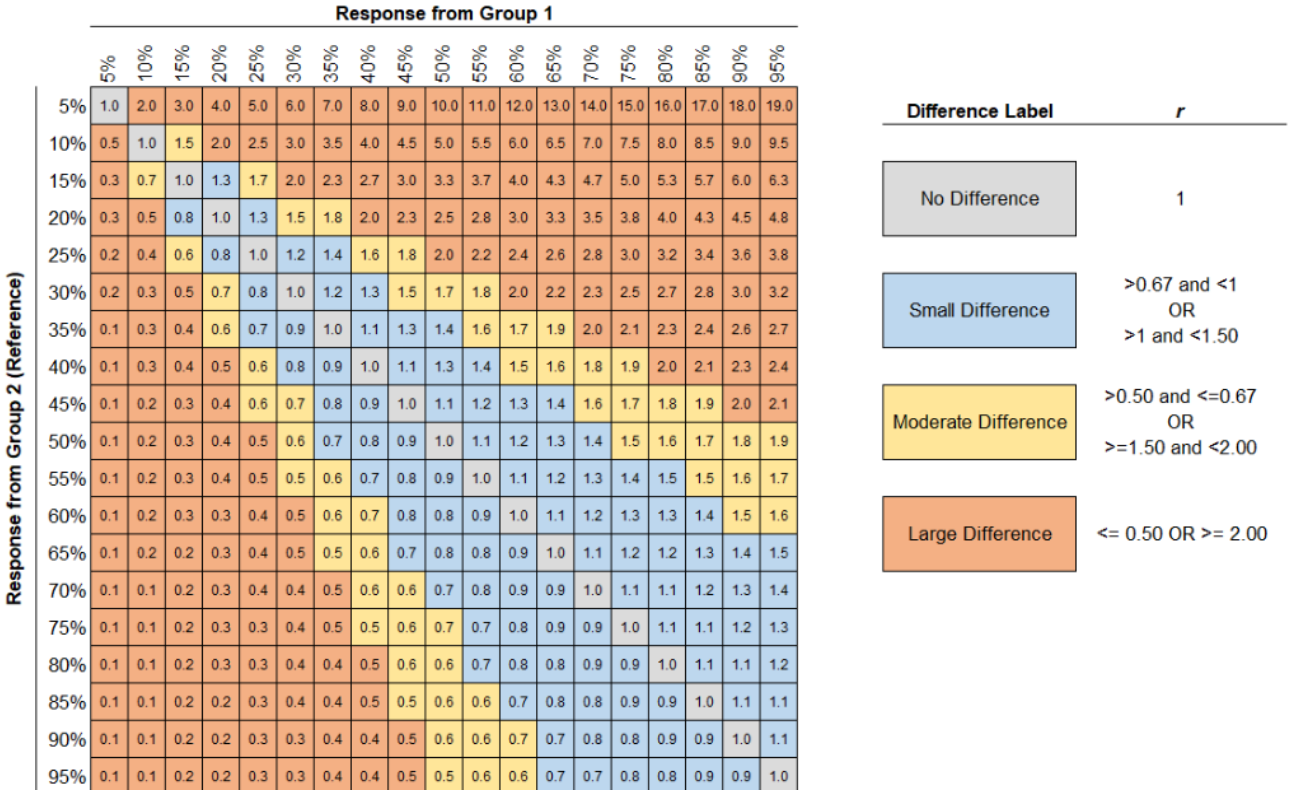
  For convenience and consistency, we describe differences qualitatively (small, moderate, large[4]) based on the following quantitative criteria:

[3] The demographic analyses of interest were the demographic variables analyzed for each survey question. These were agreed upon by NCARB and Alpine prior to the start of the analyses.

[4] For a small number of questions, responses were numerical (e.g., "What is the minimum number of years of experience required … "). Group averages are reported for these questions, and when describing group differences qualitatively the omega-squared (ω^2) effect size is calculated. For purposes of this report, the following conventional interpretations of the listed effect sizes were used:

- 0.000 – 0.010 → No difference

1. Introduction



Response from Group 2 (Reference) \ Response from Group 1	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
5%	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0
10%	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
15%	0.3	0.7	1.0	1.3	1.7	2.0	2.3	2.7	3.0	3.3	3.7	4.0	4.3	4.7	5.0	5.3	5.7	6.0	6.3
20%	0.3	0.5	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	2.8	3.0	3.3	3.5	3.8	4.0	4.3	4.5	4.8
25%	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8
30%	0.2	0.3	0.5	0.7	0.8	1.0	1.2	1.3	1.5	1.7	1.8	2.0	2.2	2.3	2.5	2.7	2.8	3.0	3.2
35%	0.1	0.3	0.4	0.6	0.7	0.9	1.0	1.1	1.3	1.4	1.6	1.7	1.9	2.0	2.1	2.3	2.4	2.6	2.7
40%	0.1	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.3	1.4	1.5	1.6	1.8	1.9	2.0	2.1	2.3	2.4
45%	0.1	0.2	0.3	0.4	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	2.0	2.1
50%	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
55%	0.1	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.6	1.7
60%	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.3	1.4	1.5	1.6
65%	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.5
70%	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.3	1.4
75%	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.1	1.1	1.2	1.3
80%	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.2
85%	0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.1
90%	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.1
95%	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0

Difference Label	*r*
No Difference	1
Small Difference	>0.67 and <1 OR >1 and <1.50
Moderate Difference	>0.50 and <=0.67 OR >=1.50 and <2.00
Large Difference	<= 0.50 OR >= 2.00

Group differences in Appendix A-5 are calculated to indicate that a given demographic group is x times as likely to respond in a certain way compared to a reference group. The reference group for a demographic variable is the group with the greatest number of responses[5].

- 0.010 – 0.058 → Small difference/weak effect
- 0.059 – 0.137 → Moderate difference/moderate effect
- ≥ 0.138 → Large difference/strong effect

[5] Because ratios are used, they can sometimes overemphasize small differences. For example, if one group agrees at 5% and another agrees at 2%, then r = 2.5. Differences like these would be classified as large in Appendix A-5, but likely would not be noted in the narrative of the report, given that the results for both groups indicate very low agreement.

1. Introduction

For multi-part questions, provided statistics include:

- n – The number people who responded to the question from a given demographic group.
- Frequency distribution – The percent of respondents selecting each response option.
- The most frequently selected responses (e.g., the top five preferred options).

The body of the report includes narrative describing the overall results for each individual survey question, focusing on broad, general findings, as well as identifying important group differences. Readers interested in specific comparisons or greater detail are directed to Appendix A-5.

Organization of Each Section

Each section of this report is broken down into several sub-sections:

Introduction – A brief description of the purpose of the section.

Overall Findings – A section-level executive summary highlighting overarching themes and the most notable results.

NCARB Supplemental Infographics – For each section of the Analysis of Practice study, NCARB created an accompanying infographic and blog post on www.ncarb.org. A sample is included in the summative report.

Questions Asked in this Section – A list of all questions from the survey section.

Demographic Variables Reviewed – A table showing, for each question in the section, the demographic variables with available disaggregated results (see Appendix A-5). There is also information about the presence and size of group differences/trends for each question.

Question-Specific Results

General Findings – A high-level summary of the results for the given survey question.

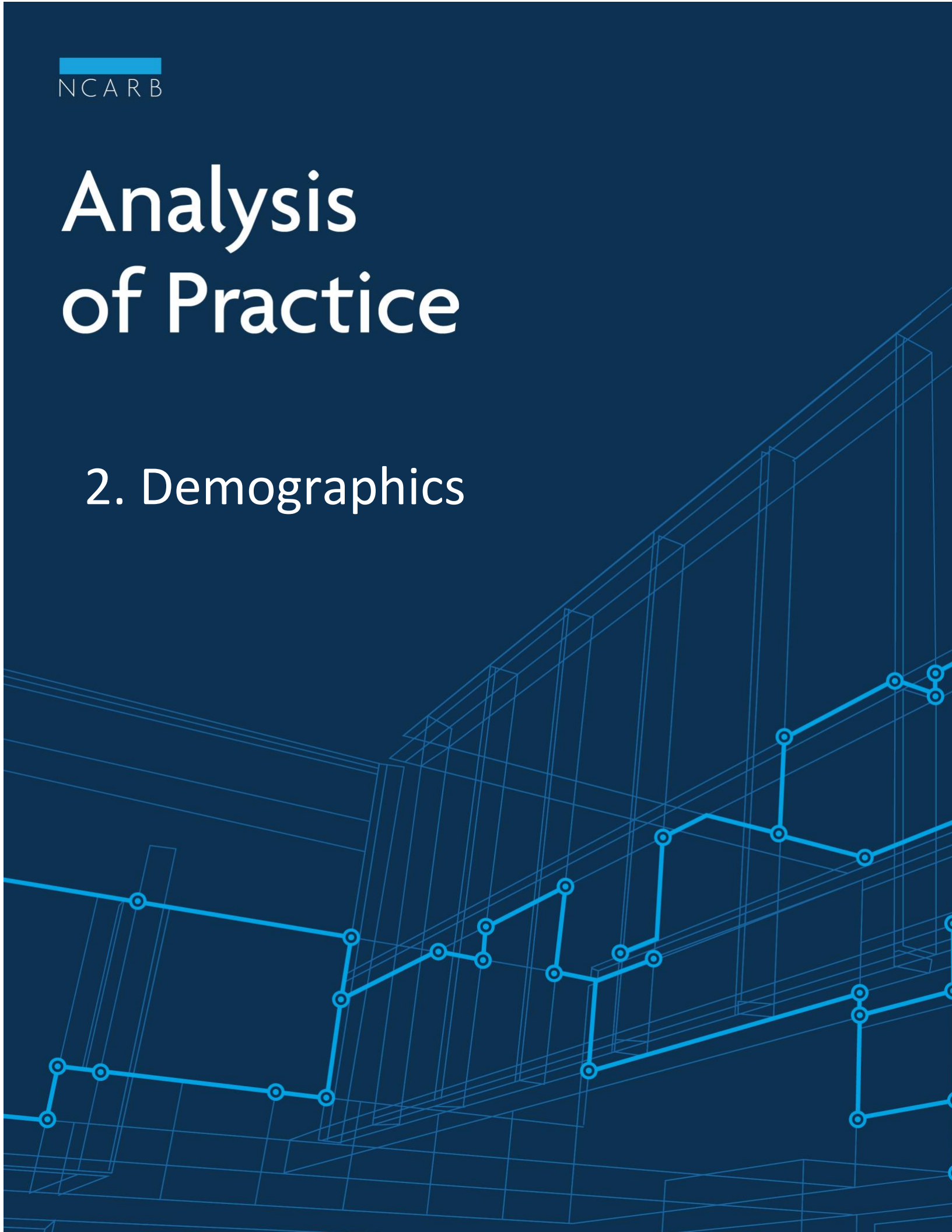
Group Differences/Trends – Additional information from those demographic variables that indicate notable differences/trends across groups.

Comparison to Phase II Results – A comparison of the Phase III results to the Phase II results, when applicable.

NCARB

Analysis of Practice

2. Demographics



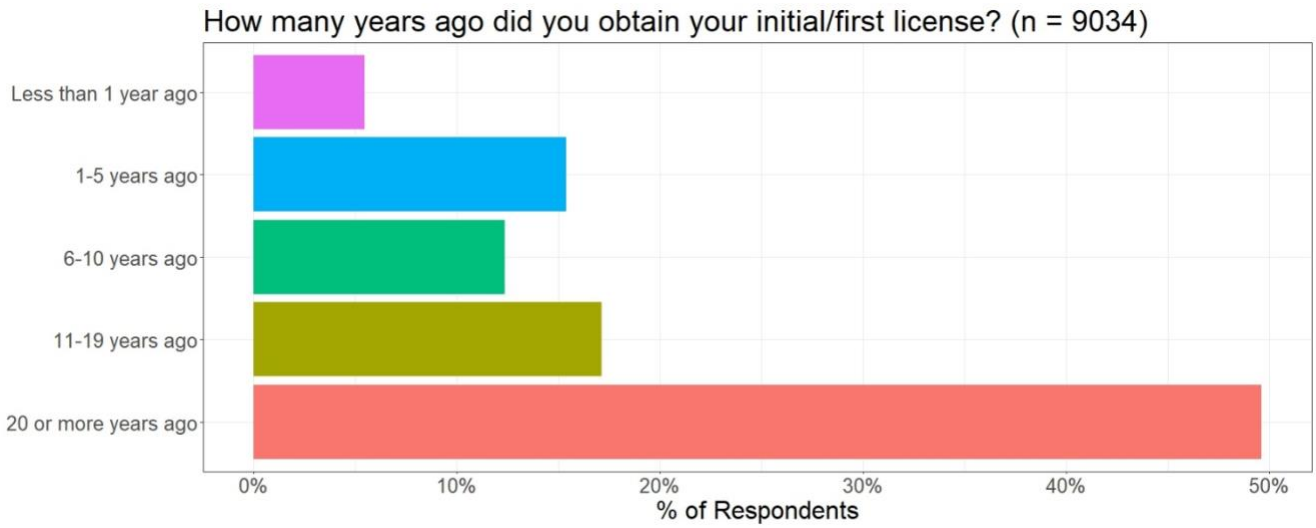
2. Demographics

This section provides an analysis of who participated in the survey based on the demographics survey section. The more than 13,000 survey respondents represent a multitude of backgrounds and experiences. Detailed information on all demographic variables is included in Appendix A-4.

Licensure Information

- 85% of respondents are currently employed in the field of architecture.
- 64% are currently licensed; 33% are pursuing a license.
- Of the licensed respondents, 20% obtained their initial license within the past 5 years; half obtained their license within the past 20 years. See Figure 2.1.

Figure 2.1

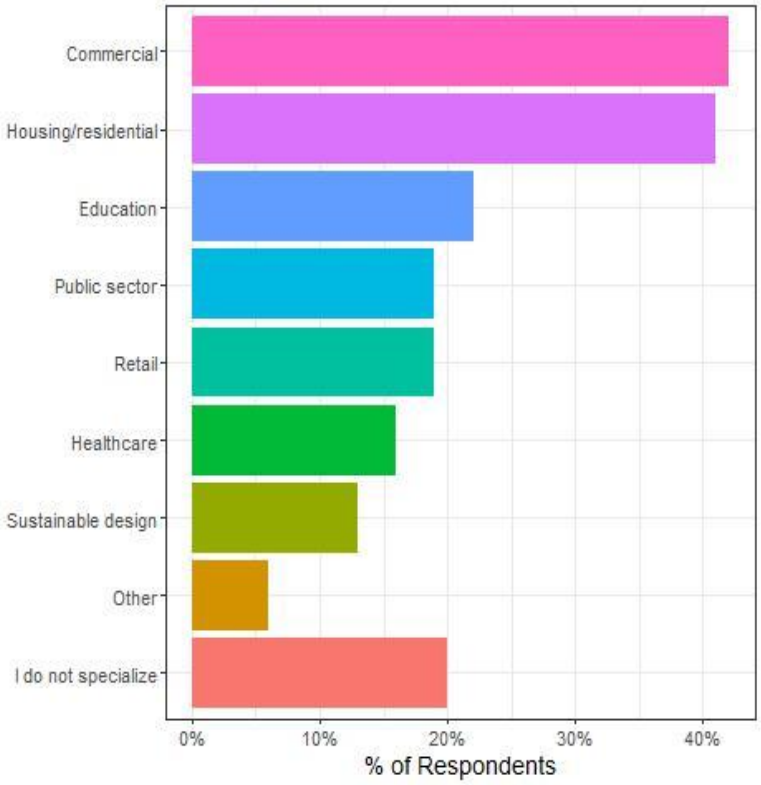


2. Demographics

Experience

- The most common areas of specialization among respondents are commercial (42%) and housing/residential (41%). 20% reported not having a specialization. See Figure 2.2.
- Non-architect respondents most commonly reported working in project management (34%), construction (21%), interior design (10%), and architectural education (10%).

Figure 2.2
If you specialize in a particular area, what is it? (n = 13366)



Workplace

- Respondents represent all 50 states, Washington D.C., Puerto Rico, the Virgin Islands, Guam, and the Northern Mariana Islands.
- 44% of respondents are responsible for hiring staff and/or participate in the hiring process.
- 70% of respondents' workplaces employ between 0 and 9 architects.
- 66% of respondents work in an urban community, 28% suburban, and 5% rural.

Other Demographics[6]

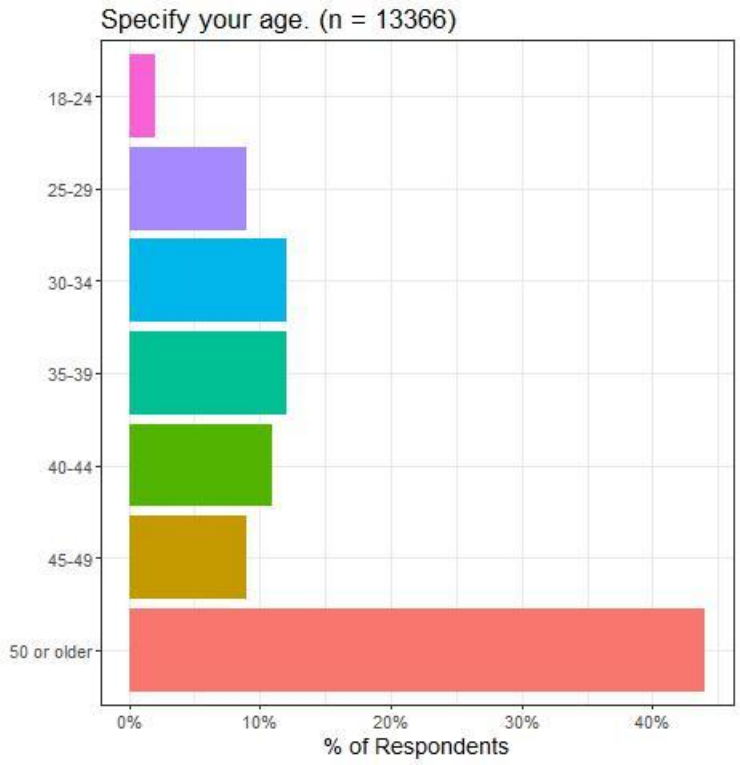
- 33% of respondents are female; 66% are male.
- 67% are White and not Hispanic, Latino, or Spanish.

[6] For each of these questions, respondents were given the option, "Prefer not to answer". Percentages shown here are based only on the respondents who elected to provide a specific response.

2. Demographics

- 14% are Hispanic, Latino, or Spanish; 10% Asian; and 6% Black or African American.
- 46% have a bachelor's degree and 49% have a master's, with 79% completing degrees at NAAB-accredited architectural programs.
- 23% of respondents are 34 years old or younger; 45% are 50 or older. See Figure 2.3.

Figure 2.3



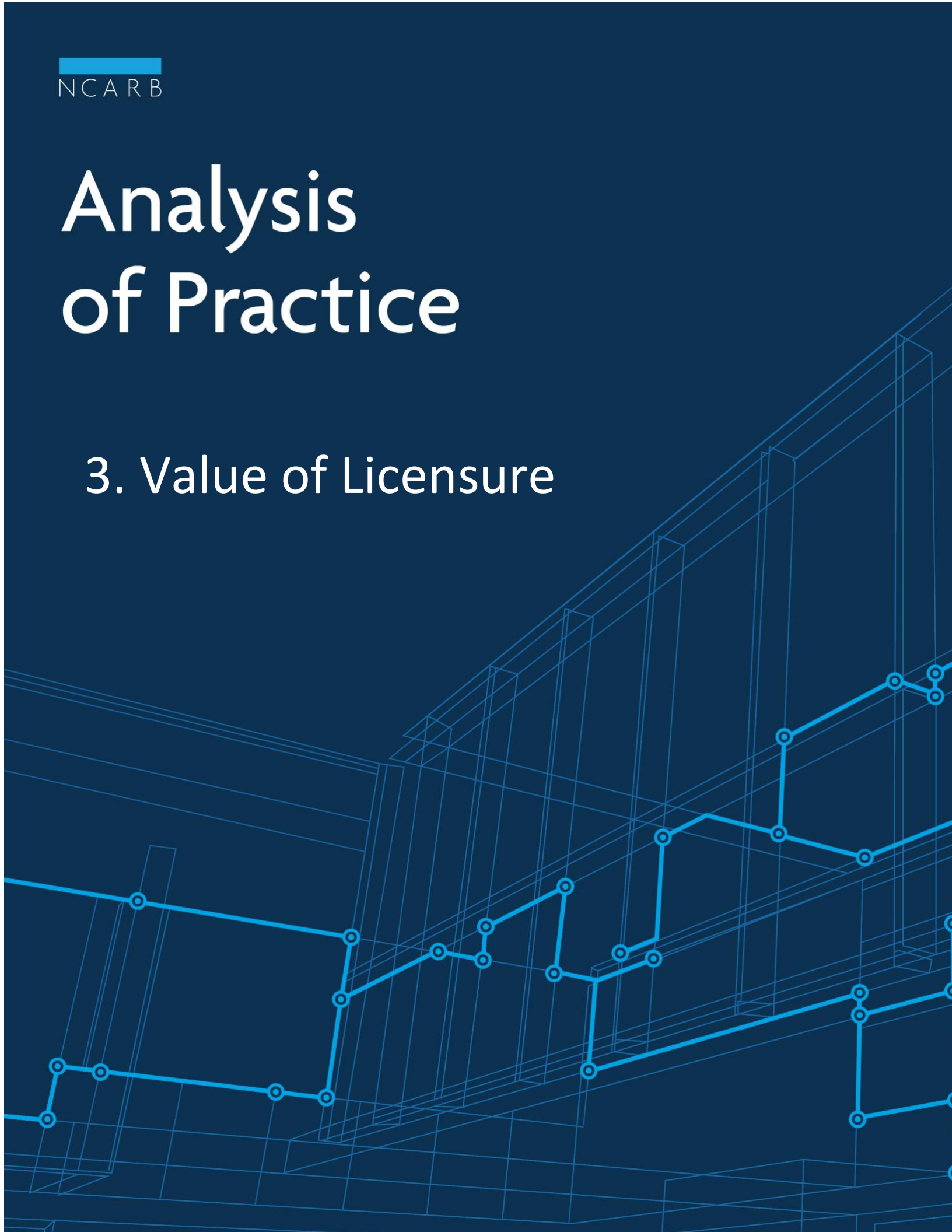
Note: A Caution When Interpreting Group Differences

Several demographic variables are correlated with each other. For example, years since initial licensure, years of experience in architecture, and age tend to be correlated. Similarly, some variables tend to vary together. For example, it is very common for respondents who work at large firms to have their workplace in an urban community. Because of these relationships, use caution when inferring causality with respect to group differences (e.g., it is difficult to determine whether a trend in responses is related to firm size, urban/rural differences, or some combination of the two).

NCARB

Analysis of Practice

3. Value of Licensure



3. Value of Licensure

Introduction

This section provides the results from the Value of Licensure, which address questions related to how, when, and why an architectural license is valuable. The analysis for this section was filtered to include only individuals who currently work in the field of architecture or individuals who are students in the field of architecture or a related field. Selected results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

Respondents agreed that there is high value in licensure and that licensure retains that value, regardless of workplace location, size, or culture. In fact, most architects rated the professional and personal value of a license as a 10 out of 10 (61% and 64%, respective). In addition, most architects (68%) reported that the value of their license was evident immediately upon licensure.

While a license is of high value to architects, different reasons account for this value. For some, the value is correlated with the opportunities that become available upon licensure—for example, being able to start one's own firm, take on an ownership role in a workplace, and complete freelance work.

Others associated the value of a license with the reasons they initially chose to pursue licensure. (Most respondents [56%] decided on architecture as a career path before graduating high school.) Respondents chose to pursue licensure to achieve personal goals/fulfillment, be called an architect, and increase their career advancement/professional opportunities.

Still others evaluated the value of a license based on its current value. It provides evidence that they meet professional standards (62%); indicates their competence to protect the health, safety, and welfare of the public (61%); and increases their credibility (59%).

The benefits of licensure also come with responsibility. Respondents noted that a license increases an architect's exposure to liability (87%), their role in mentoring (67%), their participation in client relations (60%), and their responsibility in project administrative tasks (57%). Many respondents felt that a license does not add value for tasks in which a license is not required, and it is not valuable for some individuals who face licensure hurdles. They frequently noted that a license is typically not required to complete tasks such as project management (76%), contract administration (67%), and contract negotiations (64%). In addition, respondents with specialized skills tended to see less value in a license since firms will hire them for those skills versus their licensure status.

Among respondents who chose not to pursue a license, the most frequently cited reasons were hurdles such as the licensure process being too large of a time commitment (63%), too expensive (55%), and inequitable (51%). Opting not to pursue a license does not mean that a license is not valuable to these individuals; however, it does mean that the hurdles were a greater barrier to them than the license's perceived value.

3. Value of Licensure

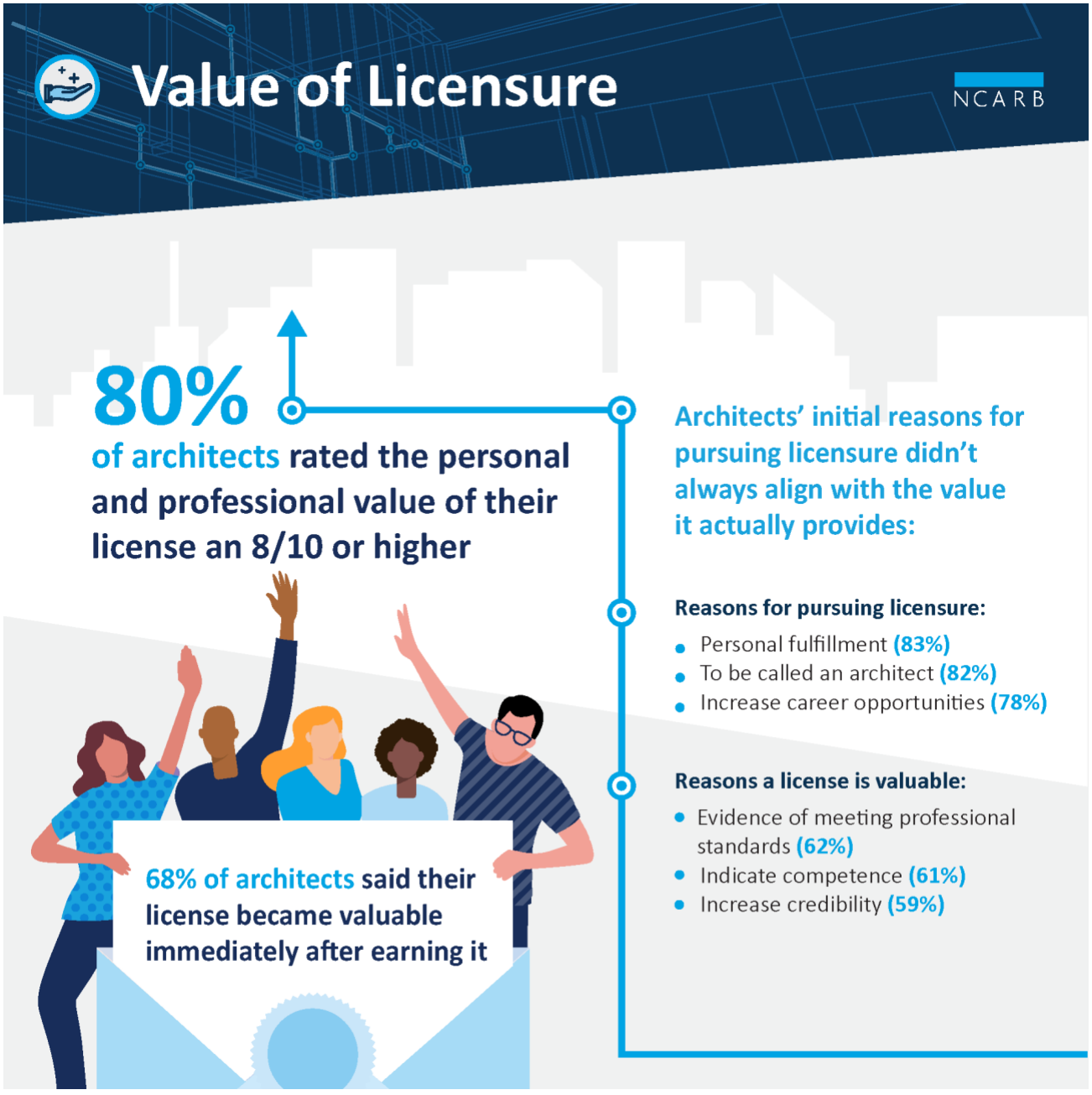
Although the responses to the value of licensure questions were generally similar across demographic groups, there were some notable group differences. For example, the professional value of a license to architects increased with years since initial licensure, years of experience in architecture, and age.

Subsequent portions of this section describe findings from individual survey questions, focusing on broad, general findings and identifying important group differences.

3. Value of Licensure

NCARB Supplemental Infographic: Value of Licensure

Earning a license to practice architecture can be a challenging, time-consuming, and expensive process—especially considering licensed and unlicensed individuals often work side by side in the architecture industry. To better understand how, why, and when a license is valuable to architects, NCARB created a supplemental infographic and blog post.



3. Value of Licensure

Questions Asked in This Section

Q3.1 Would you seek an architectural license if you could call yourself an architect without one?

Q3.2 When did you decide to pursue a career as a licensed architect?

Q3.3 If you are licensed, when did it FIRST become valuable to you?

Q3.4 If you are licensed, when did it become MOST valuable to you?

Q3.5 How valuable is an architectural license to you professionally? (0-10 scale)

Q3.6 How valuable is an architectural license to you personally?

Q3.7 To what extent do you agree or disagree that the value of a license means the same regardless of workplace location?

Q3.8 To what extent do you agree or disagree that the value of a license means the same regardless of workplace size?

Q3.9 To what extent do you agree or disagree that the value of a license means the same regardless of workplace culture?

Q3.10 Select the reason(s) why you decided to initially earn your license.

Q3.11 Select the reason(s) why the license is currently valuable to you.

Q3.12 Is having a license necessary for each action?

Q3.13 Having a license increases an architect's …

Q3.14 Why did you choose not to become licensed?

Single-part questions are in dark blue font; multi-part questions are in light blue font.

3. Value of Licensure

Demographic Variables Reviewed

The table on the following page lists the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[7] based on the size of the proportional difference between groups (see key below). For multi-part questions, the table notes which groups had notable differences on some/all parts.

[7] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = None; 1 < r < 1.5 = Small; 1.5 <= r < 2 = Moderate; r >= 2 = Large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

3. Value of Licensure

Demographic Variables Reviewed		Group Differences/Trends?													
		Q3.1	Q3.2	Q3.3	Q3.4	Q3.5	Q3.6	Q3.7	Q3.8	Q3.9	Q3.10	Q3.11	Q3.12	Q3.13	Q3.14
Licensure Status	Current status of architectural license	S	S			M	M	S	S	S	○				
	Years since initial/first license	S	S	S	S	M	S	S	M	S		○			
	Active NCARB Record	S	S	S	N	M	S	S	S	S					
Experience	Years of experience in architecture	S	S	S	S	M	S	S	S	S	○	○			
	Years of experience in related work field	S	S	S	S	S	S	S	S	S		○			
Workplace	Number of people at current workplace	S	S	S	S	S	N	S	S	S		○			
	Number of architects at current workplace	S	S	S	S	S	N	S	S	S	○	○			
	Workplace community	S	S	S	S	N	N	N	S	S					
Demographics	Gender	S	S	S	S	S	S	S	S	S	○	○			
	Race (by individual race)	M	M	S	N	N	N	N	S	S	○	○			
	Race (by white vs. non-white)	S	S	S	S	N	N	N	S	N					
	Ethnicity	S	S	S	S	N	N	N	S	N	○	○			
	Age	S	S	S	S	M	S	S	M	S	○				
Education	Highest degree	S	S	S	S	N	N	S	S	S					
	NAAB accredited program	S	S	S	S	N	N	S	S	S		○			

Key	
Single-Part Questions	**Multi-Part Questions**
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

3. Value of Licensure

Question: Would you seek an architectural license if you could call yourself an architect without one?

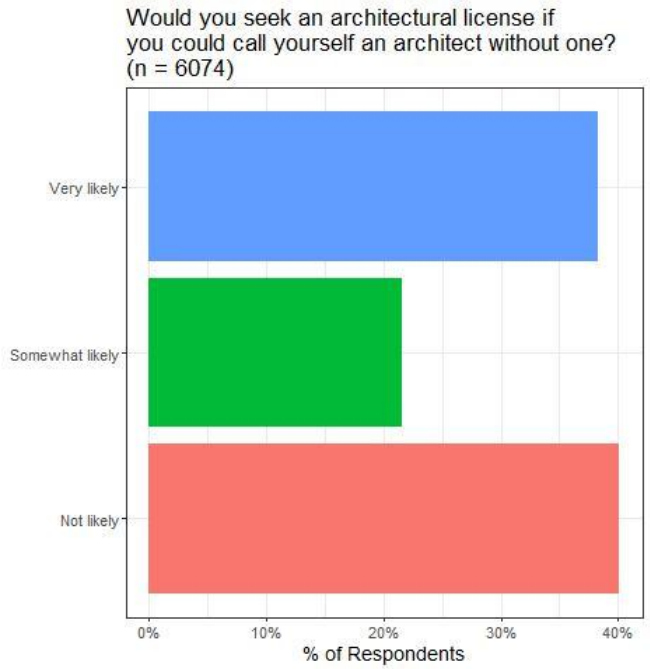
General Findings

- Overall, respondents were split as to whether they would seek an architectural license if they could call themselves an architect without one (see Figure 3.1). 38% responded they were very likely compared to 40% not likely.

- The pattern of responses to this question was similar across demographic groups.

Complete results for all groups are included in Appendix A-5.

Figure 3.1



Comparison to Phase II results: The overall Phase III results confirmed those of Phase II. Both the mini-engagement survey of Phase II (n = 316) and this survey found approximately 40% of those in the field of architecture were “not likely”, 20% were “somewhat likely”, and 40% were “very likely” to seek an architectural license if they could use the term “architect” without one.

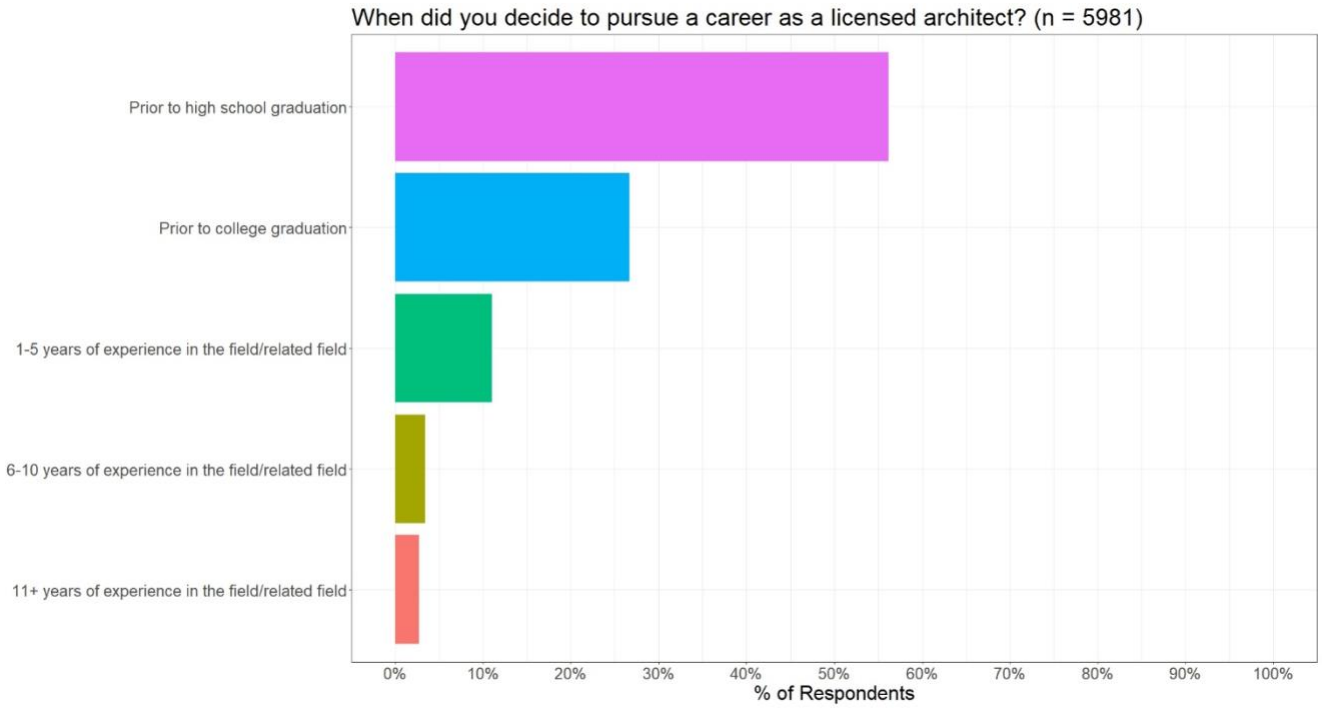
3. Value of Licensure

Question: When did you decide to pursue a career as a licensed architect?

General Findings

- Respondents tended to start pursuing a career in architecture during their educational experience (see Figure 3.2):
    - Most respondents (56%) decided to pursue a career as an architect prior to high school graduation. This was the most popular response among every respondent subgroup.
    - Choosing to pursue architecture prior to college graduation was the second most popular option (27%).
- It was very rare for respondents to report that they decided to pursue a career as an architect after working in the field: Only 6% of respondents reported deciding to pursue architecture after more than 5 years in a related field.

Figure 3.2



3. Value of Licensure

- The pattern of responses to this question was similar across demographic groups; however, in some cases, there were moderate differences. Specifically:
    - Race: Asian respondents tended to gravitate toward licensed architecture as a career later than other respondents: They were the least likely to report deciding to pursue architecture prior to high school graduation (34%).

Complete results for all groups are included in Appendix A-5.

Comparison to Phase II results: This question was not asked during Phase II.

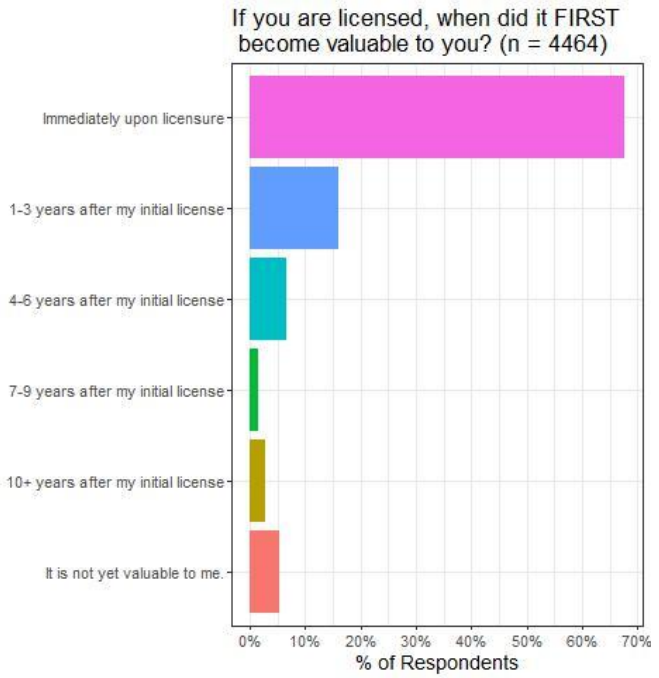
3. Value of Licensure

Question: If you are licensed, when did it FIRST become valuable to you?

General Findings

- Respondents realized the value of their license quickly: more than 2 in 3 respondents (68%) indicated that their license first became valuable to them immediately upon licensure. This was the most popular response among every respondent subgroup. See Figure 3.3.
- It was very rare for respondents to indicate that their license took longer to become valuable: only 16% of respondents reported that their license was not valuable within their first 3 years of licensure.
- The pattern of responses to this question was similar across demographic groups.

Figure 3.3



Comparison to Phase II results: Phase III results largely confirm those from Phase II. During Phase II, some recently licensed architects who participated in the web interviews as well as most My Story participants found immediate value in their license. Other architects indicated that the value of their license was realized over time. The results of the Phase III survey found that a license first becomes valuable to most architects immediately upon licensure or within the first 3 years of initial licensure.

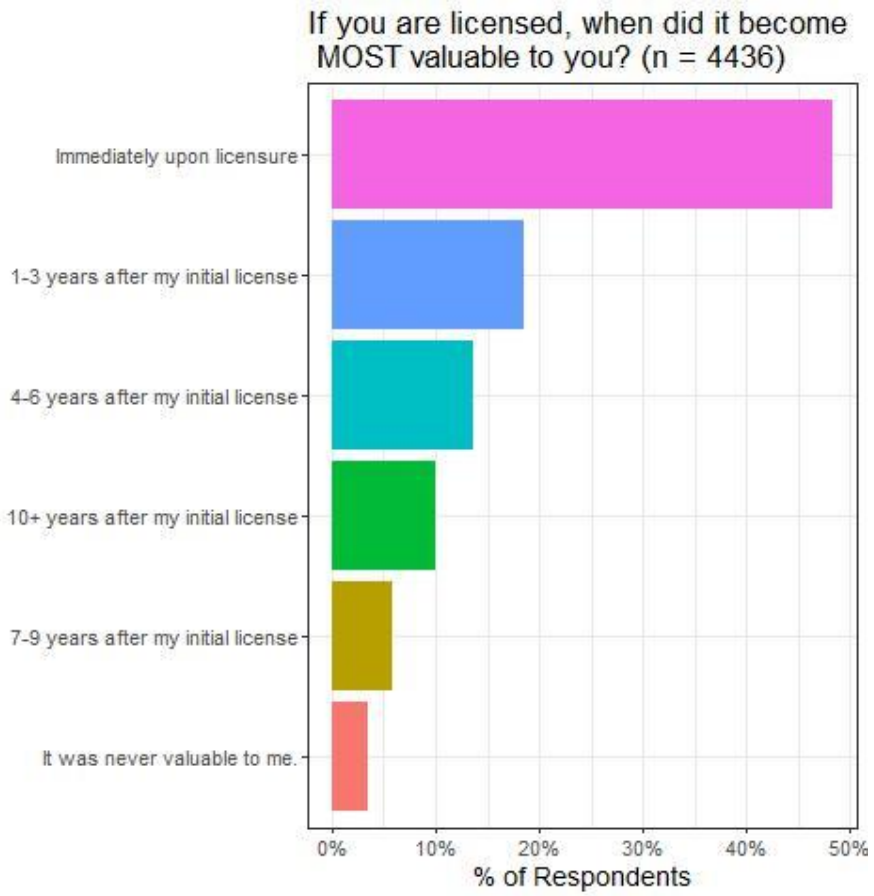
3. Value of Licensure

Question: If you are licensed, when did it become MOST valuable to you?

General Findings

- Most respondents felt that licensure became most valuable early after it was earned: 67% of respondents indicated that their license in architecture became most valuable to them within 3 years post-licensure. This was the most popular response among every respondent subgroup. See Figure 3.4.

Figure 3.4



Comparison to Phase II results: This question was not asked during Phase II.

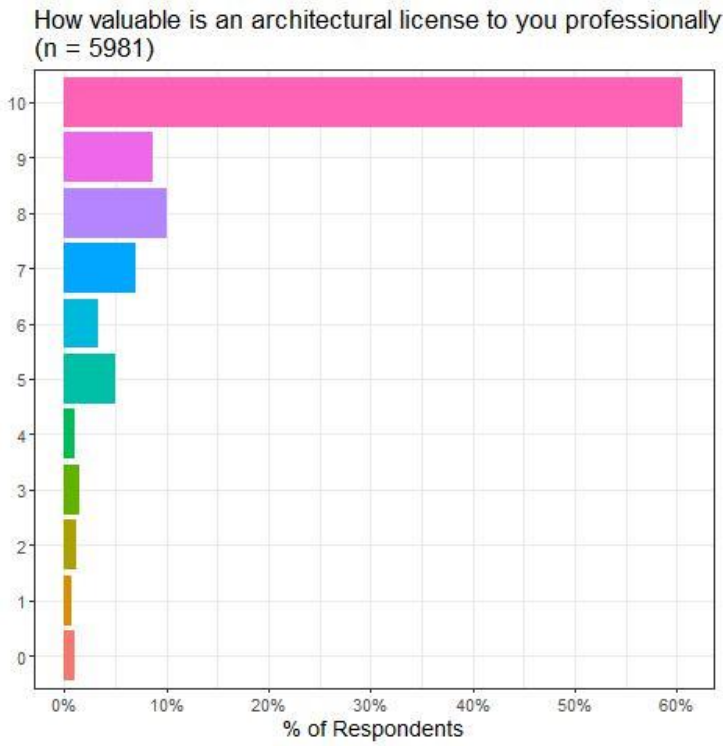
3. Value of Licensure

Question: How valuable is an architectural license to you professionally? (0-10 scale)

General Findings

- 61% of respondents rated the professional value of their license as 10 out of 10 and 79% rated it to be at least an 8 out of 10 (see Figure 9).
- Only 5% rated the professional value of their license below a 5 out of 10.
- Among all respondents, the average rating of the professional value of licensure was 8.7.
- The pattern of responses to this question was similar across demographic groups, but in some cases, there were moderate differences. The value of licensure was:
    - Highest for those who are currently licensed (as opposed to non-licensed respondents).
    - Higher as more years have passed since respondents were licensed.
    - Lower for licensure candidates, among all NCARB Record holders.
    - Highest for those with more years of experience in architecture.
    - Higher as respondents' age increased.

Figure 3.5



These results, as well as other smaller, but notable, group differences in responses are detailed in the following section.

3. Value of Licensure

Group Differences/Trends

Licensure Status

- Those who have never been licensed and are not planning to pursue licensure did not professionally value a license in architecture ($\bar{x}$ = 4.0[8]). Those pursuing a license found more value in the license professionally ($\bar{x}$ = 7.7) while those currently licensed professionally highly valued a license ($\bar{x}$ = 9.1).

- As the number of years since initial licensure increased, so did the value respondents placed on licensure. Respondents who earned their license in the last year averaged 7.8. This value increased steadily with experience, up to a maximum of 9.5 for respondents who earned their license 20 or more years ago.

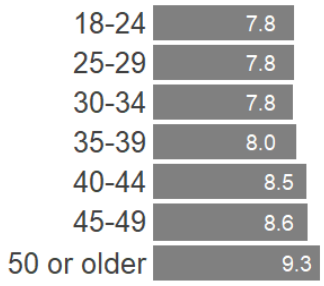
- Those who maintained an active NCARB Record because they were a licensure candidate found less value in a license professionally ($\bar{x}$ = 7.8) compared to those who were NCARB Certificate holders/architect Record holders ($\bar{x}$ = 9.1) and those who did not maintain an active NCARB Record ($\bar{x}$ = 8.9).

Experience

- On average, respondents with fewer than 20 years of experience in architecture rated the value of an architectural license to them professionally at approximately 8 out of 10. Those with 20 or more years of experience had an average rating of about 9 out of 10.

Age

- There was a positive relationship between the age of respondents and the average value of an architectural license to the respondents professionally. The average professional value an architecture license brought to respondents between 18 and 34 years of age was approximately 7.8 out of 10. This steadily increased for older respondents, up to an average of 9.3 out of 10 for respondents who are 50 years of age or older.



[8] There were only 35 respondents to this question who had never been licensed and were not planning to pursue.

3. Value of Licensure

Comparison to Phase II results: This question was not asked during Phase II.

3. Value of Licensure

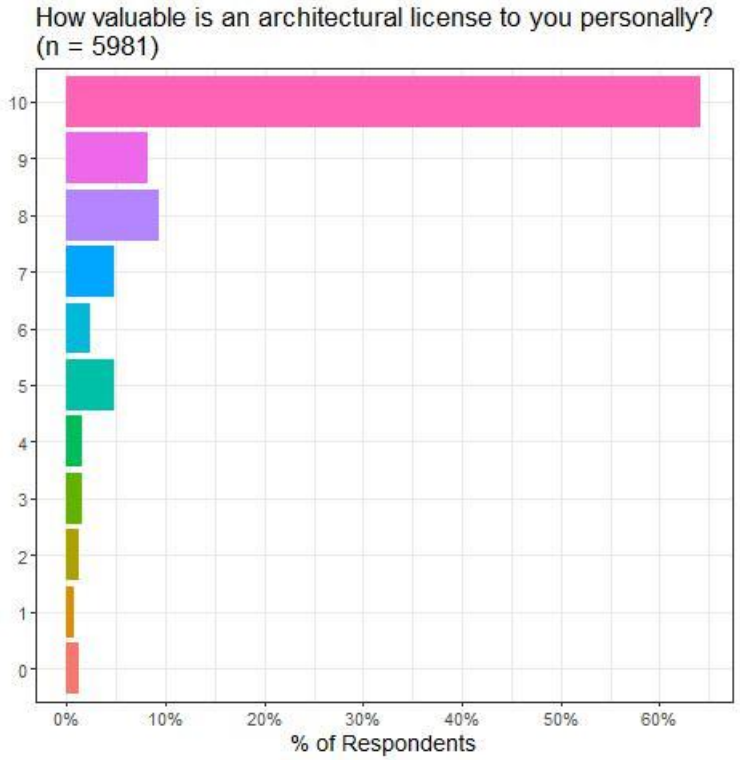
Question: How valuable is an architectural license to you personally?

General Findings

- 64% of respondents rated the personal value of their license as 10 out of 10, and 82% rated it at least an 8 out of 10 (see Figure 3.6).
- Only 6% rated the personal value of their license below a 5 out of 10.
- Among all respondents, the average rating of the value of a license personally to the individual respondent was 8.8.
- The pattern of responses to this question was similar across most demographic groups, but the personal value of licensure was highest for those who were currently licensed.

These results—as well as other smaller, but notable, group differences in responses—are detailed in the following section.

Figure 3.6



3. Value of Licensure

Group Differences/Trends

Licensure Status

- Those who have never been licensed and were not planning to pursue licensure did not personally value a license in architecture ($\bar{x}$ = 4.2[9]). Those pursuing a license found more value in the license personally ($\bar{x}$ = 7.8), while those who were currently licensed placed great personal value on a license ($\bar{x}$ = 9.2).

Comparison to Phase II results: This question was not asked during Phase II.

[9] There were only 35 respondents to this question who had never been licensed and were not planning to pursue.

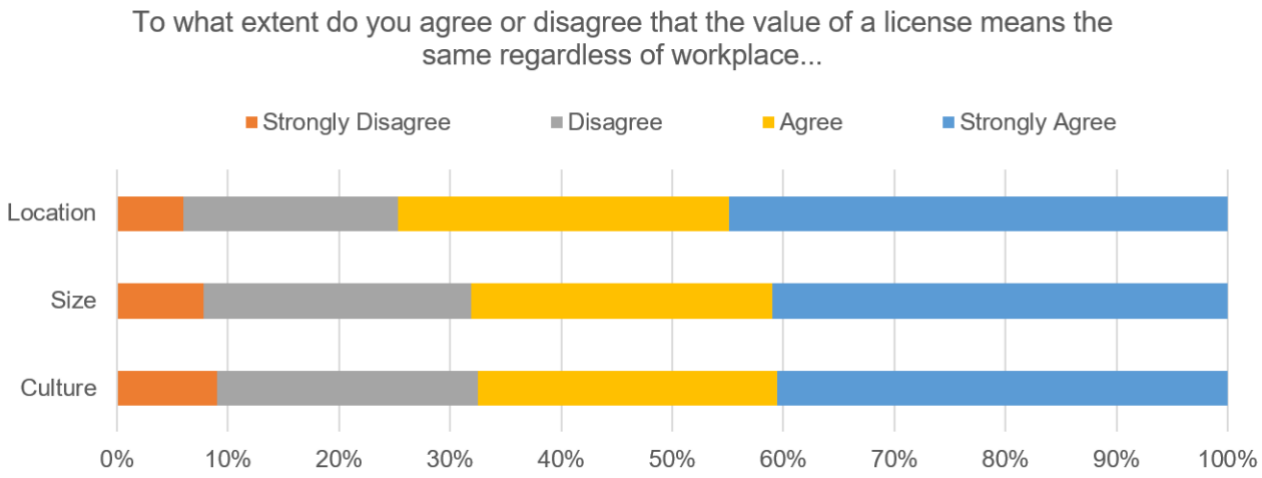
3. Value of Licensure

Question: To what extent do you agree or disagree that the value of a license means the same regardless of workplace a) location, b) size, c) culture?

General Findings

- 75%, 68%, and 67% of respondents either agreed or strongly agreed that the value of a license meant the same regardless of workplace location, size, or culture, respectively (see Figure 3.7).

Figure 3.7



- The pattern of responses to this question was similar across demographic groups, but in some cases, there were moderate differences. Specifically:
    - Years since initial licensure: The likelihood of agreeing increased with the number of years since licensure (for workplace size).
    - Age: Younger respondents were less likely to agree than older respondents (for workplace size).

    These results—as well as other smaller, but notable, group differences in responses—are detailed in the following section.

3. Value of Licensure

Group Differences/Trends

Licensure Status/Age

- There was a positive relationship between years since licensure and the percentage of respondents who agreed or strongly agreed that the value of a license meant the same regardless of workplace size.

The percentage steadily increased from 51% of those who earned their license less than 1 year ago to 79% of those who earned their license 20 or more years ago.

This trend was mirrored for different respondent age groups. The percentage steadily increased from 51% of those aged 18-29 to 77% of those ages 50+.

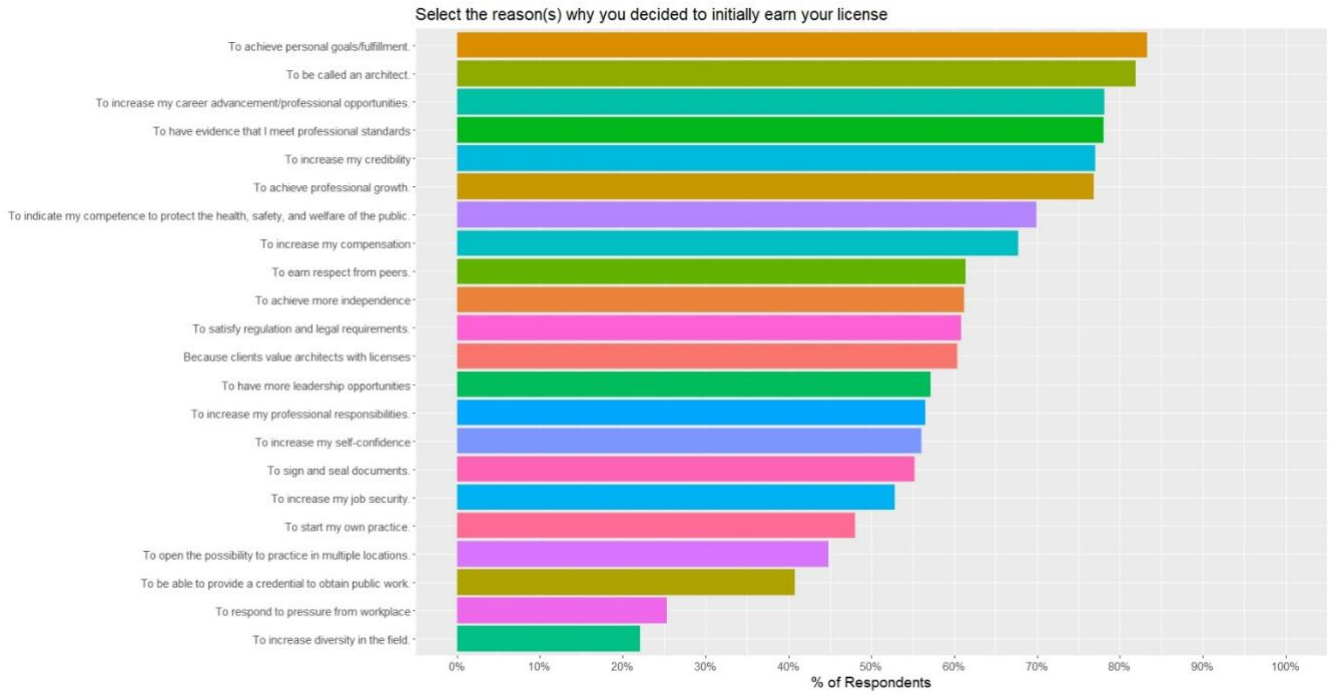
Comparison to Phase II results: During the Phase II online bulletin board and web interviews, architects indicated that the value of a license is not universal and that it depends on firm location, size, and culture. The Phase III results partially confirm these results: most respondents felt the value of licensure was the same regardless of firm location, size, and culture. However, some respondent groups, especially younger respondents and those earlier in their architectural careers, were more likely to respond that the value of a license varied by the firm location, size, or culture.

3. Value of Licensure

Question: Select the reason(s) why you decided to initially earn your license.

General Findings

Figure 3.8



- Figure 3.8 displays the reasons why architects initially decided to earn their license. As shown in this figure, the most common reasons why architects decided to initially earn their license were:
    - To achieve personal goals/fulfillment (83%)
    - To be called an architect (82%)
    - To increase my career advancement/professional opportunities (78%)
    - To have evidence that I meet professional standards (78%)
    - To increase my credibility (77%)
    - To achieve professional growth (77%)

3. Value of Licensure

- While the specific ranking of the top reasons varied slightly by demographic group, the top three reasons for nearly[10] all demographic groups were included in the list above.

Full results for all reasons and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

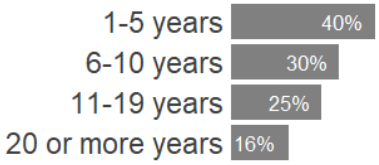
Group Differences/Trends

Licensure Status

- The top reason respondents pursuing their license decided to earn their initial license was to achieve personal goals/fulfillment (70%). This was the same top reason for those who are currently licensed (89%).

Experience

- As experience of respondents increased, the likelihood of citing increasing diversity in the field as a reason decreased. Respondents with 1-5 years of experience in architecture were 2.5 times more likely than those with 20+ years of experience to cite it as a reason (40% vs 16%).



Workplace

- There was a positive relationship between the number of architects at a respondent's workplace and the percentage of architects who indicated that an initial reason they decided to earn their license was to increase their credibility. Specifically, as the number of architects at a respondent's workplace increased from 0 to more than 100, the percentage providing this initial reason increased from 62% to 89%.

- Respondents who reported that there was only one architect at their workplace were the most likely to indicate to start my own practice as a reason (63% vs 37% for respondents who work with 10 or more architects).

[10] The one exception is for respondents with no architects at their workplace. Their #3 reason was "To sign and seal documents."

3. Value of Licensure

Demographics

- Citing increasing diversity in the field as a reason for seeking licensure was a major differentiator between demographic groups:
    - Female respondents were 2.7 times more likely than males (40% vs 15%).
    - Black or African American respondents were 3.5 times more likely than white respondents (60% vs 17%).
    - Hispanic, Latino, or Spanish respondents were 1.9 times more likely than respondents who are not Hispanic, Latino, or Spanish (38% vs 20%).
    - Younger respondents (25-29) were 2.2 times more likely than older respondents (50+) (38% vs 20%).

- See the table below for more details.

	Group	% Responding "To increase diversity in the field"
Gender	Male	15%
	Female	40%
Race	White	17%
	Asian	43%
	Black or African American	60%
	American Indian, Alaska Native, Native Hawaiian, or other Pacific Islander	45%
Ethnicity	Not Hispanic, Latino, or Spanish	20%
	Hispanic, Latino, or Spanish	38%

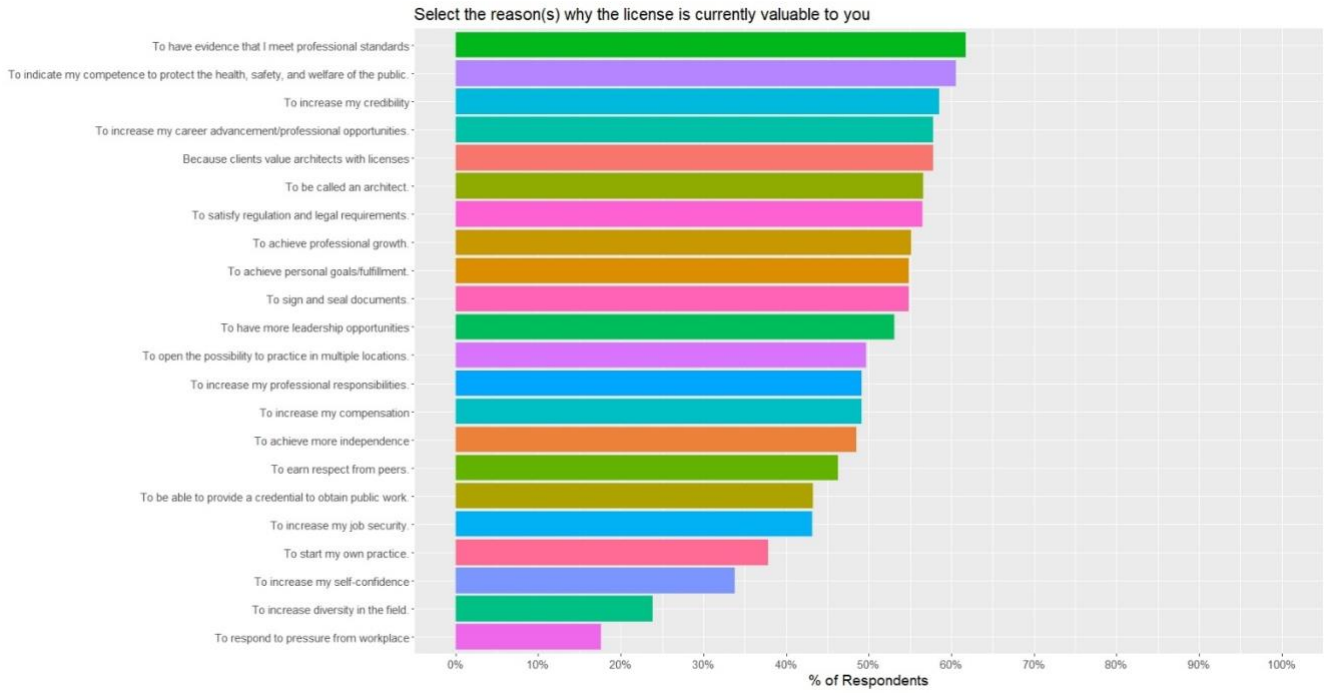
Comparison to Phase II results: During the Phase II research, multiple research activities suggested that architects earn a license to increase monetary rewards, to gain credibility, for personal fulfillment, to meet professional requirements, to increase job security, to advance their careers, to gain independence, to use the title "architect", to sign and seal documents, and to start their own firms. The results from the Phase III survey confirm these reasons.

3. Value of Licensure

Question: Select the reason(s) why the license is currently valuable to you.

General Findings

Figure 3.9



- Figure 3.9 displays the reasons why architects indicated a license was currently valuable to them. The most common reasons were:
    - To have evidence that I meet professional standards (62%)
    - To indicate my competence to protect the health, safety, and welfare of the public (61%)
    - To increase my credibility (59%)
    - To increase my career advancement/professional opportunities (58%)
    - Because clients value architects with licenses (58%)
    - To be called an architect (57%)
    - To satisfy regulation and legal requirements (57%)
- While the specific ranking of the top reasons varied by demographic group, the top three reasons for most demographic groups were included in the list above.

Full results for all reasons and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

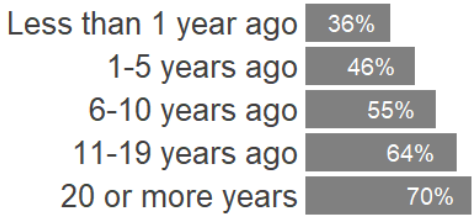
3. Value of Licensure

Group Differences/Trends

The top reasons a license is valuable were similar across groups. However, several reasons showed large differences in the percent of respondents who selected each reason across groups. Some of the largest group differences are described below.

Licensure Status

- There was a positive relationship between years since initial licensure and the percentage of architects who indicated that a current value to their license is to sign and seal documents. Specifically, as the years since an architect earned their initial license increased from less than 1 year ago to 20 or more years ago, the percentage indicating this as a current value increased substantially from 36% to 70%.



- As the years since an architect earned their initial license increased from 1-5 years ago to 20 or more years ago, the percentage indicating increasing job security as something that respondents currently value decreased steadily from 60% to 37%.

Experience

- There was a positive relationship between years of experience in both architecture and a related field and the percentage of architects who indicated that a current value to their license is to sign and seal documents. Specifically, as years of experience in architecture increased from 1-5 years to 20 or more years, the percentage of respondents who indicated this as a current value increased from 31% to 65%. Similarly, as years of experience in a related field increased from 1-5 years to 20 or more years, the percentage of respondents who indicated this as a current value generally increased from 41% to 61%.

- Respondents with 20+ years working in architecture were almost twice as likely as those with 1-5 years of experience to cite starting their own practice as a reason they currently value their license (43% versus 24%).

Workplace

- There was a negative relationship between number of staff at one's workplace and whether to sign and seal documents was a reason why a respondent's license was currently valuable. Specifically, as the number of employees increased from one to more than 100, the percentage indicating this as a reason decreased from 71% to 47%.

- Signing and sealing documents was the top reason cited by respondents who were the only architect at their workplace.

3. Value of Licensure

Demographics

- There was a positive relationship between age and whether to sign and seal documents was a reason why a respondent's license was currently valuable. Specifically, as the age group of respondents increased from 18-24 to 50 or older, the percentage indicating this as a reason increased from 22% to 66%.

- Female, non-white, and Hispanic, Latino, or Spanish respondents were much more likely to cite to increase diversity in the field as a reason for currently valuing licensure compared to their peers:

	Group	% Responding To increase diversity in the field
Gender	Male	17%
	Female	42%
Race	White	20%
	Asian	40%
	Black or African American	56%
	American Indian, Alaska Native, Native Hawaiian, or other Pacific Islander	36%
Ethnicity	Not Hispanic, Latino, or Spanish	22%
	Hispanic, Latino, or Spanish	40%

Education

- Respondents with a degree from a NAAB-accredited program were slightly more likely to cite opening the possibility to practice in multiple locations as a reason for currently valuing licensure (51% versus 42% for those without a degree from a NAAB-accredited program).

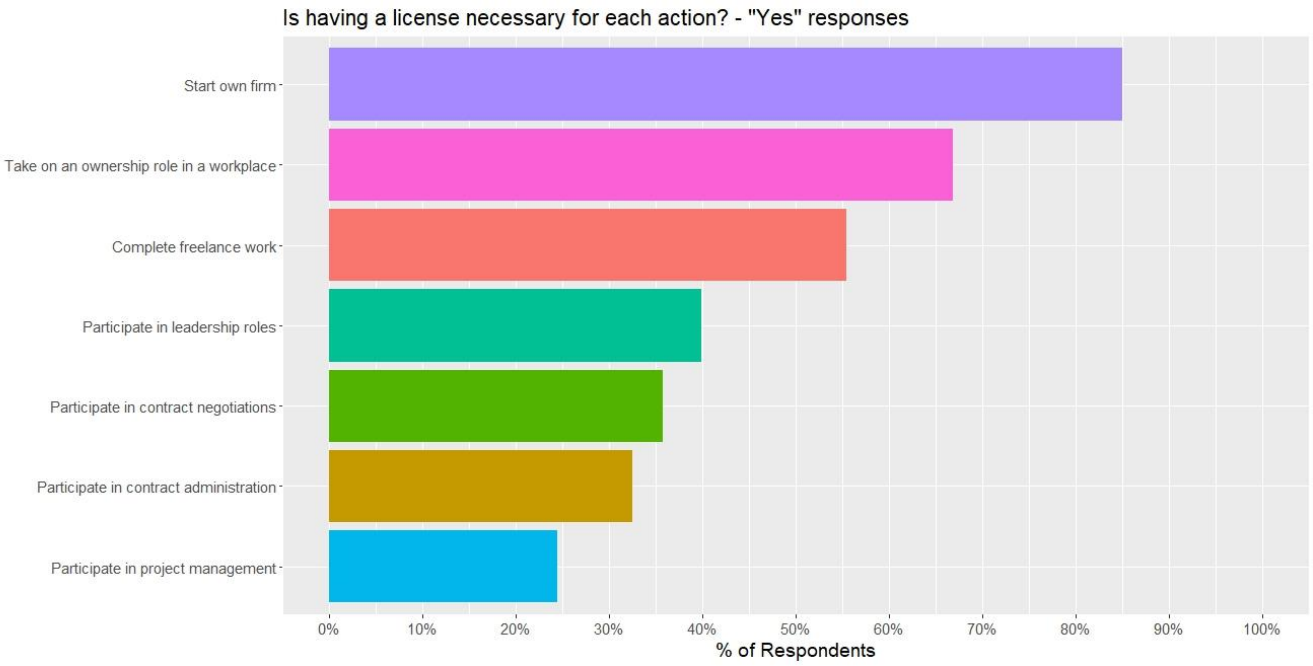
Comparison to Phase II results: During the Phase II research, multiple research activities suggested that architects earned a license to increase monetary rewards, to increase credibility, for personal fulfillment, to meet a professional requirement, to increase job security, to advance their careers, to gain independence, to use the title "architect", to sign and seal documents, and to start their own firms. The results from the Phase III survey confirm these reasons.

3. Value of Licensure

Question: Is having a license necessary for each action?

General Findings

Figure 3.10



- Figure 3.10 displays responses as to whether respondents believed that having a license is necessary for different activities. As shown in this figure, the activities for which respondents most often agreed that licensure was necessary included:
    - Start own firm (85%)
    - Take on an ownership role in a workplace (67%)
    - Complete freelance work (55%)
- The top three activities were the same for all demographic groups; starting one's own firm was always the most frequently cited. Ownership roles and freelance work were #2 and #3, in varying order depending on the group.

3. Value of Licensure

Full results for all reasons and groups are included in Appendix A-5.

Comparison to Phase II results: This question was not asked in Phase II. However, some My Story participants indicated that licensure became more valuable when they began freelancing or developing their own practice.

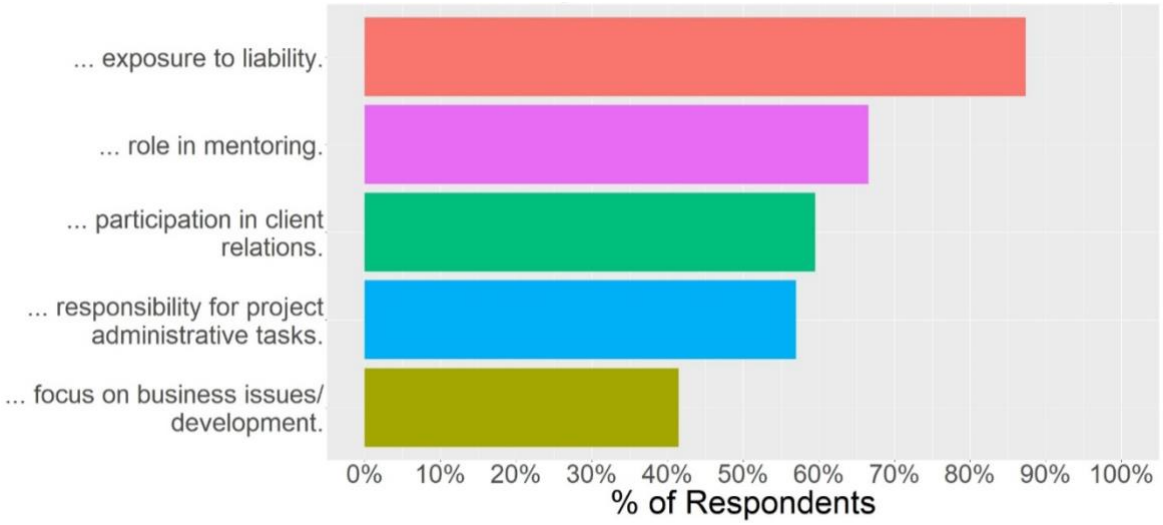
3. Value of Licensure

Question: Having a license increases an architect's …

General Findings

- Figure 3.11 displays the responsibilities that increase when one obtains an architecture license, according to survey respondents. The most frequently cited responsibilities include increases in exposure to liability (87%) and role in mentoring (67%).

Figure 3.11. Having a license increases an architect's …



- The pattern of responses was very similar across demographic groups. Exposure to liability was the top-rated response for all groups. Business issues/development was the fifth-rated response for all groups.

Full results for all reasons and groups are included in Appendix A-5.

Comparison to Phase II results: This question was not asked in Phase II. However, Phase II webinar participants occasionally mentioned increased exposure to liability and an increased role in mentoring when discussing how an architect's day-to-day job responsibilities change after becoming licensed.

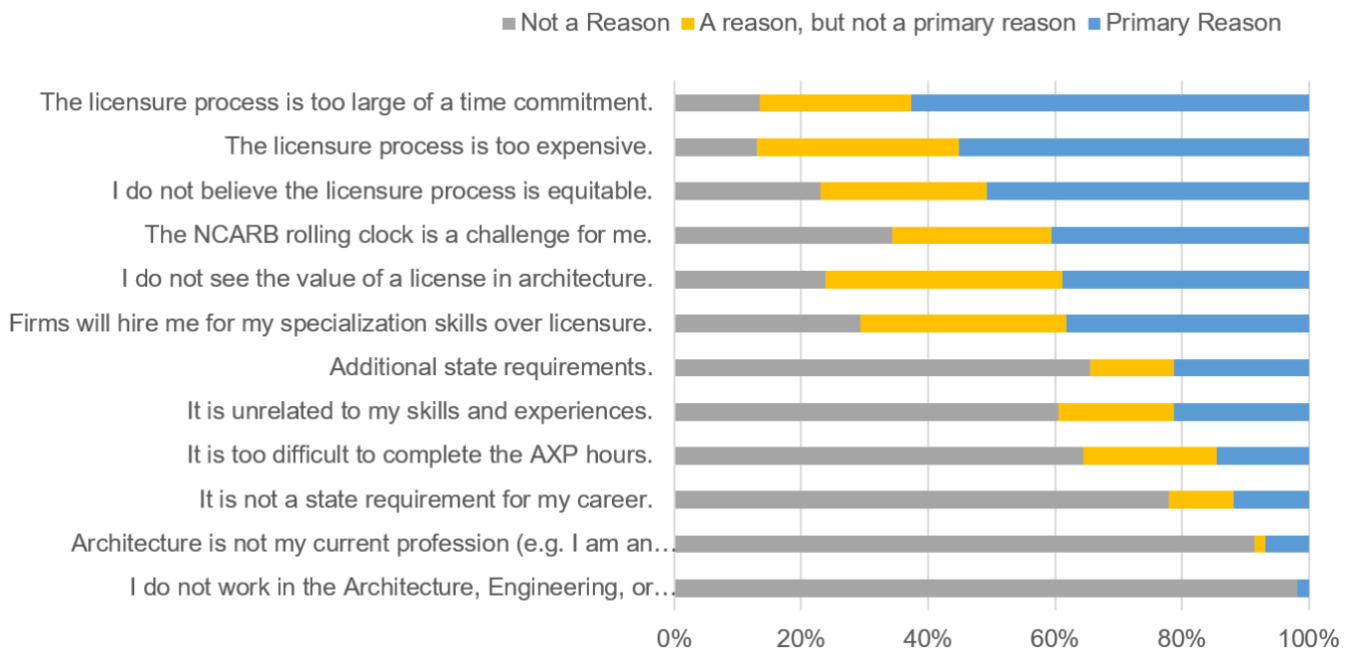
3. Value of Licensure

Question: Why did you choose not to become licensed?

General Findings

- Figure 3.12 displays the reasons respondents cited for not pursuing licensure. The most frequently cited primary reasons included:
    - The licensure process is too large of a time commitment (63%)
    - The licensure process is too expensive (55%)
    - I do not believe the licensure process is equitable (51%)

Figure 3.12. Why did you choose not to become licensed?



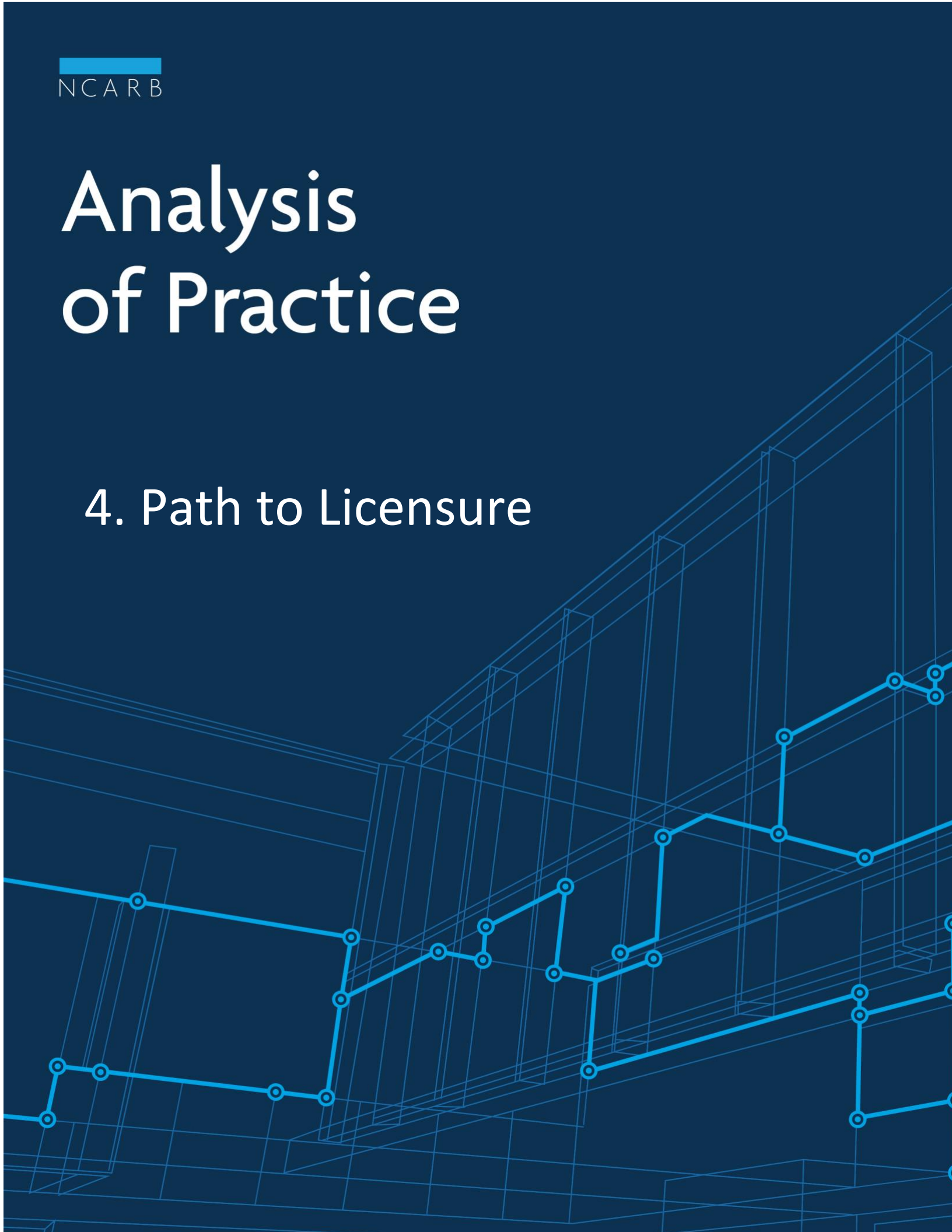
Note: These results are based on less than 70 respondents who were neither licensed nor in the licensure process. Caution should be exercised when attempting to generalize from these results, especially regarding small differences. Because of the small sample size, group comparisons are excluded. Full results for all groups are included in Appendix A-5.

Comparison to Phase II results: The Phase III results largely confirm the results from Phase II. Results from Phase II webinars and online bulletin boards suggest individuals would choose not to get licensed if they did not need a license for their career, there were too many licensure hurdles (e.g., difficulty getting AXP hours verified in a non-traditional firm setting), or they did not see value in the license.

NCARB

Analysis of Practice

4. Path to Licensure



4. Path to Licensure

Introduction

This section provides the results from the Path to Licensure, in which respondents shared their expectations of the knowledge, proficiencies, and experiences of licensure candidates[11].

The analysis for this section was filtered to include only individuals currently working in the field of architecture or students in the field of architecture or a related field. Selected results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

In general, survey respondents believed that licensure candidates should possess intermediate to expert knowledge in the areas of life safety (88%), construction documents (81%), and accessibility (81%). They should have similar levels of proficiency in professionalism (80%), critical thinking (78%), and problem-solving (80%).

On the path to licensure, candidates should gain moderate or extensive experience working on a project team from start to end (81%), working on different construction types (73%), working with interdisciplinary professionals (70%), and working with clients (69%). In addition, when asked how long licensure candidates should work under the supervision of an architect, the most common responses were between 3 and 5 years.

Somewhat counterintuitively, respondents who are pursuing a license and have fewer years of experience in architecture were more likely to believe that licensure candidates should demonstrate knowledge and proficiencies at an expert level or have extensive experience.

There was broad agreement that candidates should gain competency at a basic to intermediate level in areas including building envelopes, building systems, building performance, written and verbal communication, decision-making, and working with different construction types and different project types.

The areas in which candidates need only basic knowledge, proficiency, or experience include geotechnical understanding, cost estimation, scheduling, practice management, and practice and project financials.

During the path to licensure, licensure candidates should not be required to have knowledge, experience, or proficiency in areas such as marketing, technology skills (including 3D modeling and

[11] Survey respondents were instructed to base their responses on current practice.

4. Path to Licensure

rendering, virtual reality, augmented reality), sketching skills, networking, and multitasking. Respondents indicated that candidates should not be required to have specialized experience or work with diverse individuals (based on demographics such as age, ethnicity, or race).

The top responses to the path to licensure questions are fairly similar across demographic groups. There are no striking, high-level differences among the top responses based on a specific demographic variable. However, there are trends within demographic groups. For example, women, non-white respondents, and Hispanic, Latino, or Spanish respondents also tend to have uniformly higher expectations for licensure candidates.

Below are findings from individual survey questions that focus on broad, general findings and important group differences.

4. Path to Licensure

NCARB Supplemental Infographic: Value of Licensure

As part of the Analysis of Practice Study, respondents were asked to share their perspectives on the level of knowledge, proficiencies, and experience that candidates should have gained or demonstrated by the time they are licensed. To visualize these results, NCARB created a supplemental infographic and blog post.

4. Path to Licensure

Questions Asked in This Section

Q4.1 Approximately how many years should a candidate work under the supervision of a licensed architect to gain competency for independent practice, regardless of state requirements?

Q4.2 What level of knowledge should licensure candidates demonstrate in each area as part of the licensure process?

Q4.3 What level of proficiency should licensure candidates demonstrate in each area as part of the licensure process?

Q4.4 What level of experience should licensure candidates demonstrate in each area as part of the licensure process?

Single-part questions are in dark blue font; multi-part questions are in light blue font.

Demographic Variables Reviewed

The table on the following page lists the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[12] based on

[12] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2= large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into 7 different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

4. Path to Licensure

the size of the proportional difference between groups (see key on the following page). For multi-part questions, the table notes which groups had notable differences on some/all parts.

Demographic Variables Reviewed		Group Differences/Trends? Q4. 1	Q4. 2	Q4. 3	Q4. 4
Job Role	Responsible for hiring staff	N			
Licensure Status	Current status of architectural license	N	●	●	●
	Years since initial/first license	N		○	
	Active NCARB Record	N			
Experience	Years of experience in architecture	S		●	
Workplace	Number of architects at current workplace	N			
	Workplace community	N			
Demographics	Gender	N		●	
	Race (by individual race)	N			
	Race (by white vs. non-white)	N		●	
	Ethnicity	N	●	●	
	Age	N		●	
Specialization	Do you specialize				○

Key	
Single-Part Questions	Multi-Part Questions
N = None S = Small M = Moderate L = Large ■ = N/A	○ = Difference(s) observed on some part(s) ● = Differences observed on all parts ■ = N/A

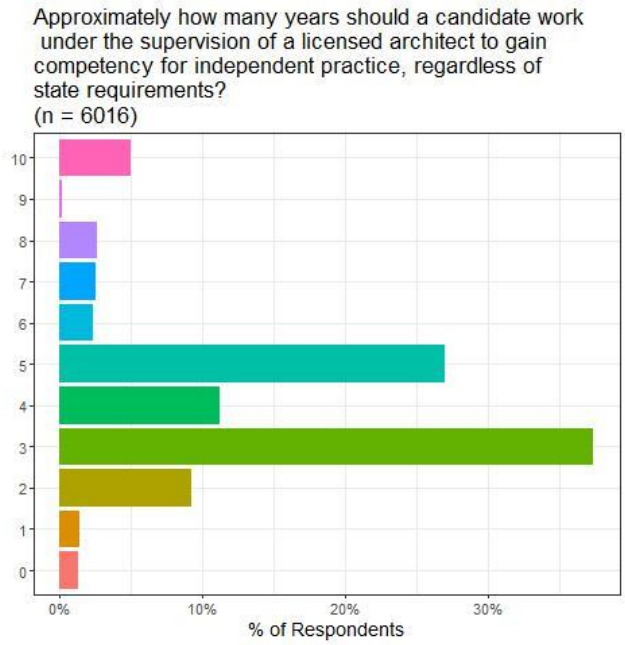
4. Path to Licensure

Question: Approximately how many years should a candidate work under the supervision of a licensed architect to gain competency for independent practice, regardless of state requirements?

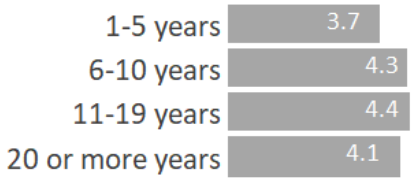
General Findings

- On average, respondents believed candidates should have 4.1 years of experience under a licensed architect. The most common responses were 3 years and 5 years.
- The pattern of responses to this question was similar across demographic groups: All groups with at least 100 respondents provided responses that averaged between 3.7 and 4.4 years.

Figure 4.1



- The largest group differences were based on experience in architecture. More experienced respondents expected candidates to have about 7 months more experience, on average.



Complete results for all groups are included in Appendix A-5.

Comparison to Phase II results: These results confirm Phase II results. In Phase II, architects typically suggested 2-6 years of experience should be required for licensure. Online bulletin board participants most often cited 3-4 years of experience should be required.

4. Path to Licensure

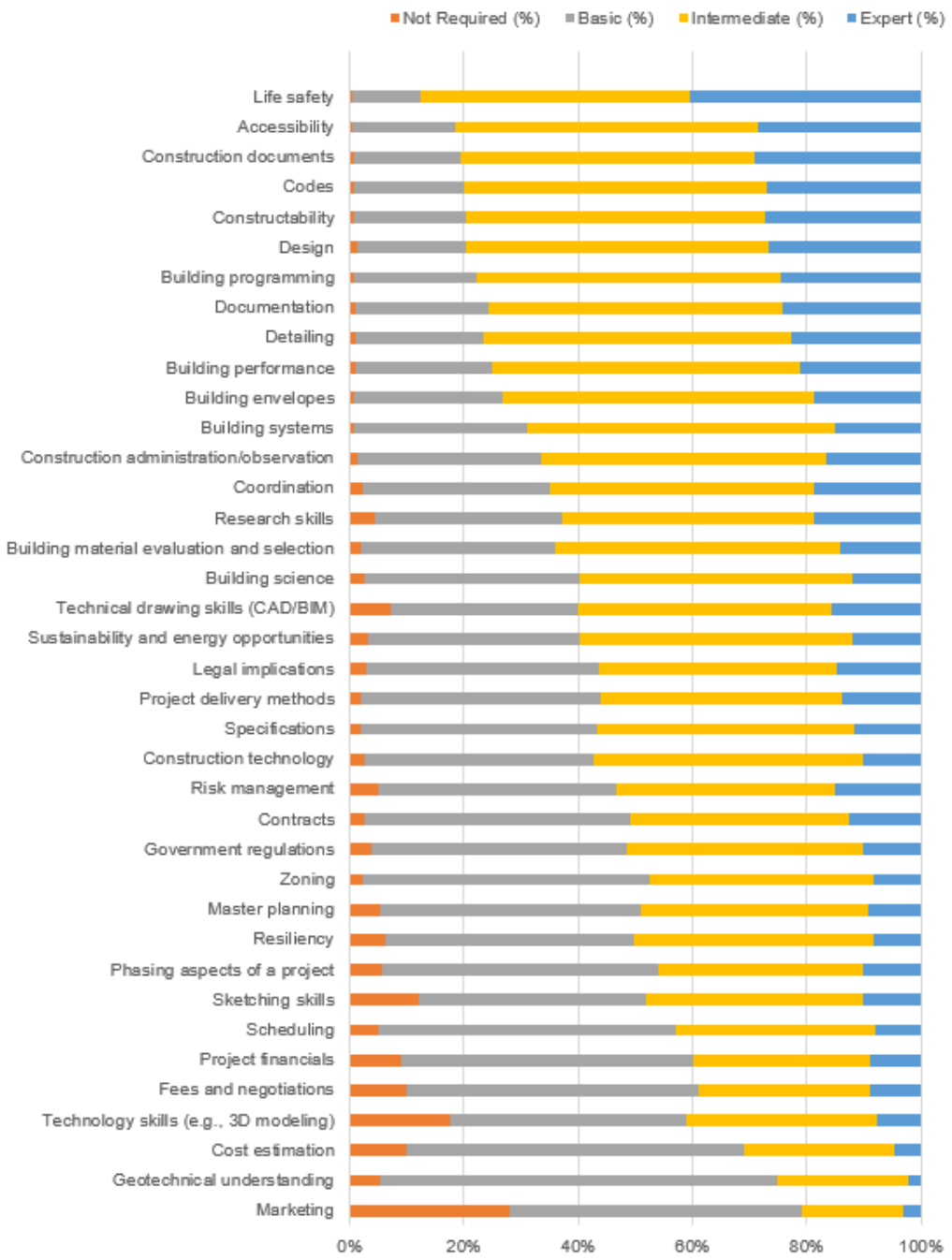
Question: What level of knowledge should licensure candidates demonstrate in each area as part of the licensure process?

General Findings

- The survey considered 38 areas of experience, which are summarized in Figure 4.2.
- Most respondents agreed that licensure candidates should demonstrate intermediate or expert knowledge in areas related to health, safety, and welfare, as all as design and documentation:
    - Life safety (88%)
    - Accessibility (81%)
    - Construction documents (81%)
    - Codes (80%)
    - Constructability (80%)
    - Design (80%)
    - Building programming (78%)
    - Documentation (76%)
    - Detailing (76%)
    - Building performance (75%)
- Not only did most respondents agree on the value of these areas; almost all subgroups agreed as well:
    - For every demographic group, life safety was the number one area where respondents expected expert knowledge.
    - All number two and number three areas for demographic subgroups were within the top six areas noted above.
- The bottom five areas where respondents indicated that licensure candidates should be able to demonstrate either intermediate or expert knowledge included areas related to business practices and more specialized knowledge:
    - Project financials (40%)
    - Fees and negotiations (39%)
    - Cost estimation (31%)
    - Geotechnical understanding (25%)
    - Marketing (21%)

4. Path to Licensure

Figure 4.2. What level of knowledge should licensure candidates demonstrate in each area as part of the licensure process?



- There were no areas where most respondents indicated that licensure candidates should be able to demonstrate expert knowledge (see blue bars in Figure 4.2). Similarly, there were no areas where a majority of respondents indicated that knowledge of that area by licensure candidates is not required (see orange bars in Figure 4.2).

4. Path to Licensure

- Figure 4.3 shows that all areas had average ratings in the basic/intermediate knowledge range. Life safety stands out as the area where respondents expected candidates to have the highest level of knowledge.

4. Path to Licensure

Figure 4.3. Content areas mapped to the average level[13] of expected candidate knowledge.

[13] Average values are calculated by assigning numerical values to the response categories (Not Required = 1, Basic = 2, Intermediate = 3, Expert = 4). Reference lines on the object reflect the midpoint between levels. For example, if an item received 50% "Basic" ratings and 50% "Intermediate" ratings, it would fall on the Intermediate/Basic line.

4. Path to Licensure

Group Differences/Trends

Licensure Status

- Respondents who are pursuing a license with less experience (less than 6 years) were uniformly more likely than licensed/more experienced respondents to expect licensure candidates to demonstrate expert knowledge in all knowledge areas.

Ethnicity

- Hispanic, Latino, or Spanish respondents were uniformly more likely than respondents who are not Hispanic, Latino, or Spanish to expect licensure candidates to demonstrate expert knowledge all knowledge areas.

Comparison to Phase II results: These results partially confirm Phase II results. While this question was not asked directly, multiple web Phase II interviewees did share that building code and compliance, contracts, and sustainability principles should continue to be included in preparation for licensure. Additionally, technology, including 3D modeling and rendering, virtual reality, and augmented reality [noted by most interviewees at the Association of Collegiate Schools of Architecture (ACSA) conference as well as ethnography participants] were noted as areas that should receive more attention.

4. Path to Licensure

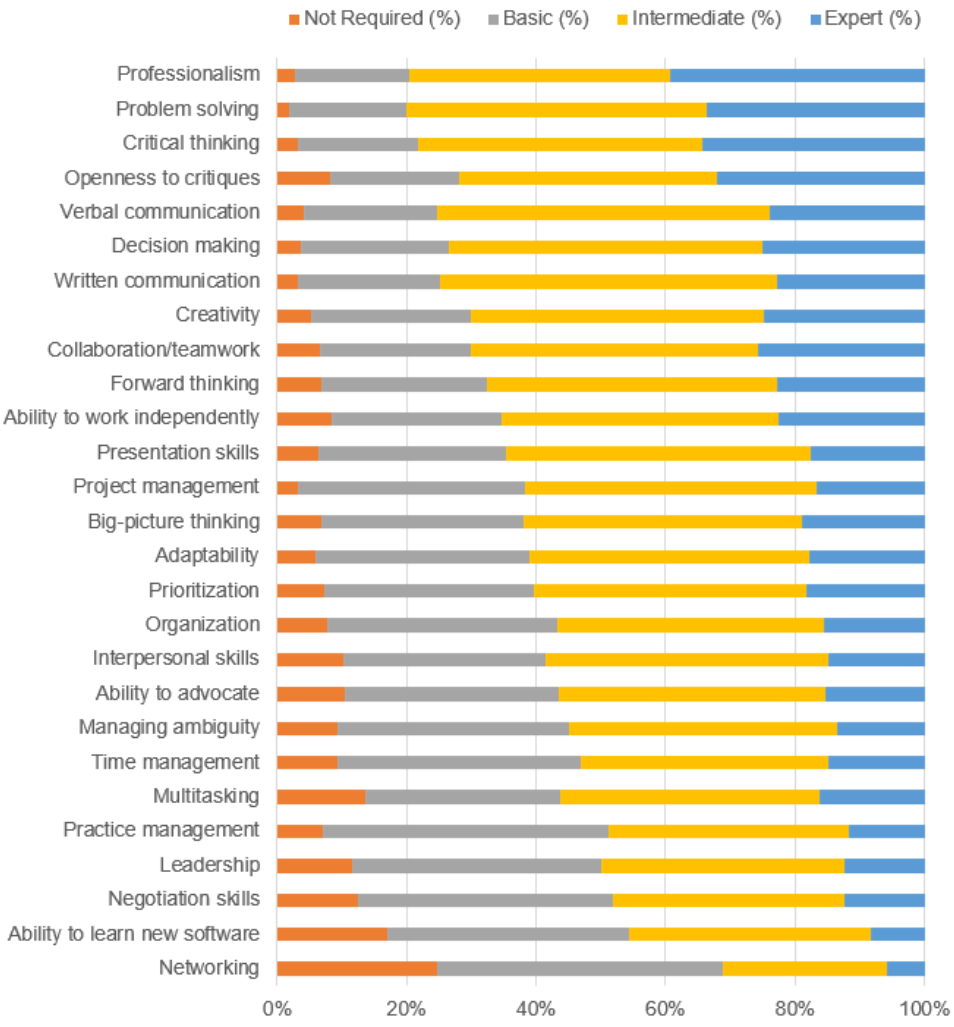
Question: What level of proficiency should licensure candidates demonstrate in each area as part of the licensure process?

General Findings

- The survey included 27 proficiencies, which are summarized in Figure 4.4.
- The top 10 areas where respondents indicated that licensure candidates should be able to demonstrate either intermediate or expert proficiency include several areas related to professional demeanor, critical thinking, and communication:
    - Problem solving (80%)
    - Professionalism (80%)
    - Critical thinking (78%)
    - Verbal communication (75%)
    - Written communication (75%)
    - Decision making (74%)
    - Openness to critiques (72%)
    - Collaboration/teamwork (70%)
    - Creativity (70%)
    - Forward thinking (68%)
- All demographic groups agreed on the top-rated proficiency areas:
    - Problem solving, professionalism, critical thinking, and openness to critiques were among the top two areas where respondents expected expert proficiency across all subgroups.
- The bottom five areas where respondents indicated that licensure candidates should be able to demonstrate either intermediate or expert proficiency include areas related to practice management and some specific interpersonal skills:
    - Leadership (50%)
    - Practice management (49%)
    - Negotiation skills (48%)
    - Ability to learn new software (46%)
    - Networking (31%)

4. Path to Licensure

Figure 4.4. What level of proficiency should licensure candidates demonstrate in each area as part of the licensure process?



- There were no areas where a majority of respondents indicated that licensure candidates should be able to demonstrate expert proficiency (see blue bars in Figure 4.4). Similarly, there were no areas where a majority of respondents indicated that proficiency in that area by licensure candidates is not required (see orange bars in Figure 4.4).
- Figure 4.5 shows that all areas had average ratings in the basic/intermediate proficiency range. As noted above, professionalism, problem solving, and critical thinking stand out as areas where respondents expected candidates to have the highest level of proficiency.

4. Path to Licensure

4. Path to Licensure

Figure 4.5. Content areas mapped to the average level[14] of expected candidate proficiency.

[14] Average values are calculated by assigning numerical values to the response categories (Not Required = 1, Basic = 2, Intermediate = 3, Expert = 4). Reference lines on the object reflect the midpoint between levels. For

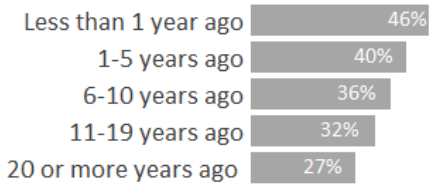
4. Path to Licensure

Group Differences/Trends

Licensure Status

- Respondents pursuing a license were uniformly more likely than licensed respondents to indicate expert proficiency was necessary. This was true across all areas for this question. Averaged across areas, 27% of respondents pursuing a license expected expert proficiency, compared to an average of 17% for currently licensed respondents.

- As the years since initial license of respondents increases, expectations regarding critical thinking steadily decrease. Respondents who earned their license less than one year ago were 1.7 times more likely than those who earned their license 20+ years ago to expect expert proficiency in this area (46% versus 27%).



Experience

- Respondents with less experience were uniformly more likely than more experienced respondents to indicate expert proficiency was necessary. This was true across all areas for this question. Averaged across areas, 29% of respondents with 1-5 years' experience expected expert proficiency, compared to an average of 17% for those with 20 or more years.

Demographics

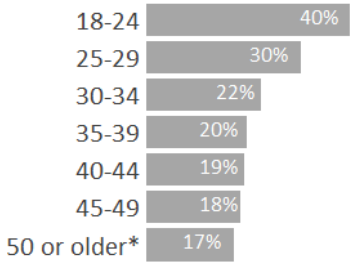
- Female, non-white, and Hispanic, Latino, or Spanish respondents were uniformly more likely than their counterparts to indicate expert proficiency was necessary across all areas for this question.

example, if an item received 50% "Basic" ratings and 50% "Intermediate" ratings, it would fall on the Intermediate/Basic line.

4. Path to Licensure

- The effect was most pronounced for Hispanic, Latino, or Spanish respondents: Averaged across areas, 27% of these respondents expected expert proficiency, compared to an average of 18% for respondents who were not Hispanic, Latino, or Spanish.

- As respondent age increases, expectations of expert proficiency in all areas steadily decrease. Respondents aged 18-24 average 40% across all areas, compared to 17% for those 50 or older.



Comparison to Phase II results: These results partially confirm Phase II results. While this question was not asked directly, Phase II webinar respondents did report that areas like the ability to work collaboratively in a team and communication skills were competencies they did not have to demonstrate to earn a license. However, these respondents felt these competencies should have been required.

4. Path to Licensure

Question: What level of experience should licensure candidates demonstrate in each area as part of the licensure process?

General Findings

- The survey included 11 areas of experience, which are summarized in Figure 4.6.
- The top five areas where respondents indicated that licensure candidates should be able to demonstrate either moderate or extensive experience include working on a variety of stages and types of projects, as well as working with various professionals and clients:
    - Experience working on a project from start to end (81%)
    - Experience with different construction types (73%)
    - Experience working with an interdisciplinary group of professionals (70%)
    - Experience working with clients (69%)
    - Experience with different project types (68%)
- There was substantial similarity across all groups regarding the top-rated areas:
    - Experience working on a project from start to end was the number one area where respondents expected expert knowledge for every respondent subgroup.
    - The number two areas for the different respondent subgroups were all within the top four areas noted above.
- The bottom three areas where respondents indicated that licensure candidates should be able to demonstrate either moderate or extensive experience include areas related to financial and more specialized experience:
    - Experience working with diverse individuals (47%)
    - Experience with practice financials (36%)
    - Specialized experience (29%)
- There were no areas where a majority of respondents indicated that licensure candidates should be able to demonstrate extensive experience (see blue bars in Figure 4.6, below). Similarly, there were no areas where a majority of respondents indicated that experience is not required (see orange bars in Figure 4.6, below).
- Figure 4.7 shows that all areas had average ratings in the minimal/moderate experience range. Working on a project from start to finish stands out as the area where respondents expected candidates to have the greatest amount of experience.

4. Path to Licensure

Figure 4.6. What level of experience should licensure candidates demonstrate in each area as part of the licensure process?

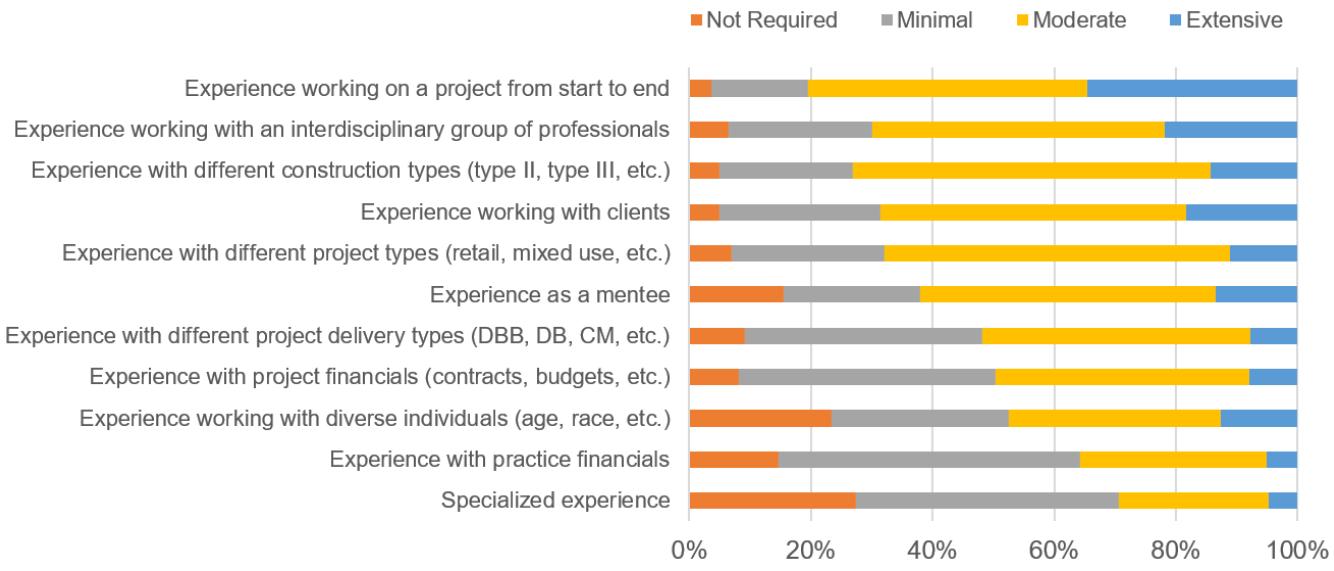


Figure 4.7. Content areas mapped to the average level[15] of expected candidate experience.

4. Path to Licensure

Group Differences/Trends

Licensure Status

- Respondents who are pursuing a license with less experience (less than 6 years) were uniformly more likely than licensed/more experienced respondents to expect licensure candidates to demonstrate expert knowledge all knowledge areas.

Specialization

- Respondents who identified as having a specialty were 1.3 times more likely than respondents without a specialty to expect candidates to have intermediate or extensive specialized experience (31% vs 24%).

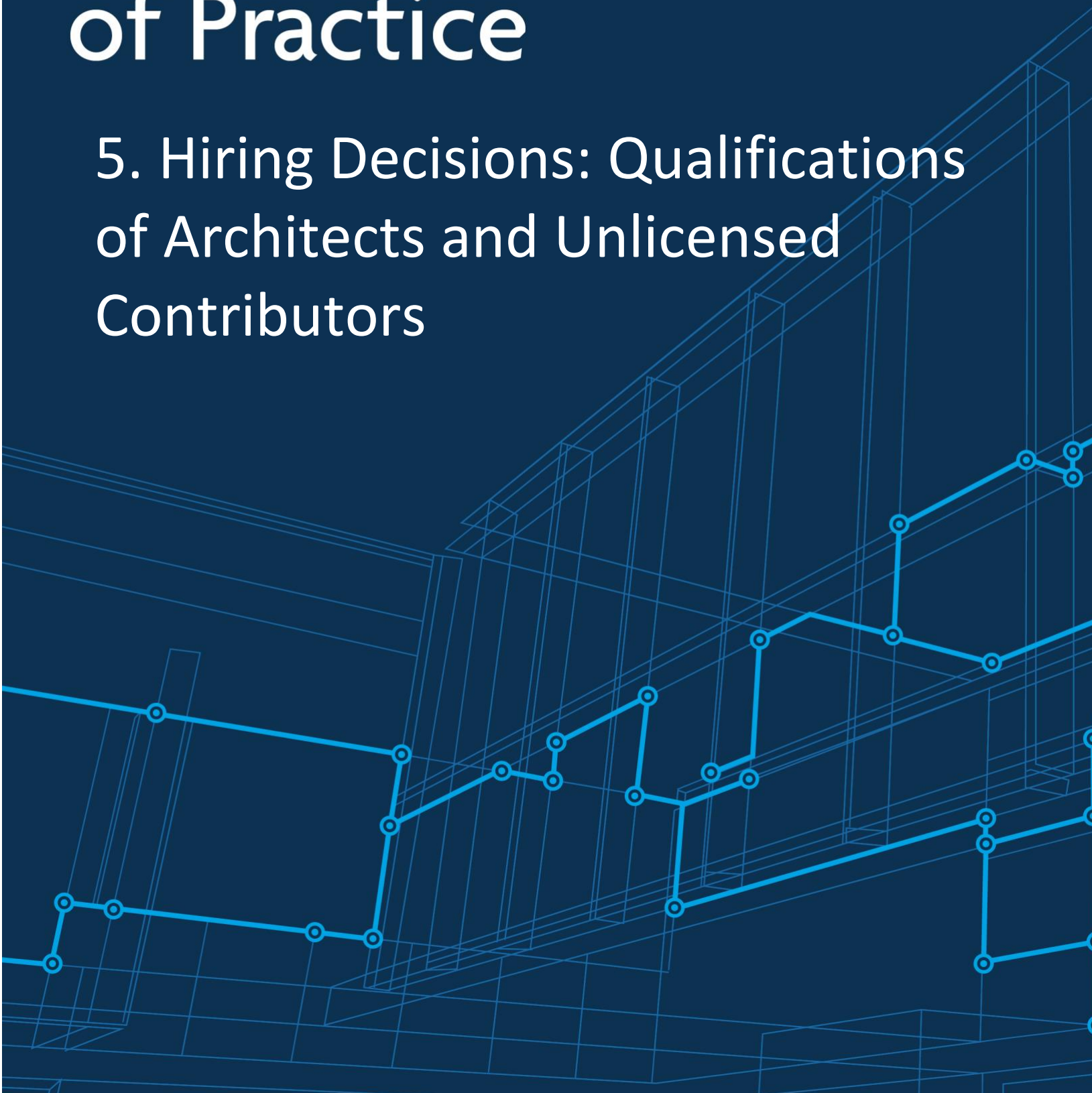
Comparison to Phase II results: These results partially confirm Phase II results. While this question was not asked directly, a few architects who participated in the Phase II online bulletin boards suggested that the next generation of architects need real-world experiences that include working with a diverse group of professionals.

[15] Average values are calculated by assigning numerical values to the response categories (Not Required = 1, Basic = 2, Intermediate = 3, Expert = 4). Reference lines on the object reflect the midpoint between levels. For example, if an item received 50% "Basic" ratings and 50% "Intermediate" ratings, it would fall on the Intermediate/Basic line.

NCARB

Analysis of Practice

5. Hiring Decisions: Qualifications of Architects and Unlicensed Contributors



5. Hiring Decisions

Introduction

This section provides the results from the Hiring Decisions section of the Analysis of Practice survey. The analyses presented in this section address questions related to the qualifications and general expectations for new hires at junior, intermediate, and senior experience levels.

The analysis for this section was filtered to include only those in the field of architecture and only those responsible for hiring. Significant results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

Individuals who make hiring decisions at their place of employment responded to the questions in this section. Respondents were asked general questions about the hiring process, as well as requirements for junior-, intermediate-, and senior-level architects and those who are not licensed.

Most respondents (75%) agreed or strongly agreed that their workplace actively seeks diversity when hiring architects. In terms of degree requirements, most (78%) agreed or strongly agreed that their firm will hire a technical employee (licensed or unlicensed) who has not earned a degree from a NAAB-accredited program. Additionally, respondents indicated that their workplace values a technical employee with a Bachelor of Architecture degree just as much as one with a Master of Architecture degree.

Junior-Level Architects

The top areas respondents indicated that junior-level architects must be knowledgeable in include: technical drawing (CAD/BIM), technology (including 3D modeling and rendering, virtual reality, and augmented reality), design, research, and sketching.

According to survey respondents, junior-level architects must also have the skills and abilities to complete a variety of tasks, the most common of which are CAD/BIM-related tasks, production work, sketching, tasks they could complete at a lower cost than more experienced architects or other professionals, and design tasks. They must also demonstrate proficiency in their ability to learn new software, openness to critiques, collaboration/teamwork, and professionalism. Respondents indicated that it is least important for them to be proficient in project management, practice management, written communication, leadership, and networking.

In terms of experience and certification requirements, respondents indicated that an average of 2.28 years of experience are required to be considered a junior-level technical employee (licensed or unlicensed) at their workplace. Between 15% and 30% of these individuals indicated that (licensed) architects at this level must have experience working with diverse individuals, working with an interdisciplinary group of professionals, and working on a project team from start to end.

5. Hiring Decisions

Certifications tend not to be essential at this level; however, there is a slight preference (<30%) for junior-level architects to hold a LEED certification or have a specialization/specific project typology experience.

Intermediate-Level Architects

The top areas in which respondents indicated that intermediate-level architects must be knowledgeable include construction documents, documentation, detailing, codes, life safety, accessibility, technical drawing skills (CAD/BIM), and design. Architects at this level must be able to work on complex projects and be responsible for HSW (health, safety, and welfare) accountability and regulatory tasks (e.g., signing and sealing documents).

According to survey respondents, intermediate-level architects must also demonstrate proficiency in collaboration/teamwork, professionalism, problem solving, verbal communication and written communication. While many of these and other non-cognitive skills are equally important, less than half of respondents indicated that architects at this level must be proficient in leadership and networking.

In terms of experience and certification requirements, most respondents indicated that an average of 5.10 years of experience are required to be considered an intermediate-level employee (licensed or unlicensed) at their workplace. Architects (licensed) at this level must have experience working on a project from start to end, working with an interdisciplinary group of professionals, working with clients, working with different construction types (type I, type II, etc.) and working with different project types (retail, mixed use, etc.).

Experience with practice financials was the least important, according to survey respondents. Certifications tend not to be essential at this level; however, there was some preference (40%-50%) for intermediate-level architects to hold a LEED certification or have a specialization/specific project typology experience.

Senior-Level Architects

Senior-level architects were expected to be knowledgeable in a wide range of knowledge, skills, and abilities; demonstrate proficiency in many areas; and have extensive experience to be hired. According to survey respondents, the top areas in which an architect at this level must be knowledgeable include contracts, coordination, life safety, constructability, and legal implications of practice. However, respondents agreed that most of the knowledge areas available in the study are equally important at this level.

The main exceptions are for sketching skills, technical skills (CAD/BIM), and technology skills, including 3D modeling and rendering, virtual reality, and augmented reality. While these were top knowledge areas for junior-level architects, they were at the bottom of the list for senior-level architects.

5. Hiring Decisions

Respondents indicated that intermediate/senior-level architects would be hired to work on complex projects (97%), HSW (health, safety, and welfare) accountability (96%), and regulatory tasks (e.g., signing and sealing documents) (95%). They must also demonstrate proficiency in such areas as decision making, leadership, problem solving, project management, professionalism, and many more. The only non-cognitive skill that less than half of respondents indicated senior architects must be proficient in was being able to learn new software.

In terms of experience and certification requirements, most respondents indicated that an average of 9.25 years of experience are required to be considered a senior-level employee (licensed or unlicensed) at their workplace. Architects (licensed) at this level must have a variety of experience. Some of the most common experience requirements include working with clients, working on a project from start to end, and experience with project financials. The least required experience—which half of all respondents still indicated was required—is specialized experience.

For senior-level architects, certifications were preferred by some respondents. Specifically, about 40%-50% of respondents indicated a preference for senior architects to hold a LEED certification or have a specialization/specific project typology experience. Even fewer (about 25%) indicated that a specialization or specific project typology experience is a requirement.

Experienced, Non-Licensed Contributors

Respondents indicated that there are many tasks experienced, non-licensed contributors may be hired to complete at a workplace. The most common tasks include cost estimation, business development, tasks requiring a specialization, and tasks related to performing specification writing. The least common reason such an individual would be hired is for regulatory purposes (e.g., signing and sealing documents).

For all levels, the responses to the hiring decision questions were similar across demographic groups. While there were some differences in responses, there were few high-level differences among the top responses based on a specific demographic variable.

Subsequent portions of this section describe findings from individual survey questions, focusing on broad, general findings as well as identifying important group differences.

5. Hiring Decisions

NCARB Supplemental Infographic: Hiring Decisions

While the core purpose of NCARB's Analysis of Practice is to inform the evolution of the requirements for licensure, NCARB also wanted to distinguish between the knowledge and skills necessary for licensure, versus what knowledge and skills firms look for when hiring. To better understand how hiring decisions are made, [NCARB created a supplemental infographic and blog post](#).

5. Hiring Decisions

Questions Asked in This Section

Q5.1 What is the minimum number of years of experience required at your workplace to be considered a junior-level technical employee (licensed or unlicensed)?

Q5.2 What is the minimum number of years of experience required at your workplace to be considered an intermediate-level technical employee (licensed or unlicensed)?

Q5.3 What is the minimum number of years of experience required at your workplace to be considered a senior-level technical employee (licensed or unlicensed)?

Q5.4 How essential is each qualification for hiring _____-level architects at your workplace (i.e., are these qualifications preferred or required)?

To what extent do you agree or disagree with each statement?

Q5.5 My workplace will hire a technical employee who has not earned a degree from a NAAB-accredited program.

Q5.6 My workplace actively seeks diversity when hiring architects.

Q5.7 My workplace equally values a technical employee with a Bachelor of Architecture or Master of Architecture degree.

Q5.8 Indicate whether a junior-, intermediate-, and/or senior-level architect must have knowledge in each area to be hired.

Q5.9 Indicate whether a junior-, intermediate-, and/or senior-level architect must be proficient in each area to be hired.

Q5.10 Indicate whether a junior-, intermediate-, and/or senior-level architect must have experience in each area to be hired.

Q5.11 Indicate who your workplace would hire to complete each task.

Single-part questions are in dark blue font; multi-part questions are in light blue font.

5. Hiring Decisions

Demographic Variables Reviewed

The table on the following page lists the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[16] based on the size of the proportional difference between groups (see key on the following page). For multi-part questions, the table notes which groups had notable differences on some/all parts.

[16] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2= large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

5. Hiring Decisions

Demographic Variables Reviewed		Group Differences/Trends?										
		Q5.1	Q5.2	Q5.3	Q5.4	Q5.5	Q5.6	Q5.7	Q5.8	Q5.9	Q5.10	Q5.11
Experience	Years of experience in architecture	S	S	N		S	S	S				○
	Years of experience in related work field	S	S	N		S	S	S	○	○		
Workplace	Number of people at current workplace	S	N	S		S	S	S				
	Number of architects at current workplace	S	N	S	○	S	S	S	○		○	○
	Workplace location	N	N	N		S	S	S				
	Workplace community	N	N	N		S	S	S			○	
Demographics	Gender					S	S	S				
	Race (by individual race)					S	S	S				
	Race (by white vs. non-white)					S	S	S				
	Ethnicity					N	S	S				

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

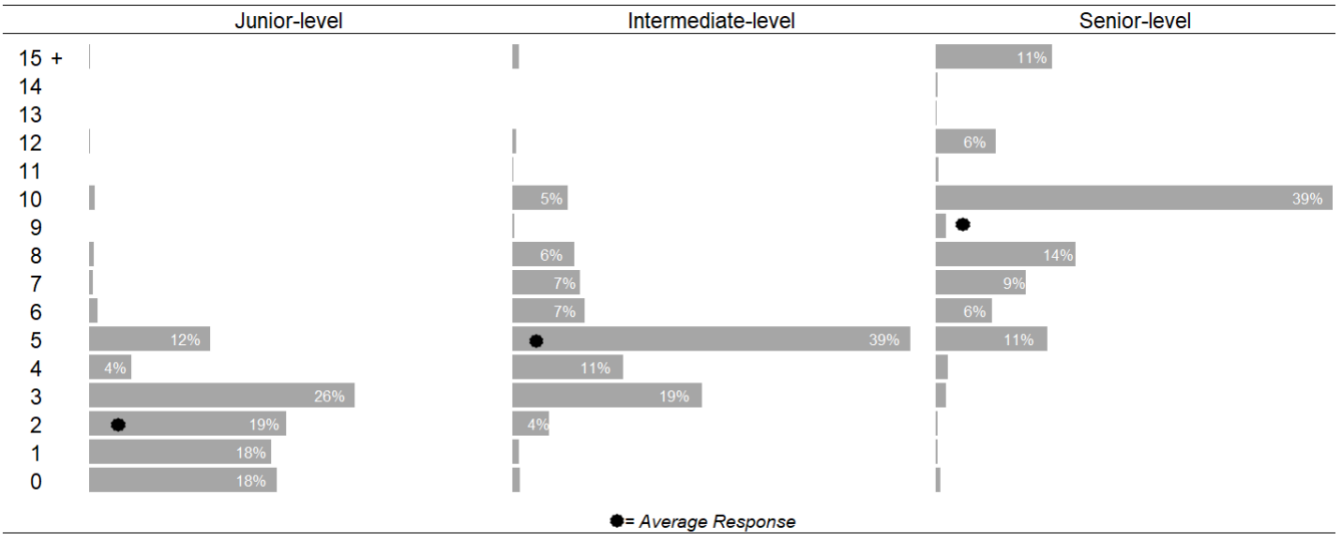
5. Hiring Decisions

Question: What is the minimum number of years of experience required at your workplace to be considered a junior-level, intermediate-level, or senior-level technical employee (licensed or unlicensed)?

General Findings – All Levels

The pattern of responses to these questions at the junior, intermediate, and senior levels were similar across demographic groups with small to negligible differences.

Figure 1.1. What is the minimum number of years of experience required at your workplace to be considered a _____-Level technical employee (licensed or unlicensed)?



General Findings

Junior Level

Most respondents expected three years or less for junior-level technical employees, with a plurality (26%) selecting three years (see Figure 5.1). On average, respondents indicated that 2.28 years of experience are required.

Intermediate Level

Most respondents expected five years or less for junior-level technical employees, with a plurality (39%) selecting five years (see Figure 5.1). On average, respondents indicated that 5.10 years of experience are required.

Senior Level

Most respondents expected 10 years or less for junior level technical employees, with a plurality (39%) selecting 10 years (see Figure 5.3). On average, respondents indicated that 9.25 years of experience are required.

5. Hiring Decisions

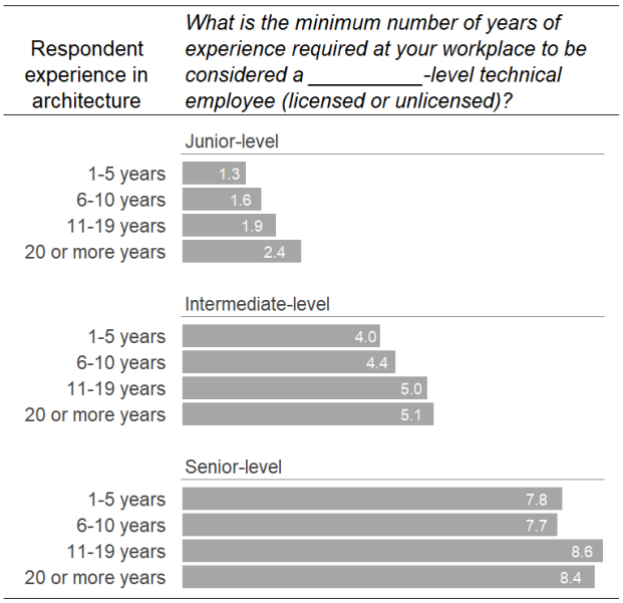
Some small group differences in responses are detailed in the following section.

Group Differences/Trends

Experience

- As the experience of respondents in the field of architecture increased, the average expectation for number of years required for all levels of technical employee also increased.

Figure 5.2. Average responses, by respondent experience level.



Workplace

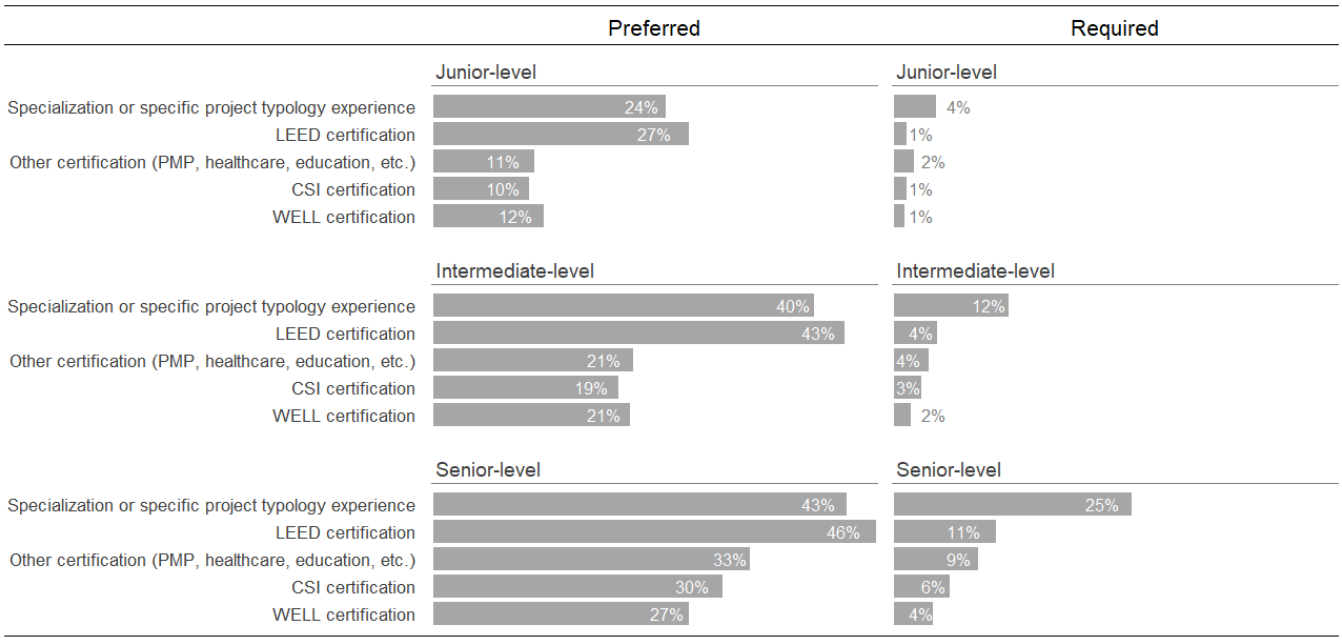
- For junior level, the trend for mean expectation for number of years required generally decreased as the number of staff and architects increased. This trend was reversed for senior level.

Comparison to Phase II results: The overall Phase III results confirmed those of Phase II. The most commonly listed required experience levels in Phase II (three years junior, three+ years intermediate, 10+ years senior) matched the most common responses in Phase III.

5. Hiring Decisions

Question: How essential is each qualification for hiring _____-level architects at your workplace (i.e., are these qualifications preferred or required)?

Figure 5.3. How essential is each qualification for hiring _____-level architects at your workplace?



General Findings

- No certification or specialization was listed as preferred by more than half of respondents, at any level (see Figure 5.3).
- No certification or specialization was listed as required by more than 25% of respondents, at any level.
- LEED certification was preferred most often at all levels.
- Specialization or specific project typology experience was required most often at all levels.

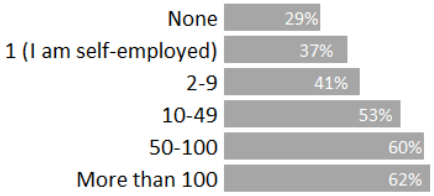
Group Differences/Trends

- While the specific ranking of the top preferred or required qualifications varied slightly by demographic group, the top three qualifications for nearly all demographic groups matched those listed in Figure 5.3.

5. Hiring Decisions

Workplace

- LEED certification was selected more frequently for intermediate-level architects, as the number of architects at a workplace increased: 29% preferred LEED certification at workplaces with no architects, steadily increasing to 62% for respondents at workplaces with more than 100 architects. A similar pattern was seen for senior-level architects.



Comparison to Phase II results: The overall Phase III results partially confirmed those of Phase II. Phase II participants did not list any certifications or specializations as somewhat preferred or required for junior-level architects; LEED or WELL and specializations as preferred for intermediate-level architects; and LEED or WELL as preferred and specializations as highly preferred for senior-level architects.

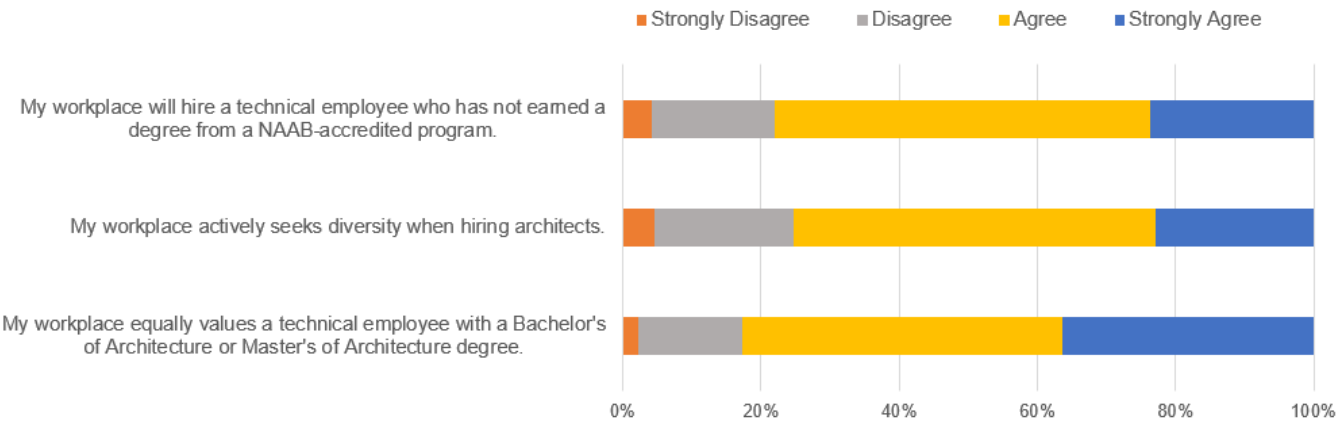
5. Hiring Decisions

Question: Indicate the degree to which you strongly agree, agree, disagree, or strongly disagree with each statement (what my workplace values).

General Findings

- Most respondents (78%) agreed or strongly agreed that their employer would hire a technical employee without a degree from a NAAB-accredited program (see Figure 5.4).
- Similarly, 75% agreed or strongly agreed that their employer actively seeks diversity when hiring architects.
- A strong majority of respondents (83%) agreed or strongly agreed that their employer equally values a technical employee with a Bachelor of Architecture or a Master of Architecture degree.

Figure 5.4. Indicate the degree to which you strongly agree, agree, disagree, or strongly disagree with each statement (what my workplace values).



- The pattern of responses to this question was similar across demographic groups.

Comparison to Phase II results: The overall Phase III results differed from those of Phase II. Most Phase III respondents noted that they actively seek diversity when hiring architects. In Phase II, diversity as a hiring consideration was the least frequently mentioned attribute.

NAAB-accredited programs and the relative value of bachelor's and master's degrees were not asked about in Phase II.

5. Hiring Decisions

Question: Indicate whether a junior-, intermediate-, or senior-level architect must have knowledge in each area to be hired.

General Findings

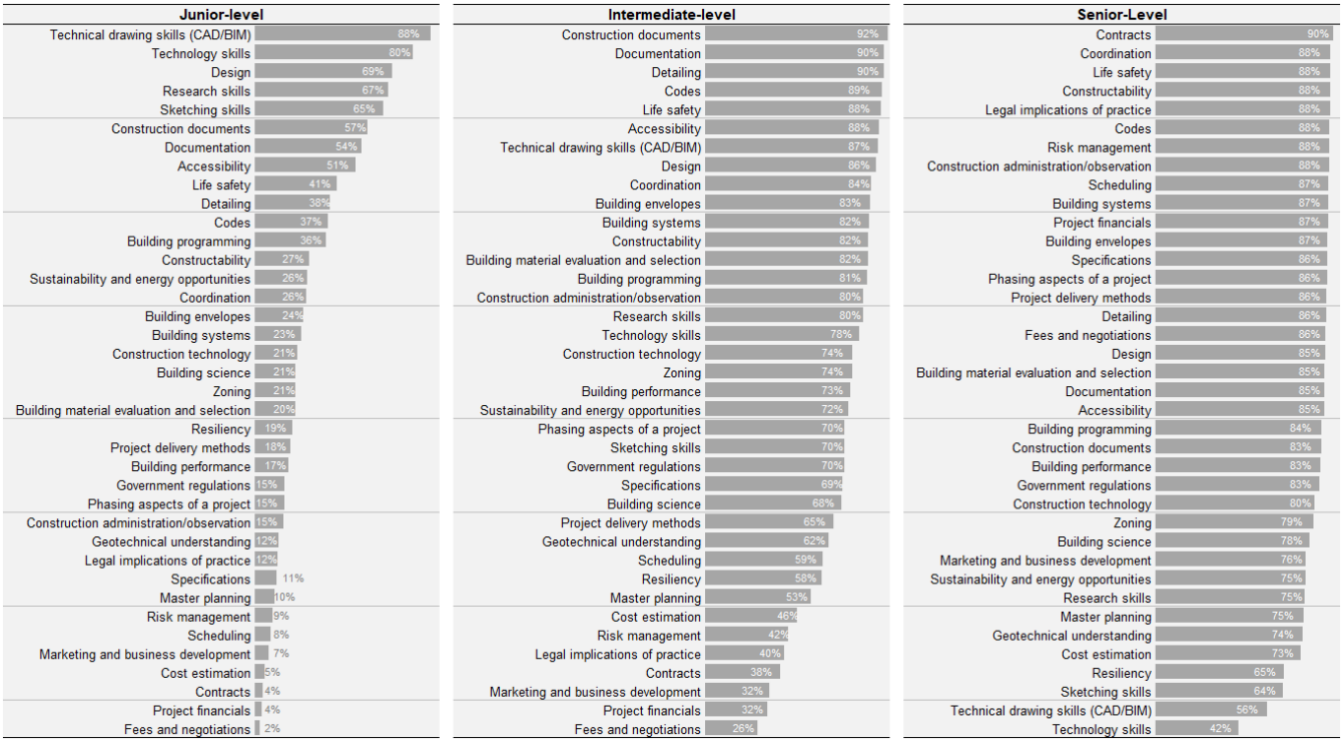
- The top knowledge areas needed to be hired differed by experience level:

Junior	Intermediate	Senior
Technical drawing skills (CAD/BIM) (88%) Technology skills, including 3D modeling and rendering, virtual reality, and augmented reality (80%) Design (69%) Research skills (67%) Sketching skills (65%) Construction documents (57%) Documentation (54%) Accessibility (51%)	Construction documents (92%) Documentation (90%) Detailing (90%) Codes (89%) Life safety (88%) Accessibility (88%) Technical drawing skills (CAD/BIM) (87%) Design (86%)	Contracts (90%) Coordination (88%) Life safety (88%) Constructability (88%) Legal implications of practice (88%) Codes (88%) Risk management (88%) Construction admin./ observation (88%)

- The specific ranking of the areas needed to be hired differed considerably by demographic group, particularly for senior-level. However, this is because many of the knowledge areas differed by very little in terms of percent selecting. This can be seen in Figure 5.5, where all categories are listed in order of frequency.

5. Hiring Decisions

Figure 5.5. Indicate whether a _____ level architect must have knowledge in each area to be hired.



- There was noticeably less variability in percentage selecting each knowledge area as employment levels progressed from junior to intermediate to senior.

- In identifying knowledge areas for different architect levels, there were some interesting cross-level trends (see Figure 5.6):

    - Technical drawing skills and technology skills were the only two skill areas where their importance peaked at the junior level (in terms of the percent of respondents who viewed the knowledge as required).
    - 9 skill areas peaked at the intermediate level.
    - 27 increased in importance up to the senior level.

5. Hiring Decisions

Figure 5.6. Trends in knowledge expectations across architect levels.

Area	Junior	Int.	Senior	Trend Across Experience Levels
Technical drawing skills (CAD/BIM)	**88%**	87%	56%	Importance decreases after junior level
Technology skills	**80%**	78%	42%	
Design	69%	**86%**	85%	Importance peaks at intermediate level
Research skills	67%	**80%**	75%	
Sketching skills	65%	**70%**	64%	
Construction documents	57%	**92%**	83%	
Documentation	54%	**90%**	85%	
Accessibility	51%	**88%**	85%	
Life safety	41%	**88%**	88%	
Detailing	38%	**90%**	86%	
Codes	37%	**89%**	88%	
Building programming	36%	81%	**84%**	Importance increases up to senior level
Constructability	27%	82%	**88%**	
Sustainability and energy opportunities	26%	72%	**75%**	
Coordination	26%	84%	**88%**	
Building envelopes	24%	83%	**87%**	
Building systems	23%	82%	**87%**	
Construction technology	21%	74%	**80%**	
Building science	21%	68%	**78%**	
Zoning	21%	74%	**79%**	
Building material evaluation and selection	20%	82%	**85%**	
Resiliency	19%	58%	**65%**	
Project delivery methods	18%	65%	**86%**	
Building performance	17%	73%	**83%**	
Government regulations	15%	70%	**83%**	
Phasing aspects of a project	15%	70%	**86%**	
Construction administration/observation	15%	80%	**88%**	
Geotechnical understanding	12%	62%	**74%**	
Legal implications of practice	12%	40%	**88%**	
Specifications	11%	69%	**86%**	
Master planning	10%	53%	**75%**	
Risk management	9%	42%	**88%**	
Scheduling	8%	59%	**87%**	
Marketing and business development	7%	32%	**76%**	
Cost estimation	5%	46%	**73%**	
Contracts	4%	38%	**90%**	
Project financials	4%	32%	**87%**	
Fees and negotiations	2%	26%	**86%**	

- The knowledge areas with the greatest differences between junior- and senior-level architects are:
    - Contracts (4% versus 90%)
    - Project financials (4% versus 87%)
    - Fees and negotiations (2% versus 86%)

Full results for all knowledge areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Experience

- "Technical drawing skills" was the top knowledge area for all junior-level years of experience, selected by between 85% and 93% respondents. For intermediate-level employees, "construction documents" and "documentation" were the top selections by almost all years of experience levels.

- For senior-level employees, "codes" were the top selection for most years of experience level groups, although 20+ years of experience respondents had "contracts" as the top selection. This was the case even though "codes" was not one of the top three senior-level selections overall. Note that in Figure 5.13, there was very little difference between the top selections, which accounts for how "codes" could be the top selection for sub-groups.

Workplace

- "Technical drawing skills" was the top knowledge area for almost all junior-level workplace groups, selected by between 85% and 91%. For intermediate-level employees, "construction documents" and "documentation" were the top selections by all workplace groups.

- As the number of architects increases, the importance placed on junior architects having knowledge of zoning and government regulation decreases; both steadily decrease from 31% (no architects at workplace) to 8% (100+ architects).

- Technical drawing skills (CAD/BIM) were viewed as more important for senior architects at smaller firms (56%-59% for firms with up to nine architects) than for those at larger firms (44%-48% for firms with 10 or more architects).

- For senior level, there were five different top selections among the workplace groups, again because there was very little difference between the percent selecting many of the knowledge areas overall.

Comparison to Phase II results: The overall Phase III results partially confirmed those of Phase II. Phase II participants listed "technical drawing skills" as essential for junior level, and it was the top junior-level selection in Phase III. Other knowledge areas were not as clearly aligned with the questions asked in Phase II.

5. Hiring Decisions

Question: Indicate whether a junior-, intermediate-, or senior-level architect must be proficient in each area to be hired.

General Findings

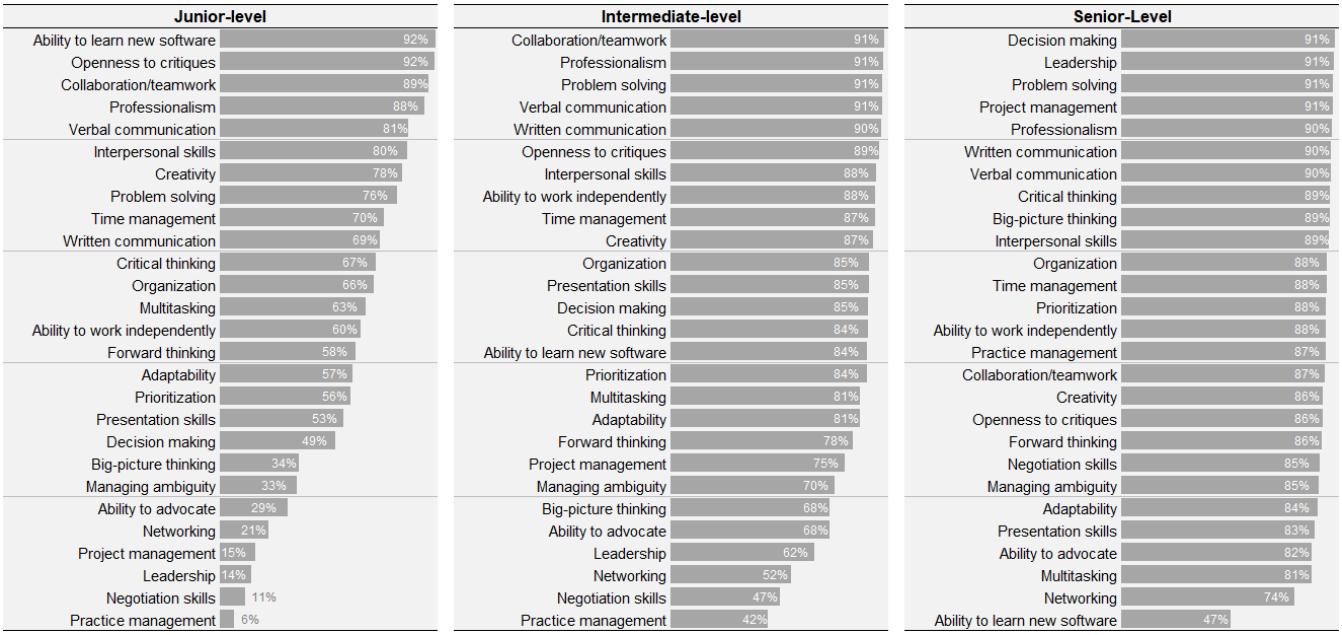
- The top proficiency areas needed to be hired differed by experience level; however, some top areas were shared across levels. Proficiency in professionalism was a top area expected at all levels.

Junior	Intermediate	Senior
Ability to learn new software (92%)	Collaboration/teamwork (91%)	Decision making (91%)
Openness to critiques (92%)	Professionalism (91%)	Leadership (91%)
Collaboration/teamwork (89%)	Problem solving (91%)	Problem solving (91%)
Professionalism (88%)	Verbal communication (91%)	Project management (91%)
Verbal communication (81%)	Written communication (90%)	Professionalism (91%)
Interpersonal skills (80%)	Openness to critiques (89%)	Written communication (91%)

- The specific ranking of the proficiency areas needed to be hired differed considerably by demographic group for intermediate and senior levels. However, this is due to many of the proficiency areas differing by very little in terms of percent selecting. This can be seen in Figure 5.7, where all categories are listed in order of frequency.

5. Hiring Decisions

Figure 5.7. Indicate whether a _____ level architect must be proficient in each area to be hired.



- There was noticeably less variability in percentage selecting each knowledge area as experience level progressed from junior to intermediate to senior.
- In identifying proficiency areas for different architect levels, there were some interesting cross-level trends (see Figure 5.8):
    - Ability to learn new software and openness to critiques were the only two proficiency areas where their importance peaked at the junior level (in terms of the percent of respondents who viewed the area as required).
    - Eight areas peaked at the intermediate level, and 17 increased in importance up to the senior level.

5. Hiring Decisions

Figure 5.8. Trends in proficiency expectations across architect levels.

Area	Junior	Int.	Senior	Trend Across Experience Levels
Ability to learn new software	**92%**	84%	47%	Expectations decrease after junior level
Openness to critiques	**92%**	89%	86%	
Collaboration/teamwork	89%	**91%**	87%	Expectations peak at intermediate level
Professionalism	88%	**91%**	90%	
Problem solving	76%	**91%**	91%	
Verbal communication	81%	**91%**	90%	
Written communication	69%	**90%**	90%	
Ability to work independently	60%	**88%**	88%	
Creativity	78%	**87%**	86%	
Presentation skills	53%	**85%**	83%	
Networking	21%	52%	**74%**	Expectations increase up to senior level
Multitasking	63%	81%	**81%**	
Ability to advocate	29%	68%	**82%**	
Adaptability	57%	81%	**84%**	
Managing ambiguity	33%	70%	**85%**	
Negotiation skills	11%	47%	**85%**	
Forward thinking	58%	78%	**86%**	
Practice management	6%	42%	**87%**	
Prioritization	56%	84%	**88%**	
Time management	70%	87%	**88%**	
Organization	66%	85%	**88%**	
Interpersonal skills	80%	88%	**89%**	
Big-picture thinking	34%	68%	**89%**	
Critical thinking	67%	84%	**89%**	
Project management	15%	75%	**91%**	
Leadership	14%	62%	**91%**	
Decision making	49%	85%	**91%**	

Full results for all knowledge areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

5. Hiring Decisions

Group Differences/Trends

Experience

- "Ability to learn new software was the top junior proficiency area for all but one level of respondent years of experience group; it was selected by between 89% and 94% of respondents. For intermediate level, "collaboration/teamwork" was the top selection by most years of experience levels.

- Respondents with 1-5 years of experience were more likely than respondents with 20+ years of experience to expect junior-level architects to have proficiency in big-picture thinking (47% vs 31%) and managing ambiguity (48% vs 30%).

- For senior level, there were different top selections among the years of experience level groups:

Years of experience in related field	Most frequently selected area (senior level)
1-5 years	Project management (94%)
6-10 years	Critical thinking (95%)
11-19 years	Professionalism (97%)
20 or more years	Leadership (90%)

Comparison to Phase II results: The overall Phase III results partially confirmed those of Phase II. Phase II participants listed "teamwork and collaboration" as essential for junior level and somewhat preferred for intermediate; it was in the top three junior/intermediate level selection in Phase III. "Leadership" was preferred for senior level in Phase II and a top three selection in Phase III. Other proficiency areas were not as clearly aligned with the questions asked in Phase II.

5. Hiring Decisions

Question: Indicate whether a junior-, intermediate-, or senior-level architect must have experience in each area to be hired.

General Findings

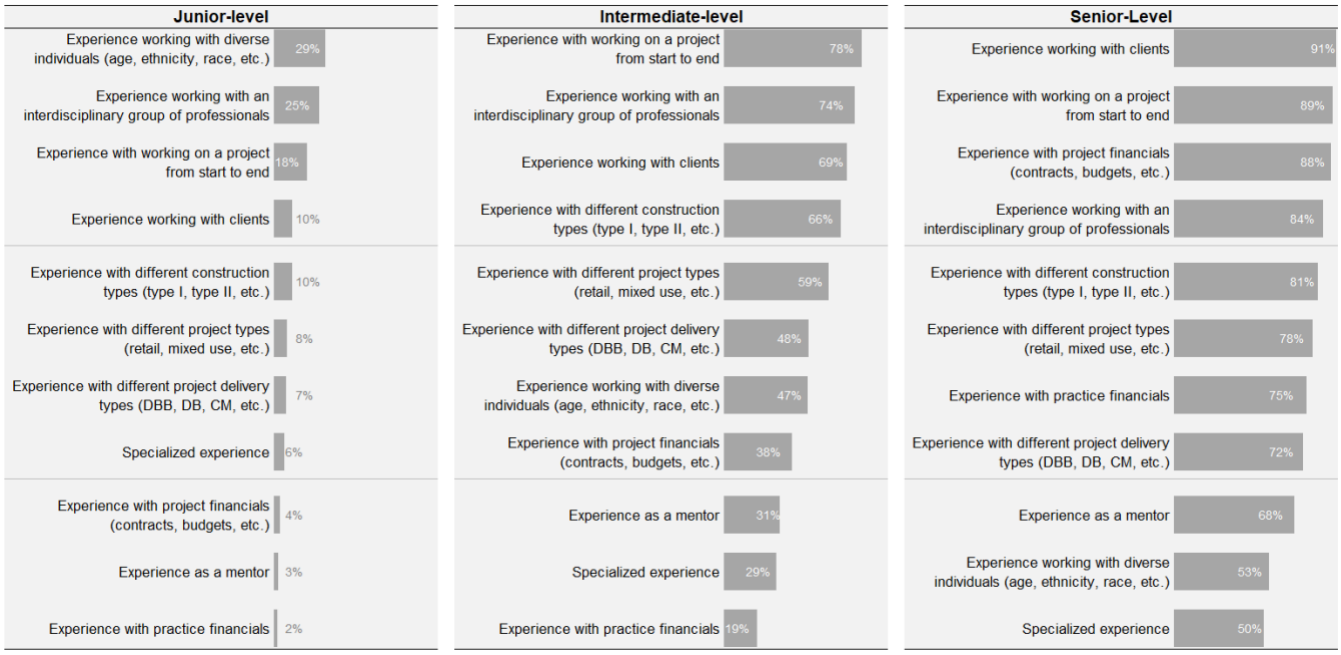
- The top three experience areas needed to be hired overlapped somewhat by experience level. Experience with working on a project from start to end was among the areas where respondents most frequently expected experience across all three levels:

Junior	Intermediate	Senior
Experience working with diverse individuals (age, ethnicity, race, etc.) (29%) Experience working with an interdisciplinary group of professionals (25%) Experience with working on a project from start to end (18%)	Experience with working on a project from start to end (78%) Experience working with an interdisciplinary group of professionals (74%) Experience working with clients (69%)	Experience working with clients (91%) Experience with working on a project from start to end (89%) Experience with project financials (contracts, budgets, etc.) (88%)

- Unsurprisingly, experience expectations increased with architect level (see Figure 5.9):
    - Junior level did not have any experience areas endorsed by more than 29% of respondents.
    - Five of the 11 areas were endorsed by a majority of respondents for intermediate level.
    - All areas were endorsed by a majority for senior level.
- However, there were some areas where differences in experience expectations between junior- and senior-level architects were especially large:
    - Experience with project financials (contracts, budgets, etc.) (4% vs 88%)
    - Experience working with clients (10% vs 91%)
    - Experience with practice financials (2% vs 75%)
- The specific ranking of the proficiency areas needed to be hired was similar across demographic groups for all three levels. The top three knowledge areas for most demographic groups were usually the same as those shown in Figure 5.9.

5. Hiring Decisions

Figure 5.9. Indicate whether a _____ level architect must have experience in each area to be hired.



Full results for all knowledge areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Workplace

- Expectations for junior-level architects to have experience with working on a project from start to end steadily decreased as the number of architects at a workplace increased: 23% of respondents with no architects at their workplace expected this experience, compared to 9% of respondents with more than 100+ architects at their workplace.

- Rural respondents were 1.8 times more likely than urban respondents to expect junior architects to have experience with different construction types (type I, type II, etc.) (16% versus 9%).

Comparison to Phase II results: The overall Phase III results partially confirmed those of Phase II. Phase II participants listed “able to do all parts of a project” as highly preferred for senior level and it was a top three senior-level selection in Phase III. However, “able to do all parts of a project” was not mentioned in Phase II for intermediate and it was a top three selection in Phase III. Other experience areas were not as clearly aligned with the questions asked in Phase II.

5. Hiring Decisions

Question: Indicate whether a junior-level architect, intermediate/senior-level architect, or experienced, non-licensed contributor would be hired at your workplace to complete each task.

General Findings

- The top tasks an individual would be hired to complete differentiated by experience level/licensure status include:

Junior Architect	Intermediate/Senior Architect	Experienced Non-Licensed Contributor
For CAD/BIM ability (92%) For production work (89%) For sketching (83%) To complete work at a lower cost (79%) For design purposes (58%) To conduct field observations (41%) For permit work (38%)	To work on complex projects (97%) For health, safety, and welfare accountability (96%) For regulatory purposes (e.g., sign/seal documents) (95%) For code analysis (95%) For design purposes (94%) To increase credibility (94%) For project management (94%)	For cost estimation (71%) For business development (68%) For a specialization (61%) To perform specification writing (61%) For construction administration work (57%) To conduct field observations (56%) For construction management (55%)

5. Hiring Decisions

Figure 5.10. Trends in hiring preferences based on different task types.

Area	Junior	Int. or Senior	Exp non. Licensed	Trend Across Experience Types
For CAD/BIM ability	**92%**	65%	54%	
For production work	**89%**	73%	51%	Junior level most common
To complete work at a lower cost	**79%**	31%	45%	
For sketching	83%	**85%**	49%	
For design purposes	58%	**94%**	43%	
To conduct field observations	41%	**89%**	56%	
For permit work	38%	**88%**	48%	
To fill a contract requirement	37%	**88%**	52%	
For construction administration work	32%	**91%**	57%	
To work on complex projects	30%	**97%**	48%	
For code analysis	29%	**95%**	45%	
For construction administration	28%	**91%**	54%	
For health, safety and welfare accountability	25%	**96%**	37%	
For client services	21%	**93%**	52%	Intermediate or Senior level most common
For a specialization	20%	**87%**	61%	
To increase credibility	19%	**94%**	40%	
To perform specification writing	18%	**88%**	61%	
For construction management	14%	**87%**	55%	
For project management	13%	**94%**	48%	
To justify fees	11%	**91%**	38%	
To develop/maintain client relationships	9%	**92%**	50%	
For business development	9%	**83%**	68%	
For leadership responsibilities	8%	**93%**	41%	
For supervising positions	5%	**93%**	41%	
For regulatory purposes (e.g., sign/seal documer	4%	**95%**	12%	
For cost estimation	10%	**71%**	**71%**	Intermediate/Senior and experienced non-licened equally common

- Tasks for which respondents were most likely to hire a junior-level architect include:
    - CAD/BIM ability
    - Production work
    - To complete work at a lower cost
- Respondents were equally likely to hire experienced non-licensed contributors or intermediate/senior-level architects for cost estimation.
- For all other areas, intermediate/senior-level architects were the most likely to be hired.

5. Hiring Decisions

- The top tasks where respondents were more likely to hire non-licensed contributors over entry-level architects included:
    - For cost estimation (71% non-licensed contributors versus 10% entry-level architects)
    - For business development (68% versus 9%)
    - To perform specification writing (61% versus 18%)
    - For construction management (55% versus 14%)
    - To develop/maintain client relationships (50% versus 9%)
    - For a specialization (61% versus 20%)
- The specific ranking of the tasks an individual would be hired to complete were similar by demographic group for the junior level. The top three tasks for many intermediate/senior and experienced, non-licensed contributors demographic groups were not the same as those shown in Figure 5.10. However, as can be seen in the graphs, many of the tasks differed by very little in terms of percent selecting, especially for the intermediate/senior level.

Full results for all knowledge areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Experience

- The more experience with architecture respondents had, the less likely they were to hire a junior-level architect to work on complex projects (54% for those with 1-5 years of experience versus 26% for those with 20+ years of experience).

Workplace

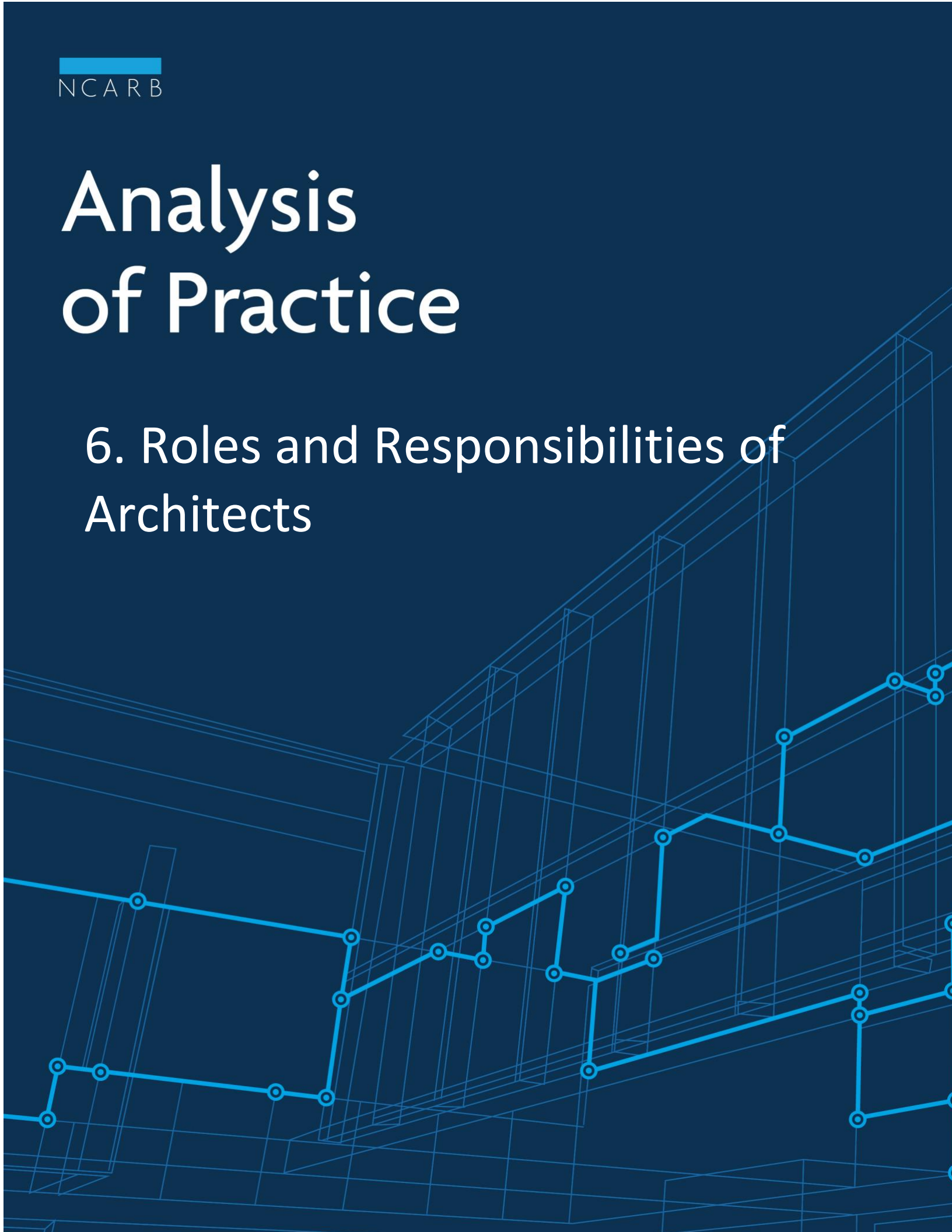
- The larger the respondent's workplace, the less likely they were to hire an intermediate/senior-level architect for cost estimation (66% for those with no architects on staff of experience versus 46% for those more than 100).

Comparison to Phase II results: Phase III questions asked in this area were not asked in Phase II.

NCARB

Analysis of Practice

6. Roles and Responsibilities of Architects



6. Roles and Responsibilities

Introduction

This section provides the results from Roles and Responsibilities, which address the job roles and responsibilities of architects at different times in their careers in comparison with other contributors[17] in the built environment. Additionally, this section examines how these roles and responsibilities are changing over time, especially in the context of new technological developments.

The analysis for this section was filtered to include only individuals currently working in the field of architecture or students in the field of architecture or a related field. Selected results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

Respondents were asked who would likely undertake various roles and assignments at their workplaces.

Junior Architects

The most frequently indicated roles and assignments junior architects assume in the workplace include being mentored, drafting (CAD/BIM), and physical modeling. The least commonly identified roles and assignments are related to project financials and business management.

Intermediate Architects

The most frequently indicated roles and assignments intermediate architects assume in the workplace include developing, modifying, and reviewing construction documents, participating in large and complex projects, sketching, working independently, and developing, modifying, and reviewing production drawings. Similar to the junior architect, the least commonly identified roles and assignments are related to project financials and business management.

Senior Architects

Respondents indicated that senior architects assume the largest number of roles and assignments in the workplace. At least 85% of respondents identified interacting with clients and maintaining client relations, participating in large and complex projects, leading projects, serving as a mentor, presenting to clients, and supervising/delegating tasks as job roles of senior architects. Respondents noted it is

[17] In the survey, a contributor was defined as an individual who works primarily within the field of architecture but does not possess a license to practice architecture and, therefore, cannot officially refer to themselves as an architect.

less common for senior architects to assume roles and assignments related to physical modeling and being mentored.

Other Contributors

The top roles and assignments that other contributors to the field of architecture assume in the workplace include marketing/business development, participating in large and complex projects, performance modeling, and completing project financials. Respondents noted that it is less common for these individuals to serve as a mentor and to supervise/delegate tasks.

Additional Findings

Respondents felt that the assignment of project roles and responsibilities at their workplace was equitable and fair (87% agree/strongly agree) and based on experience and qualifications (90% agree/strongly agree).

Respondents were asked about who would likely undertake various roles and who is responsible for various activities. For most surveyed activities, respondents indicated either an architect or contributor (or an architect in collaboration with a contributor) could be responsible. The primary exception was signing/sealing/stamping documents: 88% of respondents indicated architects only could be responsible. The areas where the highest proportions of respondents indicated a contributor only would be responsible include design (civil/MEP/FP/structural), surveying, procurement, construction scheduling, and inspections (30-42%).

Respondents were also asked about teams within the built environment. They identified the most important elements to consider when setting up a team to be the complexity of the project (74%), team member experience with similar projects (68%), and the overall communication plan (64%).

Project type was identified as the most influential factor for choosing the leader of a project team. Factors that produced large changes in coordination of team members over the past 10 years include technological software tools (e.g., BIM, CAD, visualization; 77%), digital communications (e.g., email, virtual meetings; 73%) and electronic documents (e.g., electronic submittals, drawings; 61%).

With respect to recent trends in architects' roles and responsibilities, respondents most frequently agreed/strongly agreed that:

- There is a continued and greater need for well-developed soft skills (92%).
- There is an increased need for cross-functional knowledge (engineering, contractors) (90%).
- More women are entering the profession (89%).
- Practitioners are more aware of and advocate for sustainability (84%).

Similarly, the top areas respondents believed have become more important during the past 10 years are:

- Material and labor cost volatility (89%)
- Sustainability (74%)
- Resiliency/building performance (69%)
- Accessibility (61%)
- Material understanding (59%)

Respondents indicated that technology significantly changed the job assignments of architects over the past five years and noted increases in many technology areas, most frequently identifying:

- Use of 3D modeling, rendering, and simulation (89%)
- Marketing tasks (presentations, virtual meetings, social media, client resource management) (68%)
- Use of virtual and augmented reality (68%)
- Use of parametric software (66%)
- Performance modeling tasks (59%)

One relevant area of technology noted in the survey results is automation. Respondents believed that automation significantly changed the roles and assignments of architects during the past 5 years in the following areas:

- Performance modeling (80%)
- Building models (physical and/or virtual) (79%)
- Presentation drawings (78%)
- Perspective drawings (77%)
- Clash detection/conflict resolution (76%)

Subsequent portions of this section describe findings from individual survey questions, focusing on broad, general findings as well as identifying important group differences.

6. Roles and Responsibilities

NCARB Supplemental Infographic: Value of Licensure

Understanding the work that architects carry out at various career stages is one of the core purposes of the Analysis of Practice—including identifying tasks that vary across firm sizes, practice locations, and more. To better understand the roles practioners take on, how they collaborate, and how technology is impacting their responsibilities, NCARB created a supplemental infographic and blog post.

6. Roles and Responsibilities

6. Roles and Responsibilities

Questions Asked in This Section

Indicate to what extent you agree or disagree with each statement:

Q6.1. The assignment of project roles and responsibilities at my workplace is equitable and fair.

Q6.2. The assignment of project roles and responsibilities at my workplace is typically based on experience and qualifications.

Q6.3. Having a license in architecture is not a necessity for overseeing a project; however, there are essential components of a project that require an architect's approval.

Q6.4 Indicate who is responsible for each activity.

Indicate how important each element is when setting up a project team:

Q6.5 Team size

Q6.6 Team member experience with similar projects

Q6.7 Team dynamics (personalities, etc.)

Q6.8 Team diversity (age, race, ethnicity, gender, etc.)

Q6.9 Project type

Q6.10 Project scope

Q6.11 Complexity of project

Q6.12 Project financials

Q6.13 Client preference

Q6.14 Overall communication plan

Q6.15 Indicate who would likely undertake each role and assignment at your workplace.

Q6.16 Order the items from MOST to LEAST influential in determining who is selected to be the leader of a project team.

Thinking about the past 10 years, how much has each element changed the coordination of team members?

Q6.17 Technological software tools (e.g., BIM, CAD, visualization)

Q6.18 Specialties/specializations

Q6.19. General technological improvements

Q6.20 Expectations from clients

6. Roles and Responsibilities

Q6.21 Electronic documents (electronic submittals, drawings, etc.)
Q6.22 Coordination between and among consultants
Q6.23 Digital communications (email, virtual meetings, etc.)
Q6.24 Energy efficiency requirements
Q6.25 Getting team members involved at early stages of a project
Q6.26 Level of required detail
Q6.27 Litigation
Q6.28 Owners contracting directly with consultants
Q6.29 Project manager qualifications
Q6.30 Real-time coordination
Q6.31 Project delivery type

Indicate the extent to which you agree or disagree each statement is a trend for architects and architecture:

Q6.32. Architects are becoming increasingly more reliant on consultants.
Q6.33 Practitioners are more aware of and advocate for sustainability.
Q6.34 There is an increased need for cross-functional knowledge (engineering, contractors, etc.).
Q6.35 Additional accreditations and other certifications (LEED, WELL, CSI, etc.) are more important.
Q6.36 There is a continued and greater need for well-developed soft skills.
Q6.37 More women are entering the profession.
Q6.38. Recently licensed architects are more racially and ethnically diverse.
Q6.39 There is a greater focus on adaptive reuse of existing buildings.
Q6.40 There is a trend toward multigenerational/multifamily homes.
Q6.41 Architects have better work/life balance.

Indicate if each area has become more or less important over the past 10 years:

Q6.42 Accessibility
Q6.43 Material and labor cost volatility
Q6.44 Construction documents
Q6.45 Sustainability
Q6.46 Material understanding
Q6.47 Non-traditional delivery methods
Q6.48 Project management

6. Roles and Responsibilities

Q6.49 Resiliency/building performance
Q6.50 Universal design
Q6.51 Urban planning
Q6.52 Value engineering

Q6.53 Thinking of the past five years, how much has technology changed the job assignments of architects?

Indicate if you have seen an increase or decrease in each area at your workplace:

Q6.54 Number of non-licensed staff
Q6.55 Number of architects
Q6.56 Number of consultants typically used on a project
Q6.57 Use of parametric software
Q6.58 Use of artificial intelligence (AI)
Q6.59 Use of evidence-based design methodologies
Q6.60 Real-time data collection
Q6.61 Use of 3D modeling, rendering, and simulation
Q6.62 Use of virtual and augmented reality
Q6.63 Drafting/production tasks
Q6.64 Sketching tasks
Q6.65 Design tasks
Q6.66 Performance modeling tasks
Q6.67 Marketing tasks (presentations, virtual meetings, social media, client resource management, etc.)

Thinking of the past five years, indicate if you agree or disagree that automation has significantly changed the roles and assignments of architects in each area:

Q6.68 As-built survey
Q6.69 Project coordination
Q6.70 Project scheduling
Q6.71 Performance modeling
Q6.72 Building models (physical and/or virtual)
Q6.73 Clash detection/conflict resolution
Q6.74 Code review
Q6.75 Cost estimation

6. Roles and Responsibilities

Q6.76 Building/wall sections and details
Q6.77 Stamping of drawings and submission
Q6.78 Elevations
Q6.79 Perspective drawings
Q6.80 Presentation drawings
Q6.81 Drafting, writing, and reporting
Q6.82 Specification preparation
Q6.83 Sustainable analysis
Q6.84 Verifying regulatory guidelines

Single-part questions are in dark blue font; multi-part questions are in light blue font.

Demographic Variables Reviewed

The tables on the following pages list the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[18] based on the size of the proportional difference between groups (see keys on the following pages). For multi-part questions, the table notes which groups had notable differences on some/all parts.

[18] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2= large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

6. Roles and Responsibilities

Demographic Variables Reviewed		Group Differences/Trends?																			
		Q6.1	Q6.2	Q6.3	Q6.4	Q6.5	Q6.6	Q6.7	Q6.8	Q6.9	Q6.10	Q6.11	Q6.12	Q6.13	Q6.14	Q6.15	Q6.16	Q6.17	Q6.18	Q6.19	Q6.20
Job Role	Field of employment																				
	Responsible for hiring staff	S	S	S		S	S	S	M	S	S	S	S	S	S			S	S	S	N
Licensure Status	Current status of architectural license	S	S	S		S	S	S	M	S	S	S	S	S	S			S	S	S	S
	Years since initial/first license	S	S	S		S	S	S	M	S	S	S	S	M	S			S	S	S	S
Experience	Years of experience in architecture	S	S	S		S	S	S	M	S	S	S	S	S	S	○		S	S	S	S
	Years of experience in related work field	S	S	S		S	S	S	M	S	S	S	S	S	S			S	S	S	S
Workplace	Number of people at current workplace	S	S	S		S	S	S	M	S	S	S	S	S	S			S	S	S	S
	Number of architects at current workplace	S	S	S		S	S	S	M	S	S	S	S	S	S	○		S	S	S	S
	Workplace Location	S	S	S		S	S	S	S	S	S	S	S	S	S			S	S	S	S
	Workplace community	S	S	S		S	S	S	M	S	S	S	S	S	S			S	S	S	S
Demographics	Gender	S	S	S		S	S	S	M	S	S	S	S	S	S			S	S	S	S
	Race (by individual race)	S	S	S		S	S	S	L	S	S	S	S	S	S			S	S	S	S
	Race (by white vs. non-white)	S	S	S		S	S	S	M	S	S	S	S	S	S			S	S	S	S
	Ethnicity	S	S	S		S	S	S	S	S	S	S	S	S	S			S	S	S	S
	Age	S	S	S		S	S	S	L	S	S	S	S	M	S			S	S	S	S
Education	Highest degree	S	S	S		S	S	S	S	S	S	S	S	S	S			S	S	S	S
	NAAB accredited program	S	S	S		N	S	S	S	S	S	S	S	S	S			N	S	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■= N/A
L = Large	
■= N/A	

6. Roles and Responsibilities

Demographic Variables Reviewed		Group Differences/Trends?																			
		Q6.21	Q6.22	Q6.23	Q6.24	Q6.25	Q6.26	Q6.27	Q6.28	Q6.29	Q6.30	Q6.31	Q6.32	Q6.33	Q6.34	Q6.35	Q6.36	Q6.37	Q6.38	Q6.39	Q6.40
Job Role	Current status of architectural license																				
	Active NCARB Record	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	S
Licensure Status	Current status of architectural license	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Years since initial/first license	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Experience	Years of experience in architecture	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Years of experience in related work field	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Workplace	Number of people at current workplace	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Number of architects at current workplace	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Workplace location	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Workplace community	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Demographics	Gender	S	S	S	N	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S
	Race (by individual race)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	M	S	S
	Race (by white vs. non-white)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Ethnicity	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Age	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Education	Highest degree	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	NAAB-accredited program	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None S = Small M = Moderate L = Large ■ = N/A	○ = Difference(s) observed on some part(s) ● = Differences observed on all parts ■ = N/A

6. Roles and Responsibilities

6. Roles and Responsibilities

Demographic Variables Reviewed		Group Differences/Trends?																			
		Q6.41	Q6.42	Q6.43	Q6.44	Q6.45	Q6.46	Q6.47	Q6.48	Q6.49	Q6.50	Q6.51	Q6.52	Q6.53	Q6.54	Q6.55	Q6.56	Q6.57	Q6.58	Q6.59	Q6.60
Job Role	Current status of architectural license																				
	Active NCARB Record	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	N	S	S	S	N
Licensure Status	Current status of architectural license	S	S	S	S	S	S	S	S	S	S	M	S	N	M	S	N	S	S	S	S
	Years since initial/first license	S	S	S	S	S	S	S	S	S	S	M	S	N	S	M	S	S	S	S	S
Experience	Years of experience in architecture	S	S	S	S	S	S	S	S	S	S	L	S	N	M	S	S	S	S	S	S
	Years of experience in related work field	S	S	S	S	S	S	S	S	S	S	M	S	S	S	S	S	S	S	S	S
Workplace	Number of people at current workplace	S	S	S	S	S	S	S	S	S	S	S	S	S	S	L	S	S	S	M	S
	Number of architects at current workplace	S	S	S	S	S	S	S	S	S	S	S	S	N	S	L	S	S	M	M	S
	Workplace location	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S	S
	Workplace community	S	S	S	S	S	S	S	S	S	S	S	S	N	S	M	S	S	S	S	S
Demographics	Gender	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	N	S	S	S
	Race (by individual race)	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S	S
	Race (by white vs. non-white)	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S	S
	Ethnicity	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	N	S	S	S
	Age	S	S	S	S	S	S	S	S	S	S	L	S	N	M	S	S	S	S	S	S
Education	Highest degree	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S	S
	NAAB-accredited program	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None S = Small M = Moderate L = Large ■ = N/A	○ = Difference(s) observed on some part(s) ● = Differences observed on all parts ■ = N/A

6. Roles and Responsibilities

6. Roles and Responsibilities

Demographic Variables Reviewed		Group Differences/Trends?																		
		Q6.61	Q6.62	Q6.63	Q6.64	Q6.65	Q6.66	Q6.67	Q6.68	Q6.69	Q6.70	Q6.71	Q6.72	Q6.73	Q6.74	Q6.75	Q6.76	Q6.77	Q6.78	Q6.79	Q6.80
Job Role	Current status of architectural license																			
	Active NCARB Record	S	S	S	N	S	S	N	S	S	S	S	S	S	S	S	S	S	S	S	N
Licensure Status	Current status of architectural license	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Years since initial/first license	S	S	S	M	S	S	S	S	S	S	S	S	S	M	S	S	S	S	S	S
Experience	Years of experience in architecture	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Years of experience in related work field	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Workplace	Number of people at current workplace	S	S	S	M	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Number of architects at current workplace	S	S	S	M	S	M	S	S	S	S	S	S	S	M	S	S	S	S	S	S
	Workplace location	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Workplace community	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Demographics	Gender	S	S	S	S	N	S	S	S	S	N	S	S	S	S	N	S	S	S	S	S
	Race (by individual race)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Race (by white vs. non-white)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Ethnicity	S	S	S	M	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Age	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Education	Highest degree	S	S	S	S	S	S	S	S	S	S	S	S	S	M	S	S	S	S	S	S
	NAAB-accredited program	S	S	S	M	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None S = Small M = Moderate L = Large ■ = N/A	○ = Difference(s) observed on some part(s) ● = Differences observed on all parts ■ = N/A

6. Roles and Responsibilities

Demographic Variables Reviewed		Group Differences/ Trends? Q6.81	Q6.82	Q6.83	Q6.84
Job Role	Current status of architectural license				
	Active NCARB Record	S	S	S	S
Licensure Status	Current status of architectural license	S	S	S	S
	Years since initial/first license	S	S	S	M
Experience	Years of experience in architecture	S	S	S	S
	Years of experience in related work field	S	S	S	S
Workplace	Number of people at current workplace	S	S	S	S
	Number of architects at current workplace	S	S	S	S
	Workplace location	S	S	S	S
	Workplace community	S	S	S	S
Demographics	Gender	S	S	S	S
	Race (by individual race)	S	S	S	S
	Race (by white vs. non-white)	S	S	S	S
	Ethnicity	S	S	S	S
	Age	S	S	S	M
Education	Highest degree	S	S	S	S
	NAAB-accredited program	S	S	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None S = Small M = Moderate L = Large ■ = N/A	○ = Difference(s) observed on some part(s) ● = Differences observed on all parts ■ = N/A

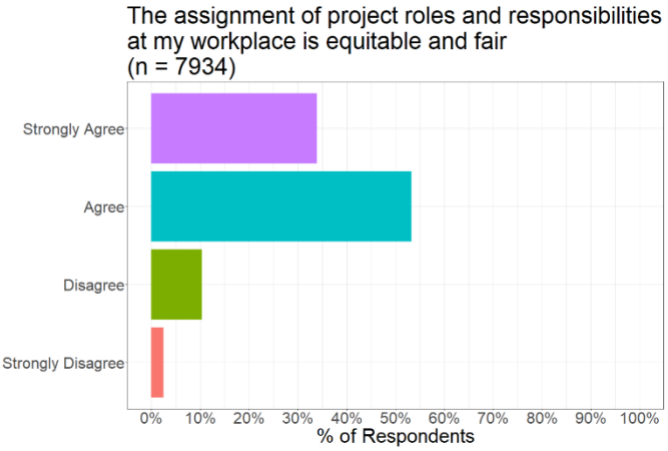
6. Roles and Responsibilities

Question: The assignment of project roles and responsibilities at my workplace is equitable and fair.

General Findings

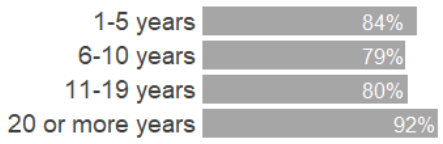
- Most respondents (87%) agreed or strongly agreed that the assignment of roles and responsibilities in their workplace was equitable and fair (see Figure 6.1).
- The pattern of responses to this question is similar across most demographic groups. Some notable group differences are described below.

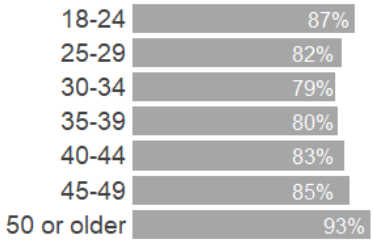
Figure 6.1



Group Differences/Trends

- The largest group differences in the percentages of respondents agreeing/strongly agreeing are based on years of experience in a related field and age.





Comparison to Phase II results: These results confirm those from Phase II. Most Phase II webinar respondents believed that the assignment of project roles, responsibilities, and coordination is equitable and fair.

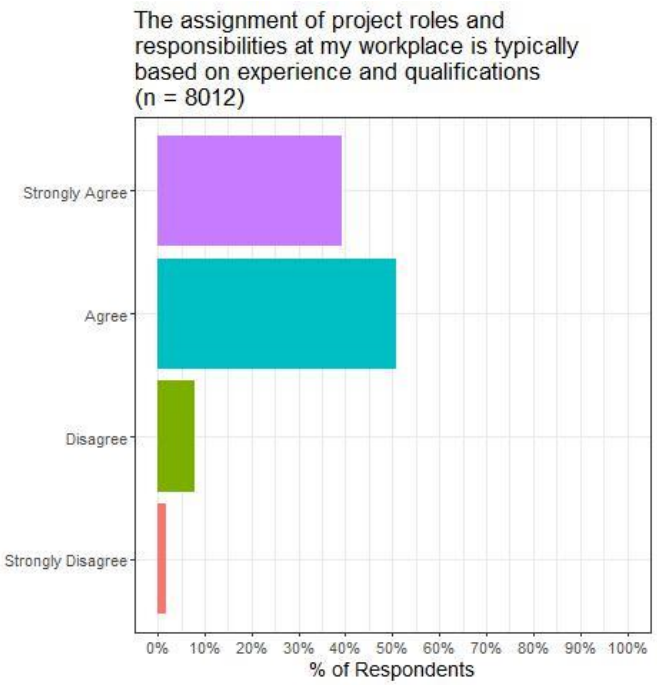
6. Roles and Responsibilities

Question: The assignment of project roles and responsibilities at my workplace is typically based on experience and qualifications.

General Findings

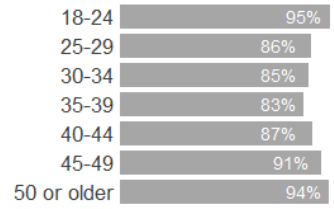
- Most respondents (90%) agreed or strongly agreed that the assignment of project roles and responsibilities at their workplace is typically based on experience and qualifications (see Figure 6.2).
- The pattern of responses to this question is similar across most demographic groups. Some notable group differences are described below.

Figure 6.2



Group Differences/Trends

- The largest group differences in the percentages of respondents agreeing/strongly agreeing are based on years of since initial license and age.



Comparison to Phase II results: These results partially confirm information collected in Phase II. When asked to describe the role diversity, equity, and inclusion (DEI) plays in the assignment of project roles and responsibilities within the field of architecture, 41% of webinar attendees indicated that roles are based solely on experience and qualifications (most frequent response to an open-ended question).

6. Roles and Responsibilities

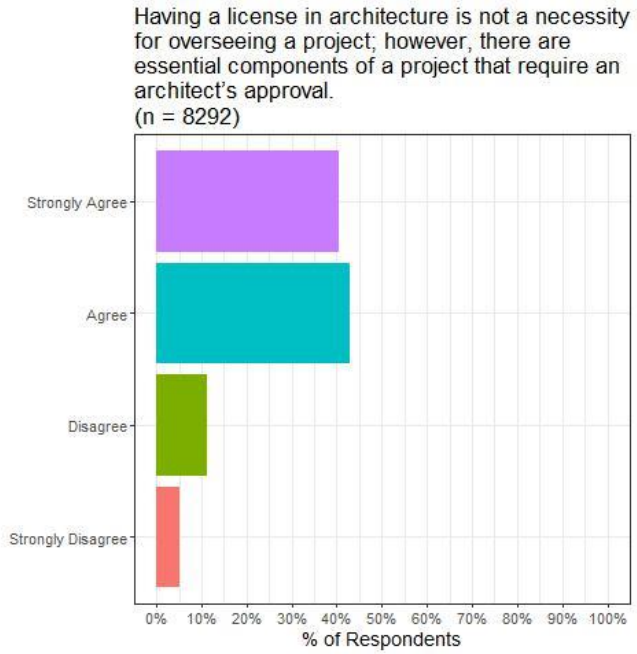
Question: Having a license in architecture is not a necessity for overseeing a project; however, there are essential components of a project that require an architect's approval.

General Findings

- Most respondents (83%) agreed or strongly agreed that there are essential components of a project that require an architect's approval, even if they are not overseeing a project (see Figure 6.3).

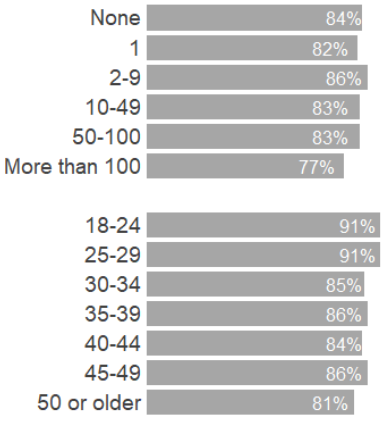
- The pattern of responses to this question is similar across most demographic groups. Some notable group differences are described below.

Figure 6.3



Group Differences/Trends

- The largest group differences in the percentages of respondents agreeing/strongly agreeing are based on the number of architects at the respondents' workplaces and their age.



Comparison to Phase II results: These results confirm those from Phase II. Respondents to webinars, mini-engagement surveys, and social intercepts all indicated that having a license in architecture is not a necessity for overseeing a project; however, there are essential components of a project that require an architect's approval.

6. Roles and Responsibilities

Question: Indicate who is responsible for each activity.

General Findings

- Results for the 50 activities considered, based on all respondents, are summarized in Figure 6.2.

Architects Only

- The top activities for which architects only are responsible include:
    - Signing/sealing/stamping documents (88%)
    - Health, safety, and welfare (42%)
    - Regulatory responsibilities (40%)
    - Leadership (39%)
    - Contracts and proposals (37%)
    - Code compliance review/analysis (37%)
    - Fire/life safety analysis (30%)

- There is substantial similarity across groups with respect to the top-rated areas:
    - Signing/sealing/stamping documents is the #1 activity for which architects only are responsible for every respondent subgroup.
    - Although the order varies, the top five areas for nearly all groups are included in the seven activities noted above.

Contributor Only

- The top activities for which contributors only are responsible include:
    - Design, civil (42%)
    - Surveying (42%)
    - Design, MEP/FP (40%)
    - Design, structural (38%)
    - Procurement (38%)
    - Construction scheduling (36%)
    - Inspections (30%)

- There is substantial similarity across groups with respect to the top-rated activities. Although the order varies, the top five areas for all groups are included in the 7 activities noted above.

6. Roles and Responsibilities

Architect in Collaboration With a Contributor

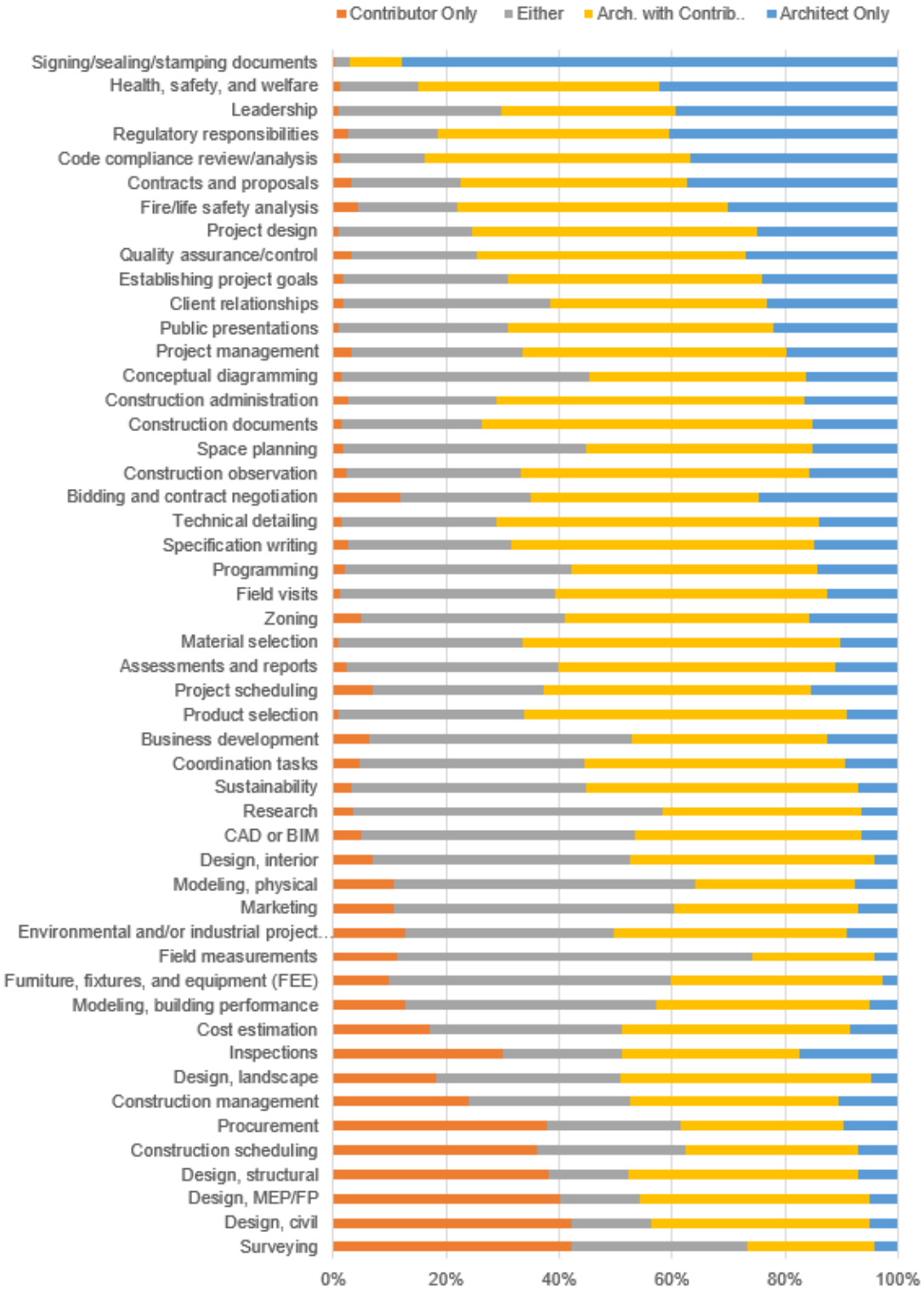
- The top activities for which an architect in collaboration with a contributor are responsible include:
    - Construction documents (59%)
    - Technical detailing (57%)
    - Product selection (57%)
    - Material selection (56%)
    - Construction administration (55%)
    - Specification writing (54%)
    - Construction observation (51%)
    - Project design (50%)
- There is substantial similarity across groups with respect to the top-rated activities. Although the order varies, the top five areas for nearly all groups are included in the eight activities noted above.

Either an Architect or a Contributor

- The top activities for which either an architect or a contributor are responsible include:
    - Field measurements (63%)
    - Research (55%)
    - Modeling, physical (53%)
    - Furniture, fixtures, and equipment (50%)
    - Marketing (49%)
    - CAD or BIM (49%)
    - Business development (46%)
    - Design, interior (46%)
- There is substantial similarity across groups with respect to the top-rated areas:
    - Field measurements is the #1 activity for which either an architect or a contributor are responsible for every respondent subgroup.
    - Although the order varies, the top five areas for all groups are included in the activities noted above.

6. Roles and Responsibilities

Figure 6.4. Indicate who is responsible for each activity.



6. Roles and Responsibilities

Figure 6.5 shows that respondents believed that most activities could be performed by an architect in collaboration with a contributor or either an architect or a contributor. In fact, these are the most frequent responses for 44 of the 50 activities.

Figure 6.5. Activities mapped to architects, contributors, or some combination.

Comparison to Phase II results: These results partially confirm those from Phase II. For example, Phase II respondents indicated that responsibility for tasks like signing/sealing documents and leadership fell to architects, and that elements like structural design and surveying were more likely to be performed by contributors. However, Phase II mini-engagement survey respondents frequently identified design, client relations, and construction among their top three responsibilities uniquely reserved for architects. Phase III respondents tended to identify these as shared responsibilities.

6. Roles and Responsibilities

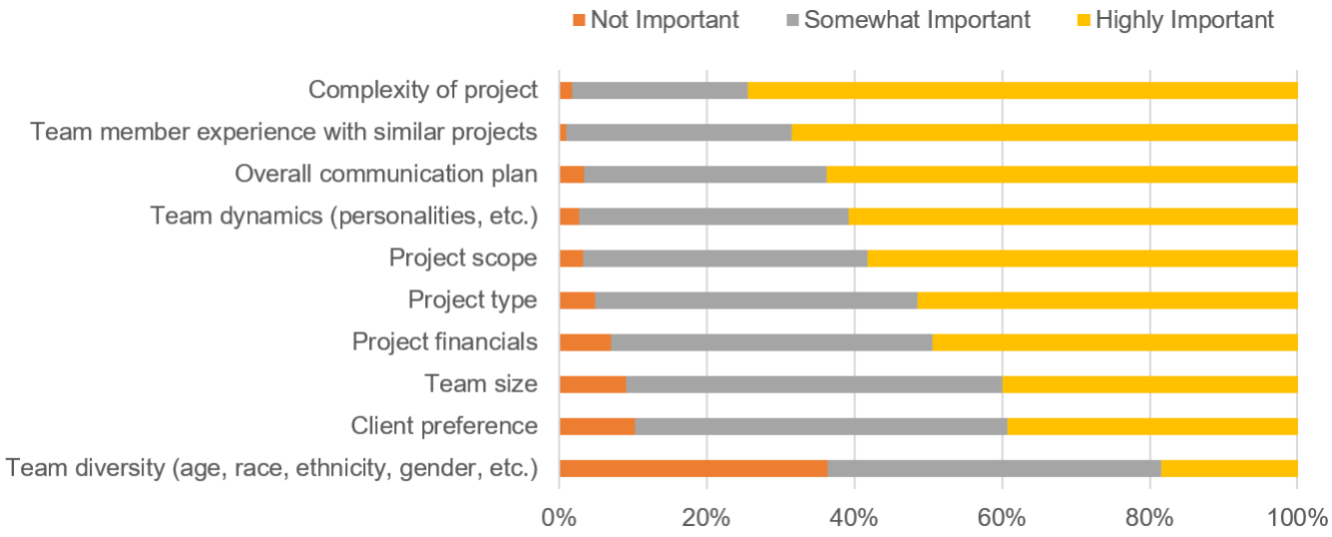
Question: Indicate how important each element is when setting up a project team.

General Findings

- Results for the 10 elements considered, based on all respondents, are summarized in Figure 6.6.
- The top three elements which respondents believed are highly important:
    - Complexity of project (74%)
    - Team member experience with similar projects (68%)
    - Overall communication plan (64%)
- Only 19% of respondents believed team diversity is highly important when setting up a project team. However, there are significant differences between groups for this element (described in more detail below).
- For all other elements, there is substantial similarity across groups' responses.

Full results for all reasons and groups are included in Appendix A-5.

Figure 6.6. Indicate how important each element is when setting up a project team.



6. Roles and Responsibilities

Group Differences/Trends

- Overall, a small proportion of respondents (19%) believed team diversity is highly important when setting up a project team.

- Demographic characteristics that make respondents more likely to identify this element as highly important include:

    - Black or African American (43% versus 16% for white respondents)
    - 18-24 years old (37% versus 15% for respondents 50 or older)
    - 25-29 years old (30%)
    - Non-white (30%)
    - More than 100 architects at their workplace (28% versus 16% for respondents with 2-9 architects at their workplace)

- Demographic characteristics that make respondents less likely to identify this element as highly important include:

    - Rural (13% vs 21% for urban)

Comparison to Phase II results: These results partially confirm those from Phase II. For the Phase II online bulletin board, most respondents noted that the size of the project positively correlates with the size of the project team. They also noted that larger, more complex projects require greater expertise. Roles are much more defined on larger project teams.

6. Roles and Responsibilities

Question: Indicate who would likely undertake each role and assignment at your workplace.

General Findings

- The top roles/assignments identified for employees at each level are shown below:

Junior Architect	Intermediate Architect	Senior Architect	Other Contributor
Being mentored (86%)	Developing, modifying, and reviewing construction documents (70%)	Interacting with clients and maintaining client relations (94%)	Marketing business development (45%)
Drafting (CAD/BIM) (81%)	Participating in large and complex projects (70%)	Participating in large and complex projects (93%)	Participating in large and complex projects (38%)
Physical modeling (68%)	Sketching (68%)	Leading projects (93%)	Performance modeling (36%)
Participating in large and complex projects (53%)	Working independently (68%)	Serving as a mentor (92%)	Completing project financials (36%)
Sketching (49%)	Developing, modifying, and reviewing production drawings (67%)	Client presentations (92%)	Business management (33%)
Supporting or supervised role (45%)	Client presentations (62%)	Supervising/delegating tasks (90%)	Drafting (CAD/BIM) (32%)

- Although the specific order varies, results are similar across respondent groups. For most groups, the top responses for each employment type align with the table above.
- Figures 6.7 – 6.10 show results for all 23 roles/assignments included on the survey separately for each employment type.
- In identifying knowledge areas for different architect levels, there are some cross-level trends (see Figure 6.11):
    - Being mentored, drafting (CAD/BIM), and physical modeling are the roles/assignments most frequently associated with junior-level architects.
    - Supporting or supervised roles and performance modeling are most often associated with intermediate-level architects.

6. Roles and Responsibilities

- 18 of the surveyed roles/assignments are most often associated with senior-level architects, steadily increasing from the junior level.
- None of the roles/assignments are most often associated with other contributors.

Figure 6.7

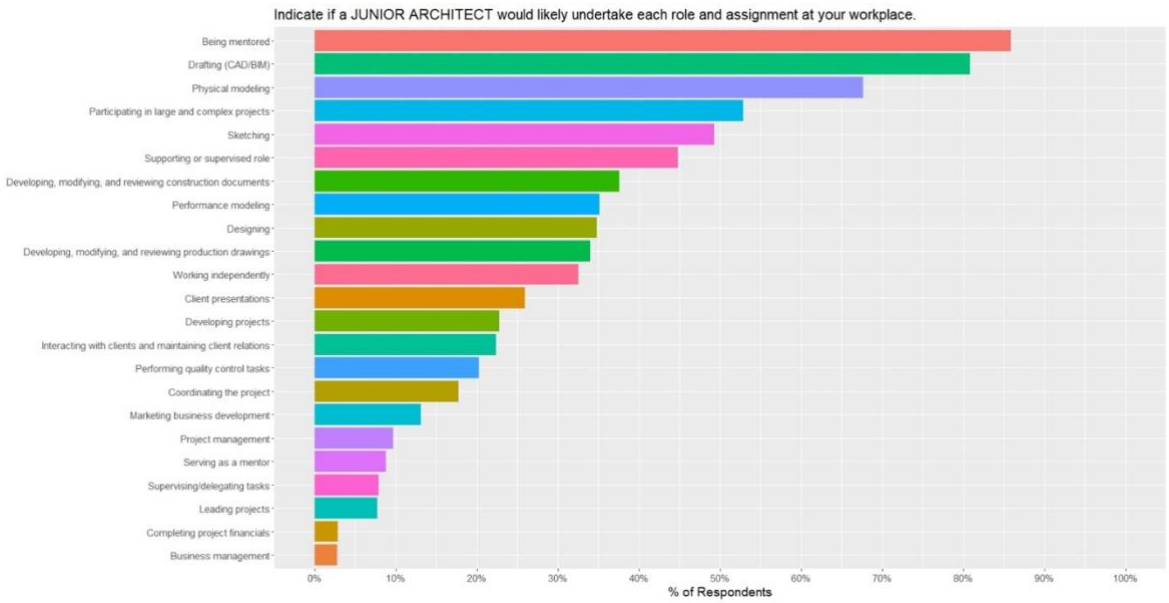
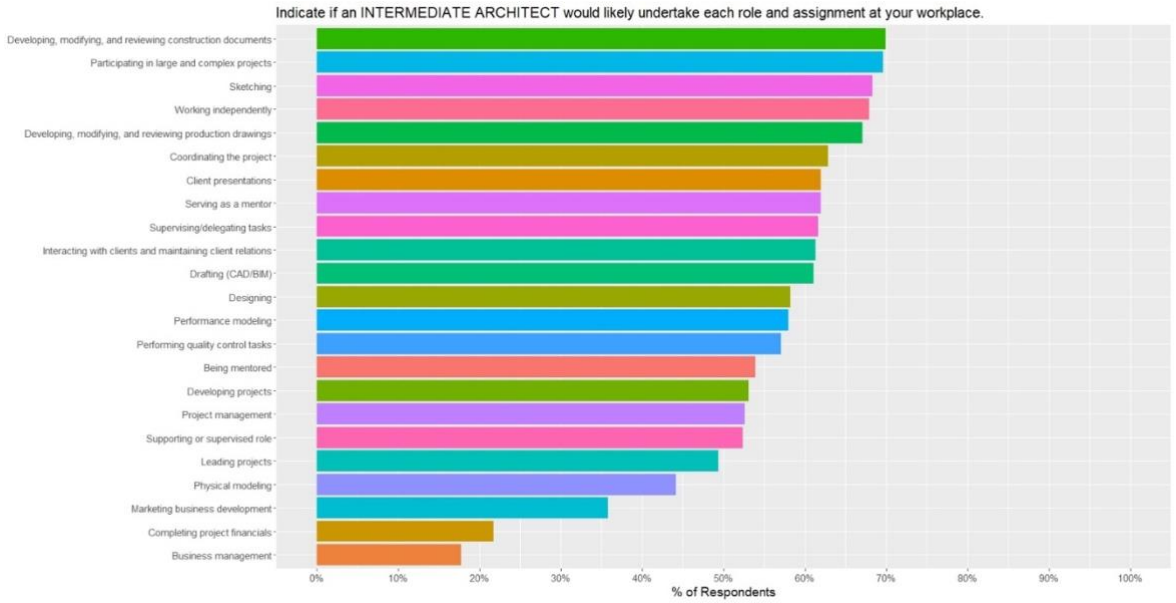


Figure 6.8



6. Roles and Responsibilities

Figure 6.9

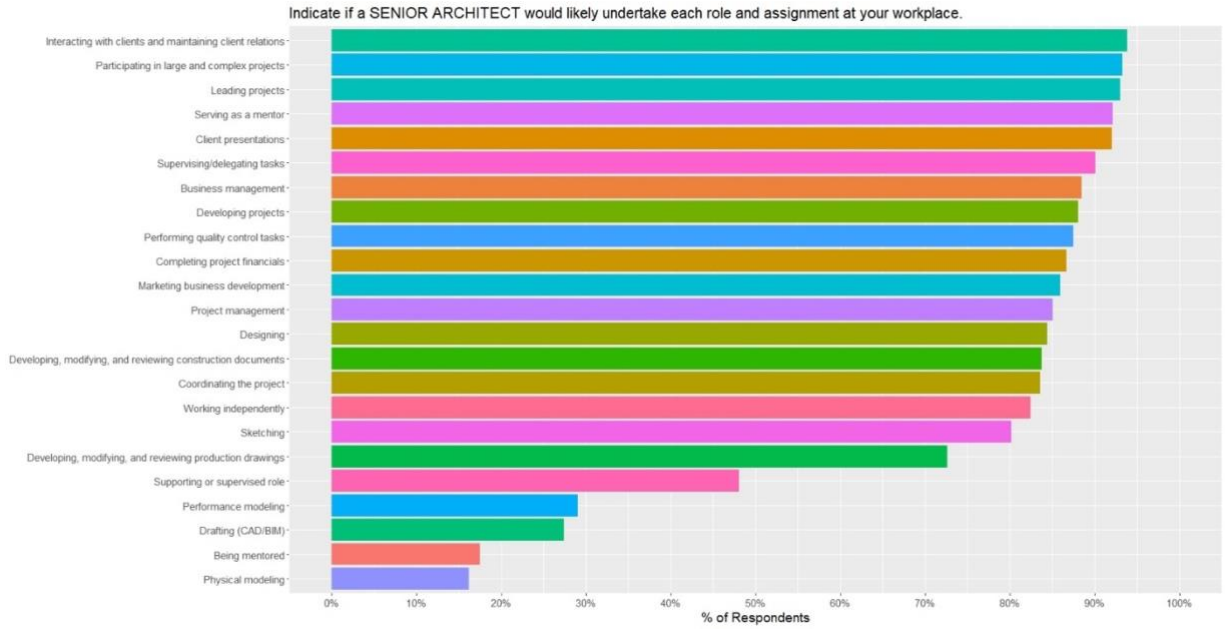
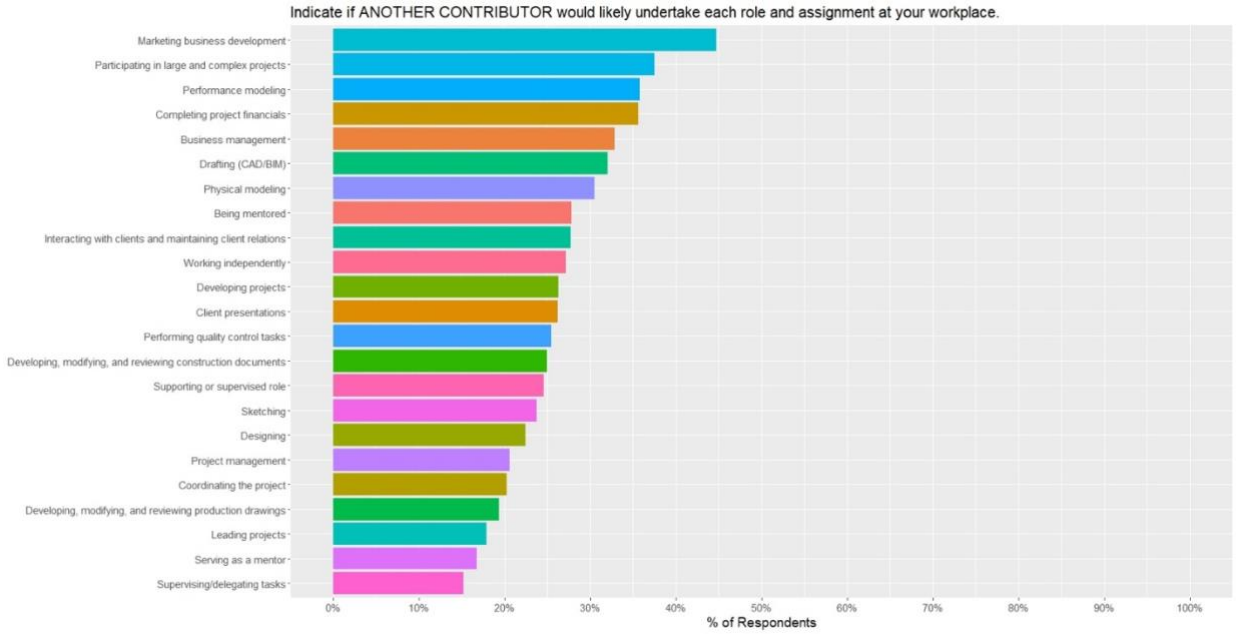


Figure 6.10



6. Roles and Responsibilities

Figure 6.1. Trends in roles/assignments identified for employees at different levels.

Role/Assigment	Junior	Int.	Senior	Other	Trend
Being mentored	**86%**	54%	18%	28%	Most frequently junior architects
Drafting (CAD/BIM)	**81%**	61%	27%	32%	
Physical modeling	**68%**	44%	16%	30%	
Supporting or supervised role	45%	**52%**	48%	25%	Most frequently intermediate architects
Performance modeling	35%	**58%**	29%	36%	
Interacting with clients and maintaining client relations	22%	61%	**94%**	28%	
Participating in large and complex projects	53%	70%	**93%**	38%	
Leading projects	8%	49%	**93%**	18%	
Serving as a mentor	9%	62%	**92%**	17%	
Client presentations	26%	62%	**92%**	26%	
Supervising/delegating tasks	8%	62%	**90%**	15%	
Business management	3%	18%	**88%**	33%	
Developing projects	23%	53%	**88%**	26%	
Performing quality control tasks	20%	57%	**87%**	25%	
Completing project financials	3%	22%	**87%**	36%	Most frequently senior architects
Marketing business development	13%	36%	**86%**	45%	
Project management	10%	53%	**85%**	21%	
Designing	35%	58%	**84%**	22%	
Developing, modifying, and reviewing const. docs.	38%	70%	**84%**	25%	
Coordinating the project	18%	63%	**84%**	20%	
Working independently	33%	68%	**82%**	27%	
Sketching	49%	68%	**80%**	24%	
Developing, modifying, and reviewing prod. drawings	34%	67%	**73%**	19%	
Supporting or supervised role	45%	**52%**	48%	25%	
Performance modeling	35%	**58%**	29%	36%	

Full results for all knowledge areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Junior Level

- More experienced respondents were less likely than less experienced respondents to report having certain roles/assignments associated with junior architects at their workplaces. For example, 51% of respondents with 1-5 years of experience noted that junior architects participated in designing at their workplace, compared to 26% of respondents with 20+ years of experience.

- Respondents who worked at larger organizations were more likely than those from smaller workplaces to report having certain roles/assignments associated with junior architects at their workplaces. For example, about 70% of respondents from firms with 50+ architects

that junior architects participated in large and complex projects at their workplace, compared to 28% of respondents with only one architect.

Other Contributors

- Larger firms are more likely to use other contributors in roles like marketing business development and completing project financials. For example, about 58% of respondents who work with 10+ architects noted that other contributors were used in marketing business development, compared to 31% of respondents from workplaces with a single architect.

Comparison to Phase II results: This question was not asked directly during Phase II.

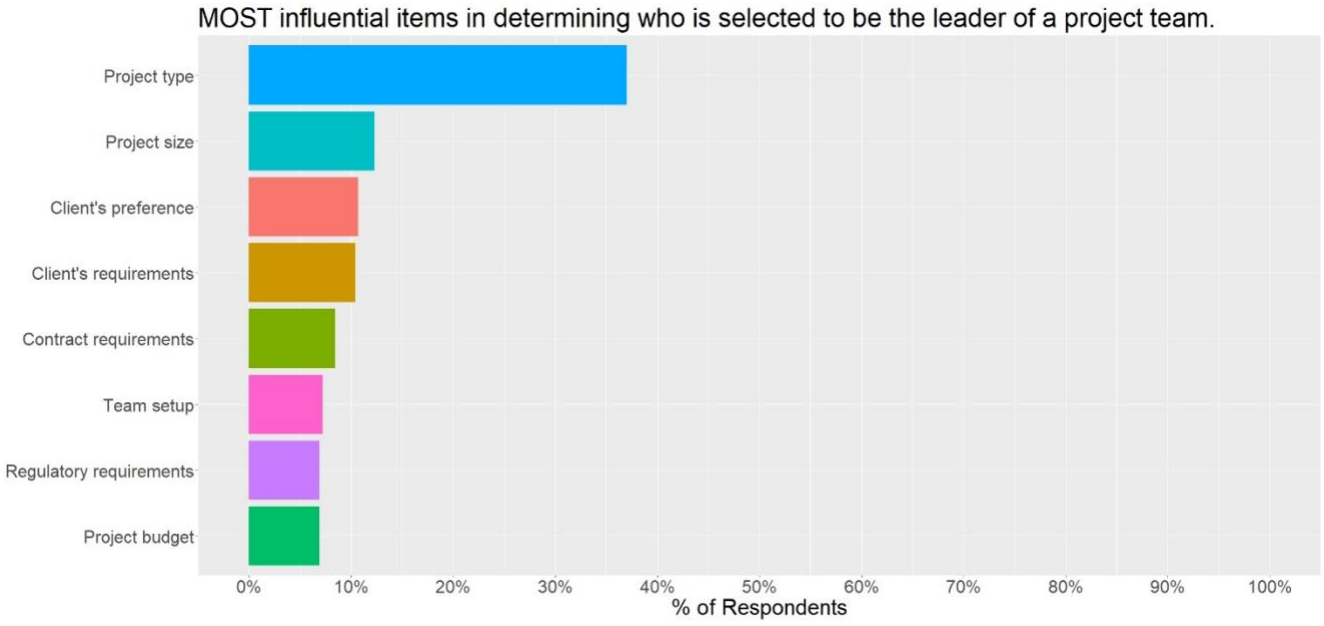
6. Roles and Responsibilities

Question: Order the items from MOST to LEAST influential in determining who is selected to be the leader of a project team.

General Findings

- Results for the most influential factors, based on all respondents, are summarized in Figure 6.12.
- The top factors in determining who is selected to be the leader of a project team include:
    - Project type (37%)
    - Project size (12%)
    - Client's preference (11%)
- The pattern of responses to this question is similar across all demographic groups. Project type and project size are the top two most influential factors for every group.

Figure 6.12



Comparison to Phase II results: These results are similar to Phase II results. Project size and client's preference were 2nd and 3rd ranked responses to this question in a Phase II webinar. However, contract requirements was the top-rated response and project type was the 7th most frequent response.

6. Roles and Responsibilities

Question: Thinking about the past 10 years, how much has each element changed the coordination of team members?

General Findings

- Results for the 15 elements considered, based on all respondents, are summarized in Figure 6.13.

- The top five elements respondents believed led to a large increase in the coordination of team members during the past 10 years are all technology-related:

    - Technological software tools (e.g., BIM, CAD, visualization) (77%)
    - Digital communications (e.g., email, virtual meetings) (73%)
    - Electronic documents (e.g., electronic submittals, drawings) (61%)
    - General technological improvements (48%)
    - Real-time coordination (43%)

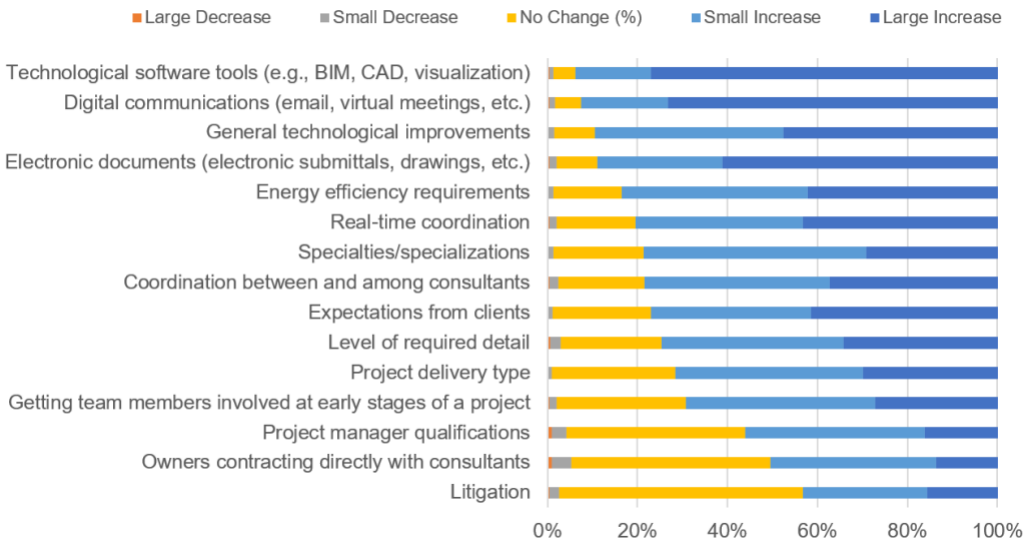
- No more than 5% of respondents indicated that any element led to a large or small decrease in coordination.

- There is substantial similarity in the pattern of responses across groups. There are only small group differences with respect to the percent responding “small increase” or “large increase” across all groups and elements.

Full results for all reasons and groups are included in Appendix A-5.

6. Roles and Responsibilities

Figure 6.13. Thinking about the past 10 years, how much has each element changed the coordination of team members?



6. Roles and Responsibilities

Comparison to Phase II results: These results partially confirm those from Phase II. Software (e.g., BIM, Revit, AutoCAD) and technology were some of the most frequent responses noted by webinar respondents. However, new specialties/specializations were identified by more respondents as being less important to team coordination in the last 10 years.

6. Roles and Responsibilities

Question: Indicate the extent to which you agree or disagree each statement is a trend for architects and architecture.

General Findings

- Results for the 10 statements considered, based on all respondents, are summarized in Figure 6.14.

- Respondents agreed or strongly agreed that the following statements represented trends for architects and architecture:

    - There is a continued and greater need for well-developed soft skills (92%).
    - There is an increased need for cross-functional knowledge (e.g., engineering, contractors) (90%).
    - More women are entering the profession (89%).
    - Practitioners are more aware of and advocate for sustainability (84%).

- A majority of respondents (65%) disagreed/strongly disagreed that there is a trend toward architects having better work/life balance.

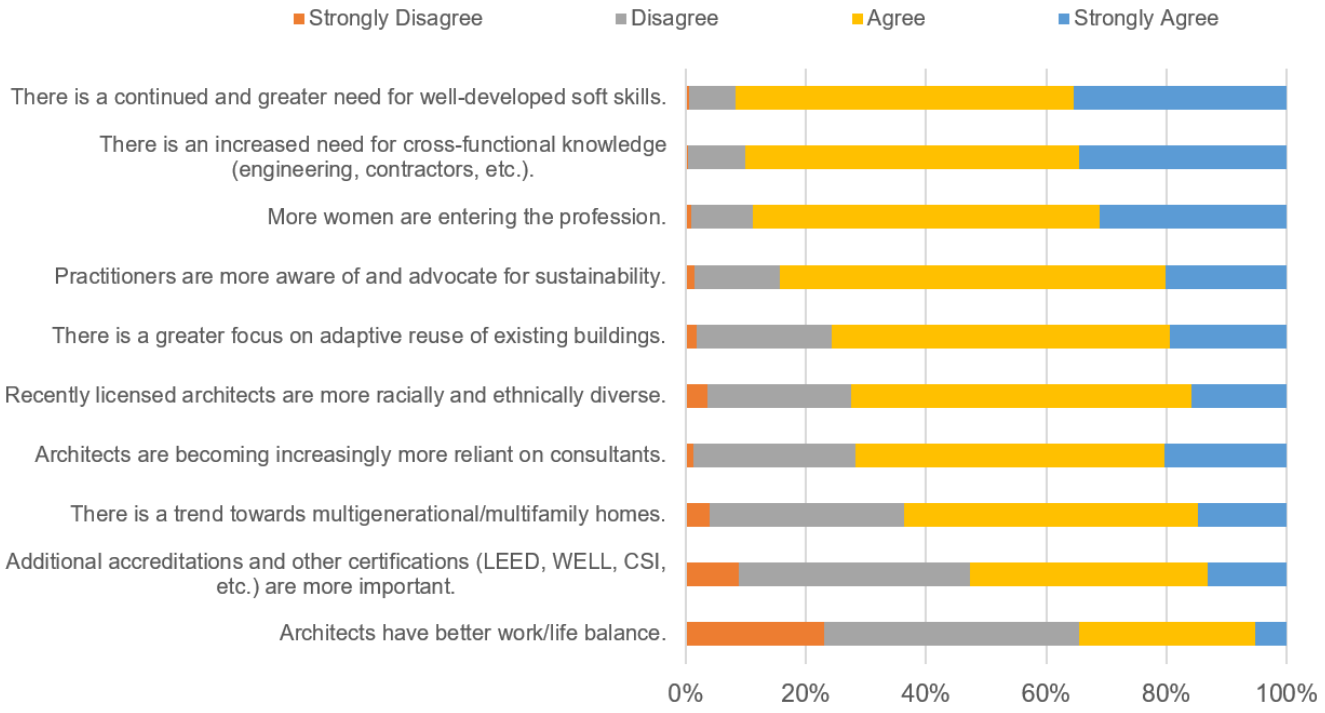
- There is substantial similarity in the pattern of responses across groups. There are only small group differences between the percent of respondents who agreed/strongly agreed with the statements for most groups/statements. One exception is the following:

    - White respondents were more likely than Black or African American respondents to agree/strongly agree that there is a trend toward recently licensed architects becoming more racially and ethnically diverse (74% versus 47%).

Full results for all statements and groups are included in Appendix A-5.

6. Roles and Responsibilities

Figure 6.14. Indicate the extent to which you agree or disagree each statement is a trend for architects and architecture.



Comparison to Phase II results: These results largely confirm those from Phase II. For example, Phase II web interview respondents noted that there is a continued and greater need for well-developed soft skills (communication, critical thinking, decision making, presentation skills, social awareness). Communication skills were specifically called out multiple times as an essential and increasingly important skill. Similarly, Phase II respondents noted that there is an increase in the number of women entering the profession, and that the younger generation is showing a trend toward an urban lifestyle and multigenerational homes.

6. Roles and Responsibilities

Question: Indicate if each area has become more or less important over the past 10 years.

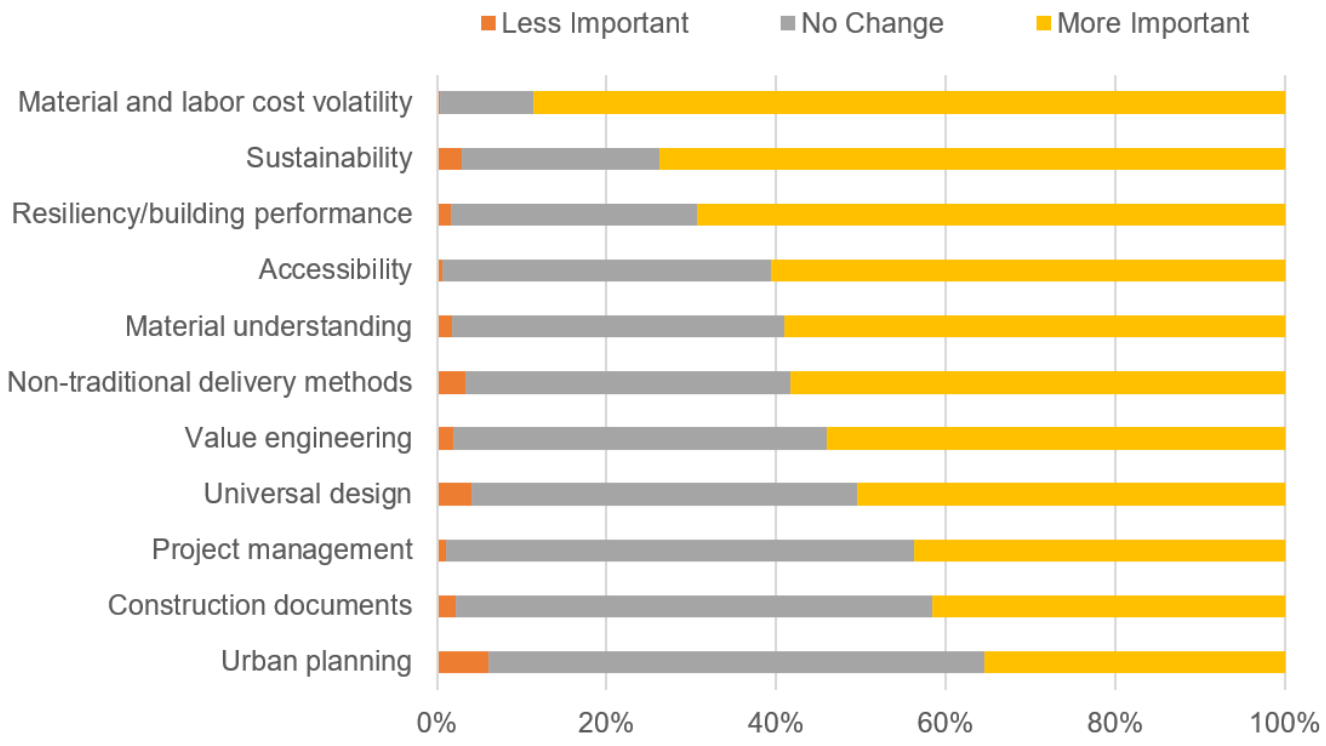
General Findings

- Results for the 11 areas considered, based on all respondents, are summarized in Figure 6.15.
- The top five areas respondents believed have become more important during the past 10 years were:
    - Material and labor cost volatility (89%)
    - Sustainability (74%)
    - Resiliency/building performance (69%)
    - Accessibility (61%)
    - Material understanding (59%)
- No more than 6% of respondents indicated that any area had become less important.
- There is substantial similarity in the pattern of responses across groups. There are only small group differences with respect to the percent responding “more important” across all groups and elements.

Full results for all reasons and groups are included in Appendix A-5.

6. Roles and Responsibilities

Figure 6.15. Indicate if each area has become more or less important over the past 10 years.



Comparison to Phase II results: Phase II results were partially confirmed. Phase II web interviews noted that there is higher importance placed on accessibility, bidding, documentation, environmental/health building, material understanding, non-traditional delivery methods, project management, resiliency, universal design, urban planning, and value engineering. Phase III respondents most frequently identified material/labor cost volatility and sustainability as the areas of increasing importance.

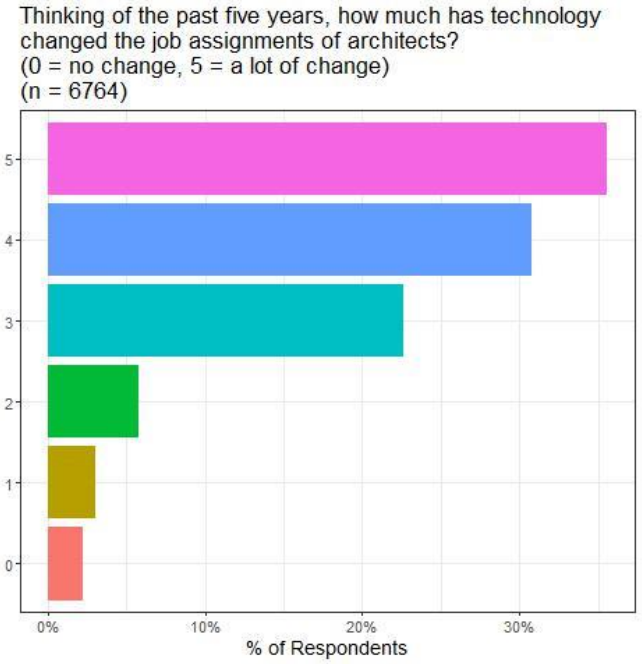
6. Roles and Responsibilities

Question: Thinking of the past five years, how much has technology changed the job assignments of architects? (0 = no change; 5 = a lot of change)

General Findings

- 36% of respondents said that technology caused a lot of change in job assignments over the past five years; 66% rate the amount of change at least four out of five. Only 5% rate the amount of change less than two out of five (see Figure 9).
- Among all respondents, the average rating of how much technology has changed the job assignments of architects is 3.83.
- The pattern of responses to this question was consistent across all demographic groups, with at most small differences between groups.

Figure 6.16



Comparison to Phase II results: Results from Phase II were confirmed. Fifty percent of Phase II webinar participants noted that technology significantly changed the role/responsibilities of architects; 32% said that it slightly changed roles/responsibilities.

6. Roles and Responsibilities

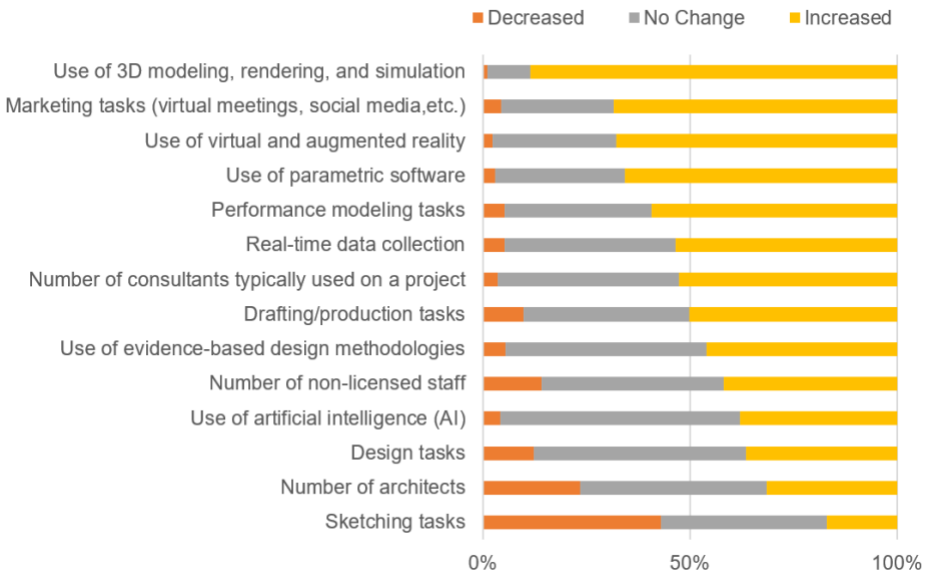
Question: Indicate if you have seen an increase or decrease in each area at your workplace.

General Findings

- Results for the 14 areas considered, based on all respondents, are summarized in Figure 6.15.
- The top five areas respondents report increasing at their workplace include:
    - Use of 3D modeling, rendering, and simulation (89%)
    - Marketing tasks (presentations, virtual meetings, social media, client resource management, etc.) (68%)
    - Use of virtual and augmented reality (68%)
    - Use of parametric software (66%)
    - Performance modeling tasks (59%)
- Of the areas surveyed, the area where respondents were most likely to report a decrease was sketching tasks.
- There is some similarity in the pattern of responses across groups. However, there are moderate to large group differences for some of the areas surveyed. More details about these differences are included below.

Full results for all reasons and groups are included in Appendix A-5.

Figure 6.17. Indicate if you have seen an increase or decrease in each area at your workplace.



6. Roles and Responsibilities

Group Differences/Trends

Number of Non-Licensed Staff at Your Workplace

- 42% of respondents reported that the number of non-licensed staff at their workplace was increasing.

- Groups that were more likely to report an increase include:

    - 1-5 years of experience in architecture (61%)
    - Pursuing a license (56%)
    - 25-29 years old (57%)
    - 30-34 years old (54%)

Number of Architects at Your Workplace

- 31% of respondents reported that the number of architects at their workplace was increasing.

- Groups that were more likely to report an increase include:

    - Received initial license less than one year ago (51%)
    - 50-100 architects at their workplace (50%)
    - Received initial license 1-5 years ago (42%)

- Groups that were less likely to report an increase include:

    - Rural (22%)
    - No architects at their workplace (18%)
    - One architect at their workplace (11%)

Use of Artificial Intelligence (AI) at Your Workplace

- 38% of respondents reported that the use of artificial intelligence (AI) at their workplace was increasing.

- Groups that are more likely to report an increase include:

    - More than 100 architects at their workplace (56%)
    - 50-100 architects at their workplace (52%)
    - No architects at their workplace (48%)

Use of Evidence-Based Design Methodologies at Your Workplace

- 46% of respondents reported that the number of architects at their workplace was increasing.

- Groups that were more likely to report an increase include:
    - More than 100 architects at their workplace (67%)
    - 50-100 architects at their workplace (62%)
    - More than 100 staff at their workplace (59%)

Sketching Tasks at Your Workplace

- Only 17% of respondents reported an increase in sketching tasks at their workplace.
- Groups that were more likely to report an increase include:
    - No architects at their workplace (30%)
    - Hispanic, Latino, or Spanish (27%)
    - Without a degree from a NAAB-accredited program (24%)
- Groups that were less likely to report an increase include:
    - Received initial license 5 or fewer years ago (12%)
    - More than 100 staff at their workplace (12%)
    - 50-100 architects at their workplace (11%)

Performance Modeling Tasks at Your Workplace

- 59% of respondents reported an increase in performance modeling tasks at their workplace.
- Groups that were more likely to report an increase include:
    - More than 100 architects at their workplace (84%)

Comparison to Phase II results: This question was not asked directly. However, some Phase II webinar participants noted changes in staffing.

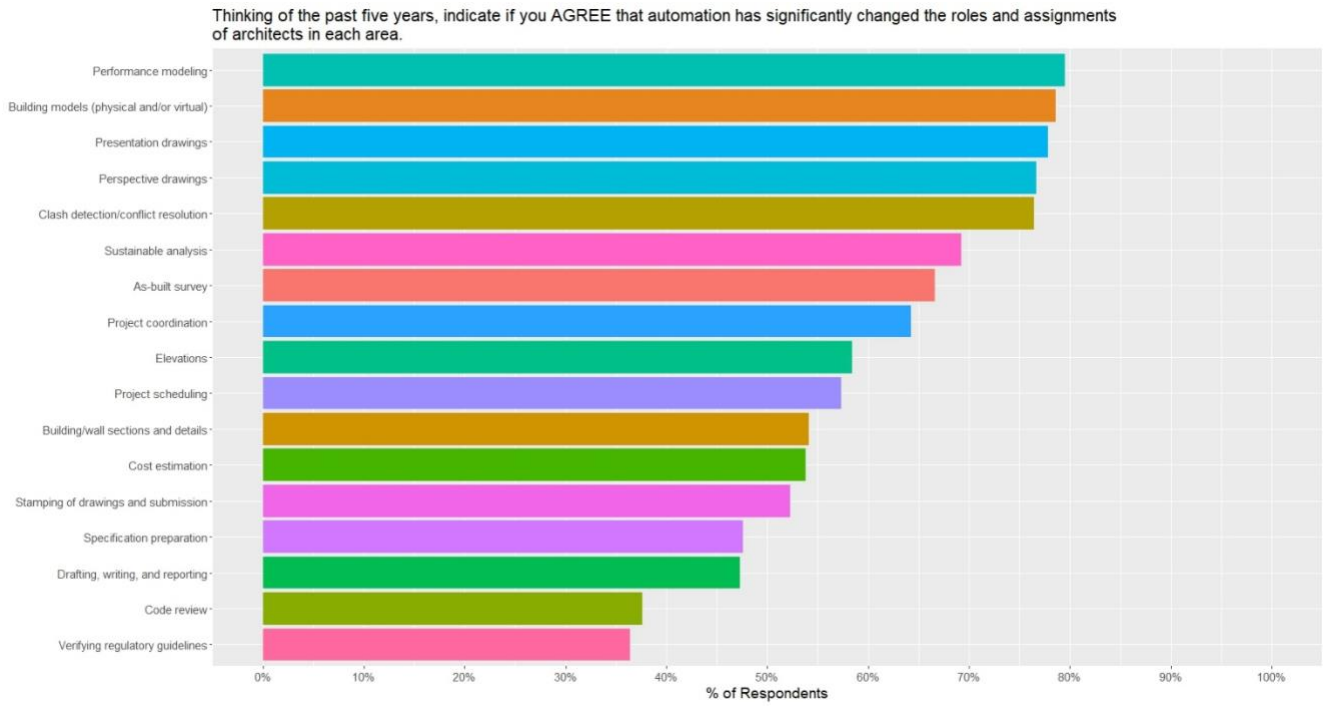
6. Roles and Responsibilities

Question: Thinking of the past five years, indicate if you agree or disagree that automation has significantly changed the roles and assignments of architects in each area.

General Findings

- Results for the 17 areas considered, based on all respondents, are summarized in Figure 6.18.
- The top five areas in which respondents believed automation significantly changed the roles and assignments of architects during the past 5 years were:
    - Performance modeling (80%)
    - Building models (physical and/or virtual) (79%)
    - Presentation drawings (78%)
    - Perspective drawings (77%)
    - Clash detection/conflict resolution (76%)

Figure 6.18. Thinking of the past five years, indicate if you agree or disagree that automation has significantly changed the roles and assignments of architects in each area.



- There is substantial similarity in the pattern of responses across groups. However, there are moderate group differences for some areas surveyed. More details about these differences are included below.

Full results for all reasons and groups are included in Appendix A-5.

Group Differences/Trends

Code Review

- 38% of respondents reported that code review automation has significantly changed the roles and assignments of architects.

- Groups that were more likely to agree include:

    - No architects at their workplace (54%)
    - Some college credit, no degree (54%)

- Groups that were less likely to agree include:

    - Received initial license 19 or fewer years ago (25-27%)

Verifying Regulatory Guidelines

- 36% of respondents reported that automation verifying regulatory guidelines significantly changed the roles and assignments of architects.

- Groups that were less likely to agree include:

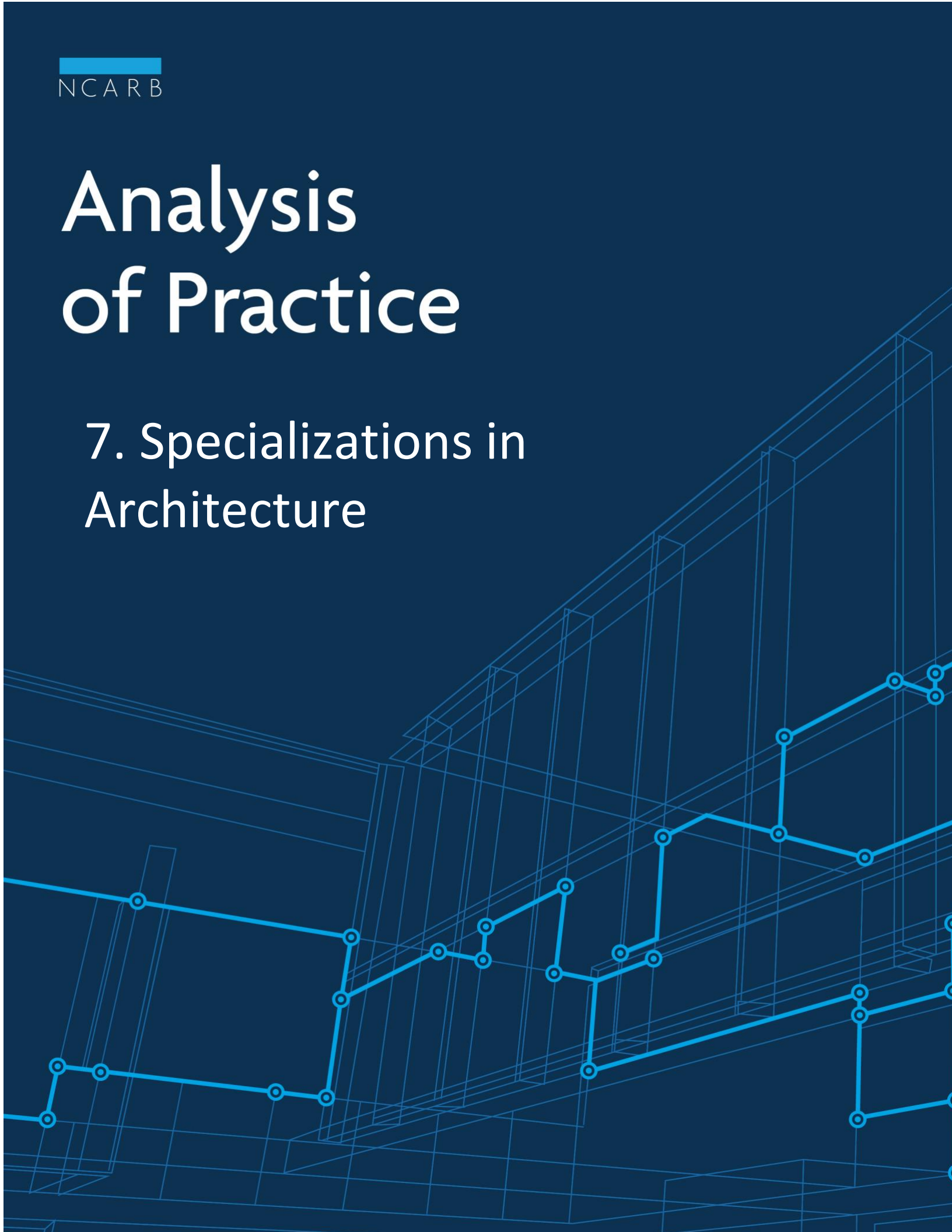
    - Received initial license 1 to 19 years ago (25%)
    - 35-49 years old (27-28%)

Comparison to Phase II results: Phase II results were partially confirmed. The exact questions were not asked in the same way, but there was some overlap in the Phase II webinar respondents' open-ended responses to the results shown here. Particularly, coordination, building models, and clash detection/conflict resolution were among the most frequently mentioned automation-related changes in job roles/responsibilities in the last 3-5 years.

NCARB

Analysis of Practice

7. Specializations in Architecture



7. Specializations

Introduction

This section provides the results from specializations[19] in architecture. The analyses presented in this section address questions related to the benefits of specializations, current and future importance of specializations, how specializations are valued, and specialist versus generalist comparisons.

Significant results are provided in the body of this report. Detailed results are provided in Appendix A-5.

Overall Findings

Most respondents believed that specializations are becoming more necessary (68%) and can lead to career advancement (74%). They viewed specializations as most beneficial to senior- and intermediate-level architects and less frequently believed specializations are beneficial to junior-level architects and licensure candidates.

Notable exceptions were respondents who are pursuing a license, non-white respondents, and Hispanic, Latino, or Spanish respondents. Respondents from each of these groups believed specializations were very beneficial for both licensure candidates and junior-level architects. Similarly, respondents who have never been licensed (and are not planning to pursue a license) were more likely than those with a current license to believe specializations are very beneficial for non-licensed contributors[20] (44% versus 28%).

The stakeholder groups that respondents identify as most likely to value specialization include clients (76%), large architectural firms (76%), and individual architects for personal growth (58%). Respondents believed that architects are most likely to have specializations in large urban and suburban workplaces.

[19] For the survey, a specialization was defined as, “An area of concentration or expertise that may or may not be regulated.”

[20] For the survey, a non-licensed contributor was defined as, “An individual who works primarily within the field of architecture but does not possess a license to practice architecture and, therefore, cannot officially refer to themselves as an architect.”

7. Specializations

A significant majority of respondents believed the following specializations are currently important:

- Code compliance (85%)
- Waterproofing (83%)
- Space planning (82%)
- Roofing (81%)
- Construction administration (81%)
- Project/program management (80%)

A majority of respondents expected the following specializations will become more important in the next 3-5 years:

- Energy compliance/modeling (63%)
- Adaptive reuse (60%)
- Sustainable design/accessibility (58%)
- Infrastructure (57%)
- Digital design software (54%)
- BIM (54%)
- Renovations/alterations (54%)
- Data center architecture (53%)

Respondents most frequently expected the following specializations will become less important in the next 3-5 years:

- Retail (41%)
- Religious (39%)
- Parking structure (34%)
- Residential/single family (27%)
- Masonry (24%)
- Workplace (24%)

Subsequent portions of this section describe findings from individual survey questions, focusing on broad, general findings as well as identifying important group differences.

7. Specializations

NCARB Supplemental Infographic: Specializations

While the licensure process focuses on the general knowledge and skill areas required for the independent practice of architecture, many architects choose to focus on gaining additional expertise in a specific area of practice—also known as a specialization. To better understand the benefits and importance of specializations, NCARB created a supplemental infographic and blog post.

7. Specializations

Questions Asked in this Section

Indicate how beneficial specializations are to each group.

Q7.1 Licensure candidates
Q7.2 Junior-level architects
Q7.3 Intermediate-level architects
Q7.4 Senior-level architects
Q7.3 Non-licensed contributors

Q7.6 Indicate the current and future importance of specializations in these areas to the profession of architecture.

Q7.7 In general, which stakeholder group(s) value specializations in architects?

Q7.8 Is an architect more likely to be a specialist or generalist in each type of workplace?

Indicate the extent to which you agree or disagree with each statement.

Q7.9 I support the idea of architects having specializations that are regulated.
Q7.10 Specializations discourage people from pursuing a license.
Q7.11 Specializations that are not regulated are valuable to architects.
Q7.12 Becoming a specialist leads to career advancement.
Q7.13 Becoming a specialist limits career advancement.
Q7.14 Specializations are becoming more necessary.

Single-part questions are in dark blue font; multi-part questions are in light blue font.

7. Specializations

Demographic Variables Reviewed

The table on the following page lists the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[21] based on the size of the proportional difference between groups (see key on the following page). For multi-part questions, the table notes which groups had notable differences on some/all parts.

[21] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2= large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

7. Specializations

Demographic Variables Reviewed		Group Differences/Trends?												
		Q7.1	Q7.2	Q7.3	Q7.4	Q7.5	Q7.6	Q7.7	Q7.8	Q7.9	Q7.10	Q7.11	Q7.12	Q7.13	Q7.14
Job Role	Field of employment	S	S	S	S	S				S	N	S	S	S	S
	Related work field	S	S	S	S	S				S	S	S	S	S	S
	Specialize	S	M	M	S	S				S	S	S	S	S	S
Licensure Status	Current status of architectural license	L	L	M	S	M									
	Years since initial/first license	S	S	S	S	S									
Experience	Years of experience in architecture	S	L	M	S	S				S	S	S	S	S	S
Workplace	Number of people at current workplace	S	S	S	S	S				S	S	S	S	S	S
	Number of architects at current workplace	M	M	S	S	S				S	S	S	S	S	S
	Workplace location	S	S	S	S	S				S	S	S	S	S	S
	Workplace community	S	S	S	S	S				S	S	S	S	S	S
Demographics	Gender	S	S	S	S	S				S	S	S	S	S	S
	Race (by individual race)	M	M	S	S	S				S	S	S	S	S	S
	Race (by white vs. non-white)	M	M	S	S	S				S	S	S	S	S	S
	Ethnicity	M	M	M	S	S				S	S	S	S	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

7. Specializations

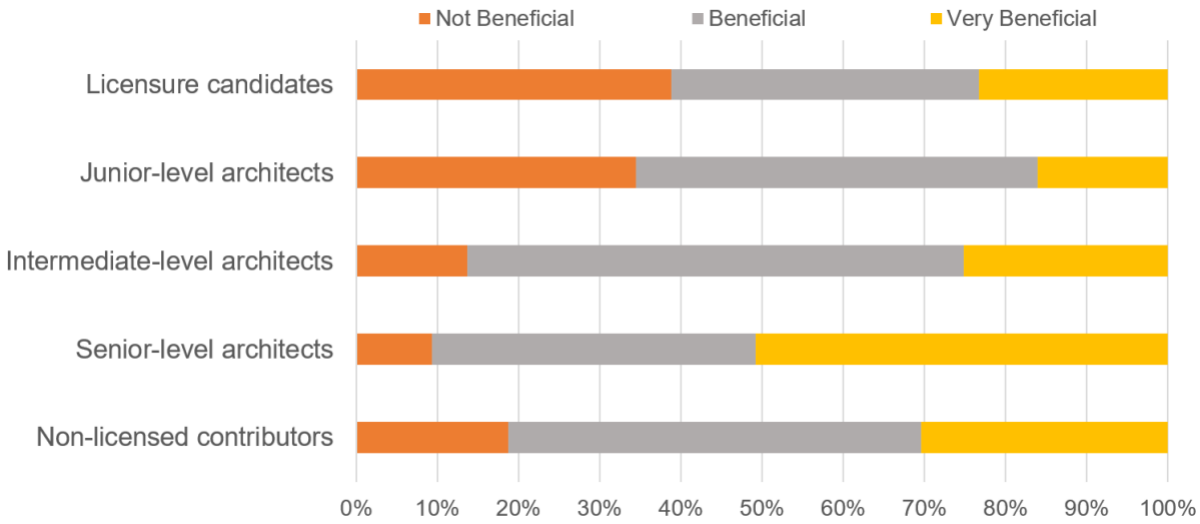
Question: Indicate how beneficial specializations are to licensure candidates; junior-level, intermediate-level, and senior-level architects; and non-licensed contributors.

General Findings

- Respondents viewed specializations as most beneficial to senior- and intermediate-level architects (91% and 86% beneficial/very beneficial, respectively). A majority of respondents (51%) viewed specializations as very beneficial for senior-level architects (see Figure 7.1).

- Specializations were viewed as less beneficial to junior-level architects and licensure candidates (66% and 61% beneficial/very beneficial, respectively).

Figure 7.1. Indicate how beneficial specializations are to licensure candidates; junior-level, intermediate-level, and senior-level architects; and non-licensed contributors.



- The pattern of responses to this question was similar across most demographic groups with some notable differences. Some examples of these differences are described below.

Group Differences/Trends

Field

- 27% of respondents who specialize believed that specializations are very beneficial for intermediate-level architects, compared to 17% of respondents who do not specialize.

7. Specializations

Licensure

- Those pursuing a license were more likely than those with a current license to believe specializations are very beneficial for both licensure candidates (37% versus 18%) and junior-level architects (26% versus 12%).

- Respondents who have never been licensed and are not planning to pursue a license were more likely than those with a current license to believe specializations are very beneficial for non-licensed contributors (44% versus 28%).

Experience

- Less experienced respondents were more likely than more experienced respondents to describe specializations as very beneficial for licensure candidates and junior- and intermediate-level architects. For example, 28% of those with 1-5 years of experience saw specializations as very beneficial for junior-level architects, compared to 14% of those with 20+ years of experience.

Demographics

- Non-white respondents were more likely than white respondents to say specialization was very beneficial to licensure candidates (34% versus 20%) and junior-level architects (21% versus 14%).

- Hispanic, Latino, or Spanish respondents were more likely than respondents who are not Hispanic, Latino, or Spanish to say specialization was very beneficial to licensure candidates (39% versus 20%) and junior-level architects (27% versus 14%).

Comparison to Phase II results: This question was not asked during Phase II.

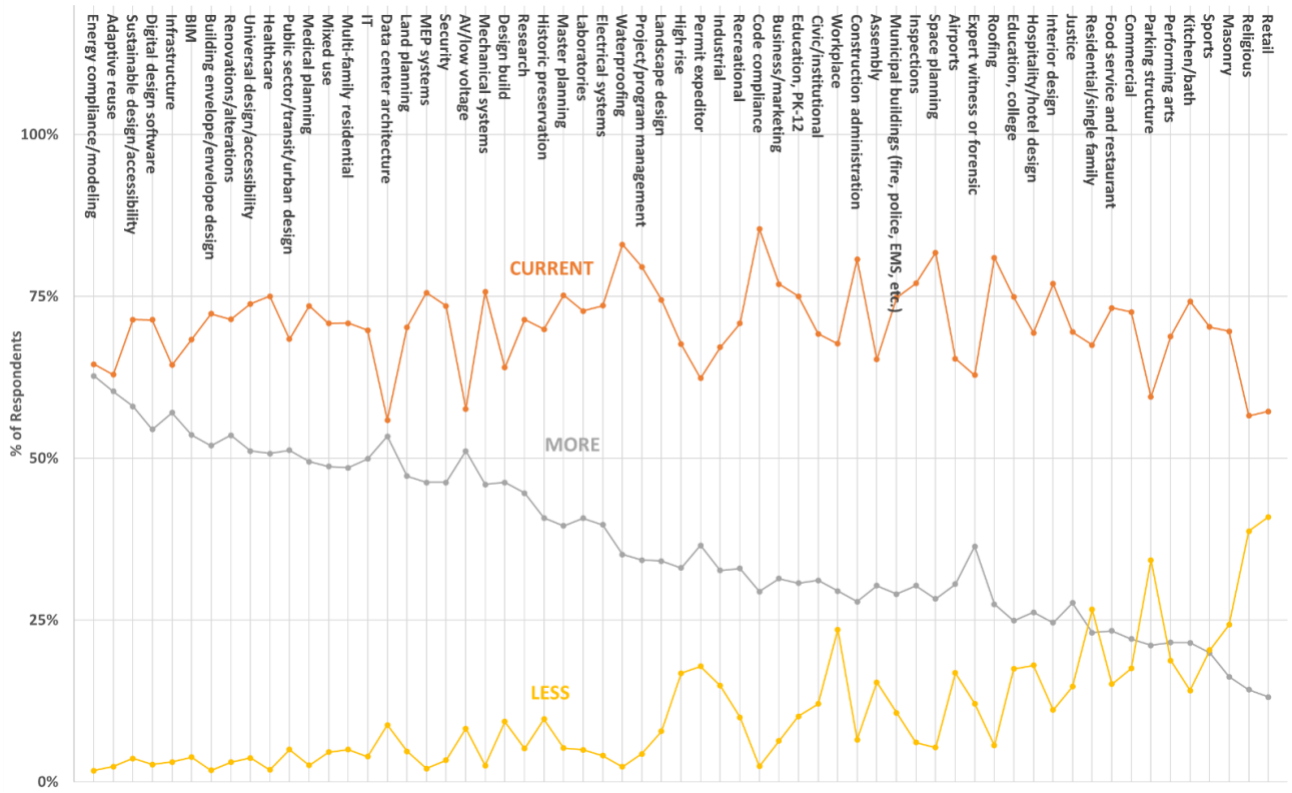
7. Specializations

Question: Indicate the current and future importance of specializations in these areas to the profession of architecture.

General Findings

- Figure 7.2 displays 61 specialization areas and the percent of respondents who viewed them as currently important, and if they were expected to become more important or less important in the next 3-5 years.

Figure 7.2



- Respondents most frequently identified the following specializations as currently important:
    - Code compliance (85%)
    - Waterproofing (83%)
    - Space planning (82%)
    - Roofing (81%)
    - Construction administration (81%)
    - Project/program management (80%)

7. Specializations

- However, there was not much variability in the current importance of specializations. More than 50% of respondents identified every specialization area as currently important.
- Respondents most frequently expected the following specializations to become more important in the next 3-5 years:
    - Energy compliance/modeling (63%)
    - Adaptive reuse (60%)
    - Sustainable design/accessibility (58%)
    - Infrastructure (57%)
    - Digital design software (54%)
    - BIM (54%)
    - Renovations/alterations (54%)
    - Data center architecture (53%)
- Respondents most frequently expected the following specializations to become less important in the next 3-5 years:
    - Retail (41%)
    - Religious (39%)
    - Parking structure (34%)
    - Residential/single family (27%)
    - Masonry (24%)
    - Workplace (24%)
- While the specific ranking of the top reasons (within current/more/less important responses) varied slightly by demographic group, the top three areas for nearly all demographic groups were included in the lists above.

Full results for all methods and groups are included in Appendix A-5.

Comparison to Phase II results: This question was not asked during Phase II.

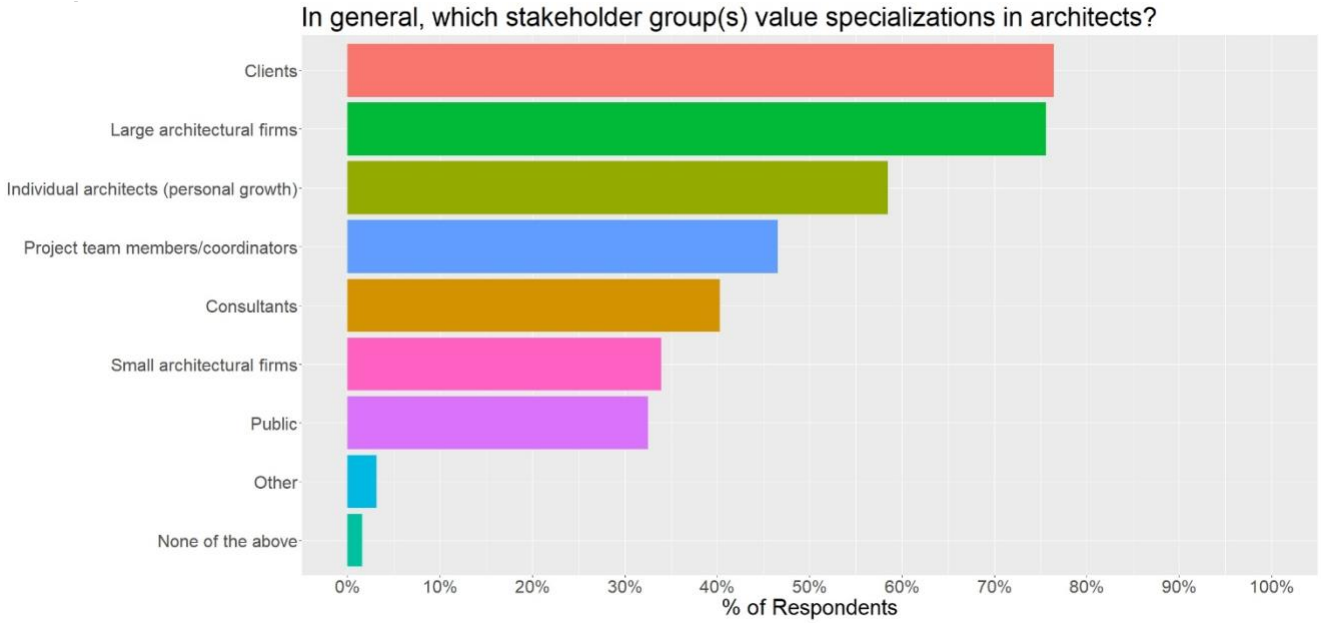
7. Specializations

Question: In general, which stakeholder group(s) value specializations in architects?

General Findings

- Figure 7.3 displays the percent of respondents who believed different stakeholder groups value specialization in architects.
- Respondents were most likely to believe that the following stakeholder groups value specialization in architects:
    - Clients (76%)
    - Large architectural firms (76%)
    - Individual architects (personal growth) (58%)
- While the specific ranking varied slightly by demographic group, the top three stakeholder groups for every demographic group were included in the lists above.

Figure 7.3



Full results for all methods and groups are included in Appendix A-5.

Comparison to Phase II results: This question was not asked during Phase II.

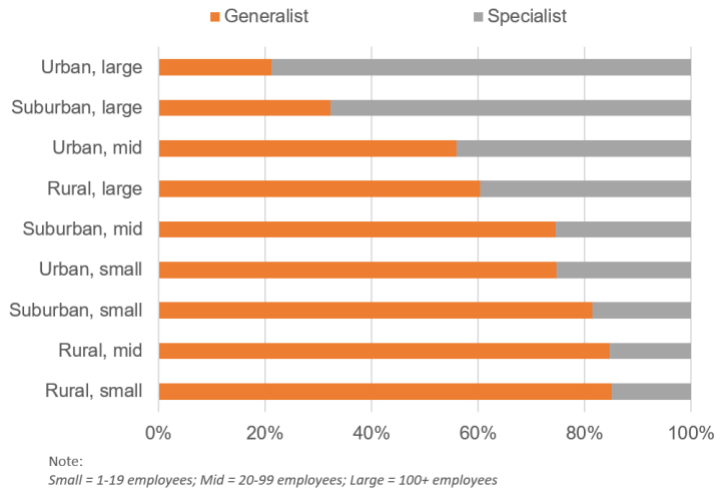
7. Specializations

Question: Is an architect more likely to be a specialist or generalist in each type of workplace?

General Findings

- Figure 7.4 shows the workplaces in which respondents believed architects were most likely to be specialists.
- The workplaces where respondents believed architects were most likely to be specialists include:
    - Urban, large workplaces (79%)
    - Suburban, large, workplaces (68%)
- The workplaces where respondents believed architects were most likely to be generalists include:
    - Rural, small workplaces (85%)
    - Rural, midsize workplaces (85%)
    - Suburban, small workplaces (82%)
- Every demographic group with at least 100 respondents identified urban/large and suburban/large as the workplace type where architects are most likely to be specialists.

Figure 7.4. Is an architect more likely to be a specialist or a generalist in each type of workplace?



Full results for all workplace types and groups are included in Appendix A-5.

7. Specializations

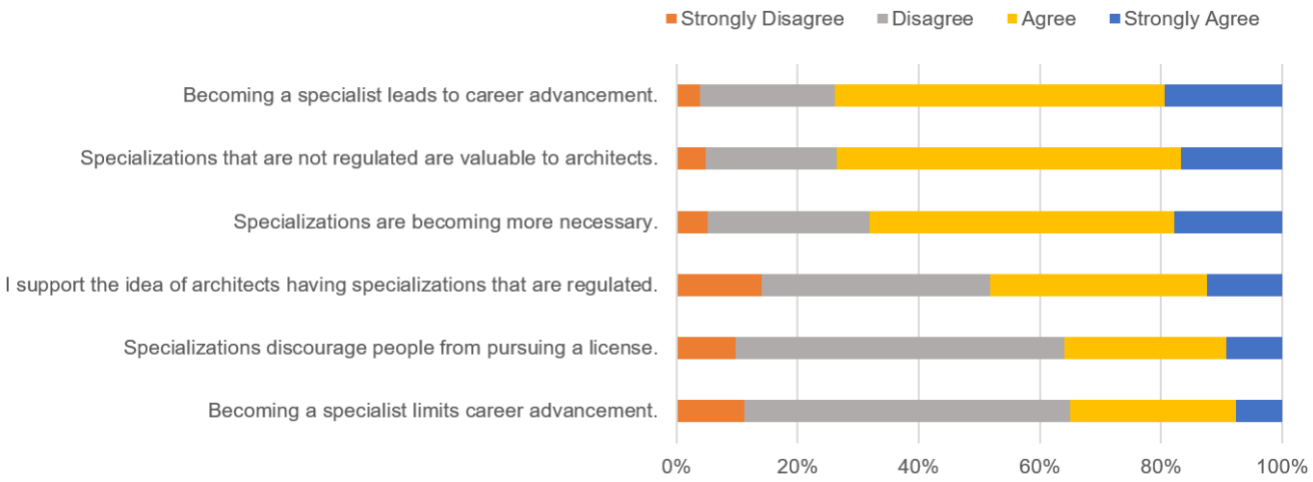
Question: Indicate the degree to which you Strongly Agree, Agree, Disagree, or Strongly Disagree with each statement (specializations).

General Findings

- Respondents were most likely to agree/strongly agree with the following statements:
    - Becoming a specialist leads to career advancement (74%)
    - Specializations that are not regulated are valuable to architects (74%)
    - Specializations are becoming more necessary (68%)

- Respondents were most likely to disagree/strongly disagree with the following statements:
    - I support the idea of architects having specializations that are regulated (52%)
    - Specializations discourage people from pursuing a license (64%)
    - Becoming a specialist limits career advancement (65%)

Figure 7.5



- The pattern of responses to this question was similar across demographic groups. Only small group differences were observed.

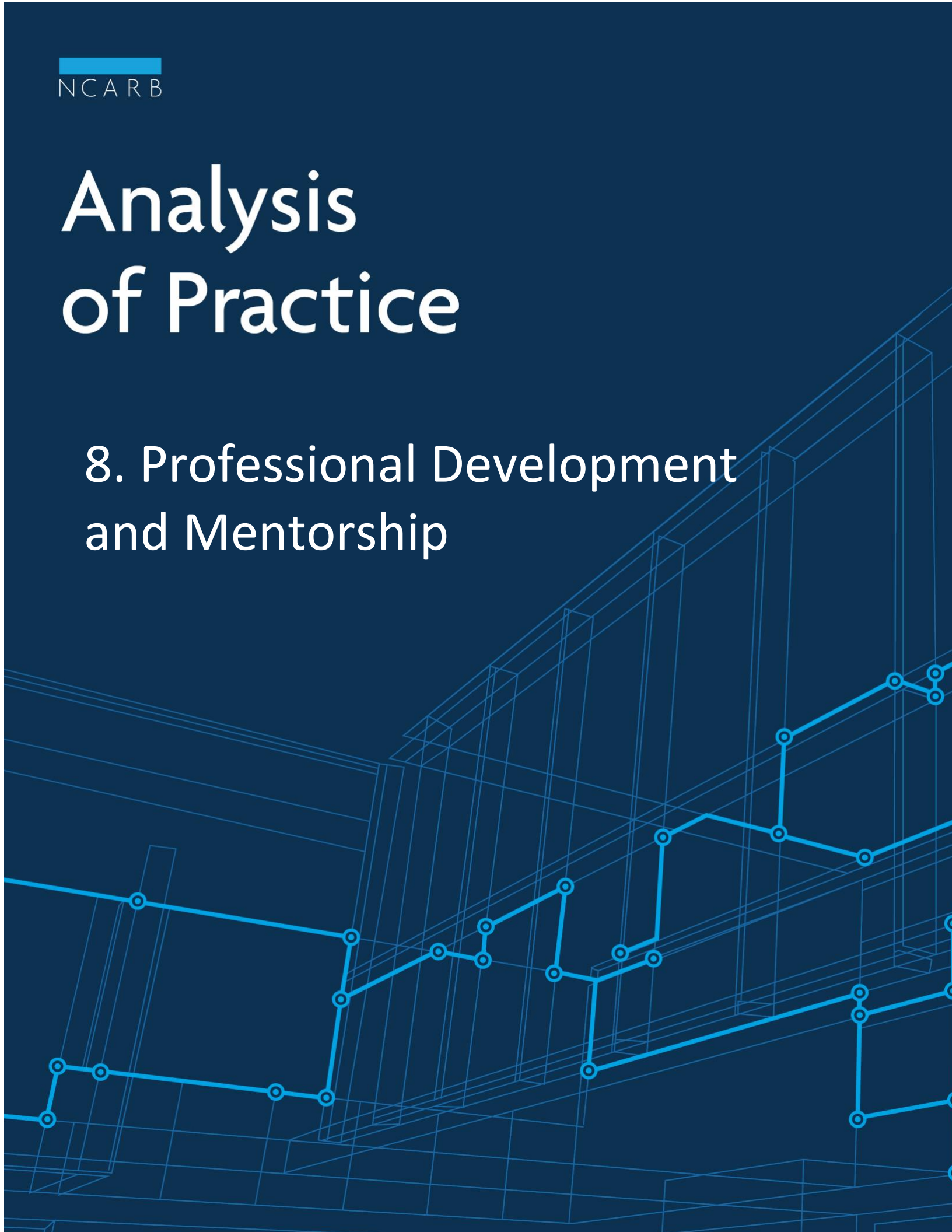
Full results for all statements and groups are included in Appendix A-5.

Comparison to Phase II results: The Phase III results partially confirmed those of Phase II in that majorities in both did not support regulation of specializations.

NCARB

Analysis of Practice

8. Professional Development and Mentorship



8. Prof. Development & Mentorship

Introduction

This section provides the results from professional development and mentorship, in which respondents shared their experiences and beliefs related to training methods, continuing education (CE) requirements, learning formats, and benefits provided to employees preparing for their licensure exams.

The analysis for this section was filtered to include only individuals currently working in the field of architecture or students in the field of architecture or a related field. Significant results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

Respondents believed that continuing education (CE) has important benefits for architects. Most respondents agreed or strongly agreed that CE helps architects stay up to date on important competencies (78%), promotes innovation and advancement (68%), and builds awareness of new products (88%). They also agreed or strongly agreed that CE requirements should focus on specific topics related to the health, safety, and welfare (HSW) of the public (81%) and are an important part of the licensure framework (78%).

It is common for workplaces to support professional development opportunities. Eighty-five percent (85%) of respondents indicated that their workplace provides opportunities for training. The most frequent types of training activities are informal on-the-job training, informal mentorship (coffee chat/lunch and learn), and online continuing education courses. These training formats were most likely to be identified as very beneficial for respondents' personal growth. Workplaces were most likely to support lunch and learn (69% of respondents) and webinar (59%) training formats in the workplace.

In terms of professional development topics, 60% of respondents had a strong preference for building code/regulatory requirements. The next most popular topics included building and material science (44%), building systems/technology (35%), and accessibility/universal design (35%).

Respondents identified several different types of mentorship offered at their workplaces. Informal internal mentorship (75%), site visits (72%), and advice on professional development goals/licensure (63%) were the most common mentorship types. Other types of mentorships (e.g., formal internal mentoring, including regularly scheduled mentee/mentor meetings, and individual development plans) were less common. Respondents from small workplaces and those who identify as Hispanic, Latino, or Spanish reported much less access to mentorship opportunities than others. According to respondents, workplaces most commonly provide time off from work to take exams, payment of exam fees, mentorship, and study materials to licensure candidates.

Below are findings from individual survey questions, focusing on broad, general findings and identifying important group differences.

8. Prof. Development & Mentorship

NCARB Supplemental Infographic: Professional Development & Mentorship

In most states, architects are required to earn continuing education (CE) every year to ensure their ongoing professional development—an important step in maintaining competency post-licensure. To better understand the value of professional development, the ways architects consume CE materials, and opportunities for improvement, NCARB created a supplemental infographic and blog post.

8. Prof. Development & Mentorship

Questions Asked in This Section

Q8.1 Does your workplace support staff/employees by providing opportunities for training?
For example: Continuing education courses, conferences, mentorship, on-the-job training.

Q8.2 Indicate how often your workplace uses each method to train licensed architects.

Q8.3 Indicate how beneficial each training method has been for your personal growth.

Q8.4 For each professional development area, indicate the perceived benefit by you and/or your workplace.

Indicate the extent to which you agree or disagree with each statement regarding continuing education (CE).

Q8.5 CE requirements ensure architects remain up-to-date on important competencies.
Q8.6 CE promotes innovation and advancement within the profession.
Q8.7 CE programs are an important part of the licensure framework.
Q8.8 CE requirements should focus on specific topics related to health, safety, and welfare of the public.
Q8.9 CE builds awareness of new products.
Q8.10 CE programs should offer more rigorous content.

Q8.11 Indicate your preferred format for learning, the format your workplace supports, or if the format is neither preferred by you nor supported by your workplace.

Q8.12 Select up to 5 professional development topics that are most beneficial to you.

Q8.13 Indicate the mentorship opportunities supported by your workplace.

Q8.14 To what extent does your workplace provide each benefit for employees who are preparing for their licensure exams?

Single-part questions are in dark blue font; multi-part questions are in light blue font.

8. Prof. Development & Mentorship

Demographic Variables Reviewed

The table on the following page lists the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[22] based on the size of the proportional difference between groups (see key below). For multi-part questions, the table notes which groups had notable differences on some/all parts.

[22] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2 = large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

8. Prof. Development & Mentorship

Demographic Variables Reviewed		Group Differences/Trends?													
		Q8.1	Q8.2	Q8.3	Q8.4	Q8.5	Q8.6	Q8.7	Q8.8	Q8.9	Q8.10	Q8.11	Q8.12	Q8.13	Q8.14
Licensure Status	Current status of architectural license	S	●		○	S	S	S	S	S	S	○			●
Experience	Years of experience in architecture	S			○	S	S	S	S	S	S	○	○		●
Workplace	Number of people at current workplace	S				S	S	S	S	S	S				
	Number of architects at current workplace	S	○		○	S	S	S	S	S	S			●	○
	Workplace community	S				S	S	S	S	S	S			●	
Demographics	Gender	S		○	○	S	S	S	S	S	S				
	Race (by individual race)	S				S	S	S	S	S	S				
	Race (by white vs. non-white)	S		○		S	S	S	S	S	S				
	Ethnicity	S				S	S	S	S	S	S			●	
	Age	S	○	○	○	S	S	S	S	S	S		○		
Education	Highest degree	S				S	S	S	S	S	S				

Key	
Single-Part Questions	Multi-Part Questions
N = None S = Small M = Moderate L = Large ■ = N/A	○ = Difference(s) observed on some part(s) ● = Differences observed on all parts ■ = N/A

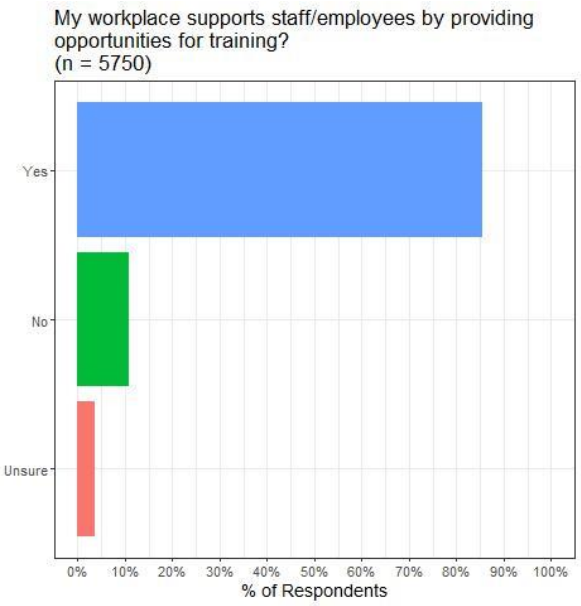
8. Prof. Development & Mentorship

Question: Does your workplace support staff/employees by providing opportunities for training? For example: Continuing education courses, conferences, mentorship, on-the-job training.

General Findings

- Most respondents affirmed that their workplace provides opportunities for training (85%).
- The pattern of responses to this question was similar across demographic groups, with small differences outlined below.

Figure 8.1



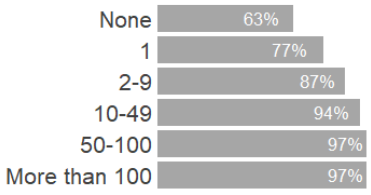
Group Differences/Trends

Licensure Information

- Respondents with a current license were 1.2 times more likely to indicate that their employer provides opportunities for training than those who were pursuing a license (89% vs 76%).

Workplace

- The higher the number architects in a workplace, the greater the likelihood that respondents indicated their workplace provides opportunities for training.



- A similar, though less pronounced trend was seen based on the overall number of employees (of any type) at a workplace.

Comparison to Phase II results: This question was not asked during Phase II.

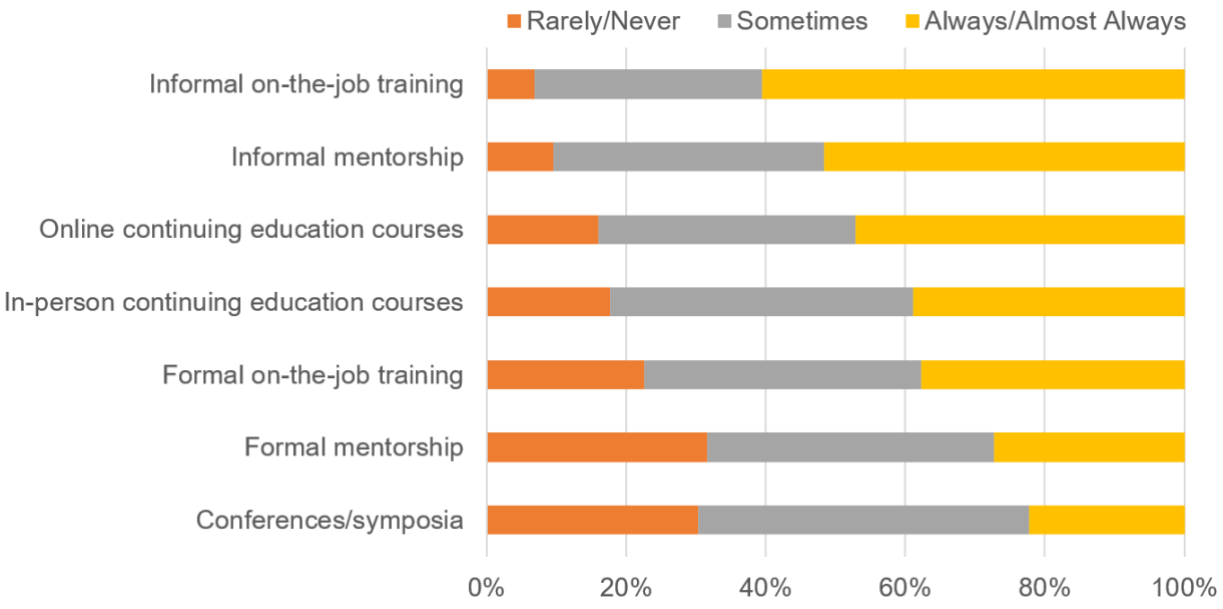
8. Prof. Development & Mentorship

Question: Indicate if your workplace always/almost always, sometimes, or rarely/never uses each method to train licensed architects.

General Findings

- A majority of respondents always or almost always used informal on-the-job training and informal mentorship to train licensed architects (61% and 52%, respectively; see Figure 8.2).
- Results for this question were similar across groups. However, some groups most commonly selected online continuing education courses (see group differences/trends below).
- Formal training was comparatively rare. Thirty-eight percent (38%) of respondents selected formal on-the-job training, and 27% selected formal mentorship always or almost always.
- Conferences/symposia, formal mentorship, and formal-on-the-job training were the least-used training methods.

Figure 8.2. Indicate if your workplace always/almost always, sometimes, or rarely/never uses each method to train licensed architects.



Full results for all methods and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

8. Prof. Development & Mentorship

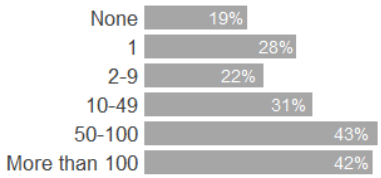
Group Differences/Trends

Licensure Status

- Respondents pursuing a license were uniformly more likely than those with a current license to respond rarely/never for all training types. For example, 44% of respondents pursuing a license indicated their employer rarely/never uses conferences/symposia for training (compared to 26% for respondents who are currently licensed.)

Workplace

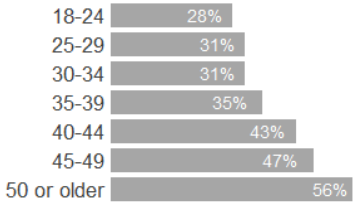
- Those working in firms with 50 or more architects were more likely to select always/almost always for formal mentorship than those working in smaller firms



- Self-employed respondents selected online continuing education courses as the most frequent option used to train licensed architects (59% responded always/almost always).

Demographics

- Respondents who are 50+ years old selected always/almost always for online continuing education courses more often than any other age group.



Comparison to Phase II results: The overall Phase III results confirmed those of Phase II. The top three Phase II methods were also on-the-job training, mentorship (though the difference between formal and informal mentorship was not specified), and continuing education courses.

8. Prof. Development & Mentorship

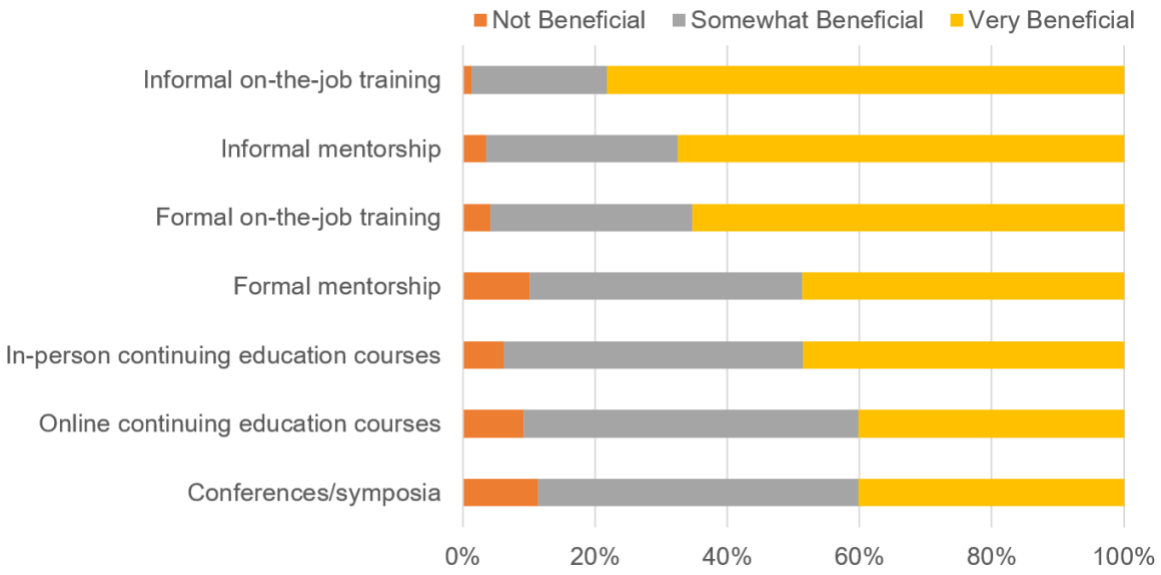
Question: Indicate if each training method has been very beneficial, somewhat beneficial, or not beneficial for your personal growth.

General Findings

- Informal on-the-job training (78%), informal mentorship (68%), and formal on-the-job training (65%) were selected as very beneficial by most respondents in all demographic groups.
- Nearly every demographic group identified informal on-the-job training as very beneficial more frequently than other methods.
- All methods appear to have some value: no more than 11% of respondents selected not beneficial for any method.

Full results for all methods and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Figure 8.3. Indicate if each training method has been very beneficial, somewhat beneficial, or not beneficial for your personal growth.

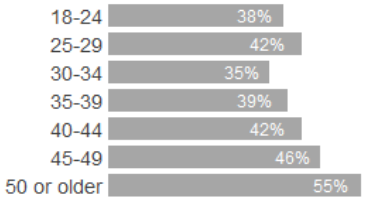


8. Prof. Development & Mentorship

Group Differences/Trends

Demographics

- Women were more likely than men to find informal mentorship very beneficial (75% versus 65%).
- White respondents were less likely than non-white respondents to find formal mentorship (46% versus 56%) or online continuing education courses (39% versus 48%) very beneficial.
- Older respondents were more likely than younger respondents to describe in-person continuing education courses as very beneficial (55% for those 50 or older versus 35% for those age 30–34).



Comparison to Phase II results: The overall Phase III results disagree with those of Phase II. Phase II results showed continuing education courses and conferences as the most beneficial professional development opportunities.

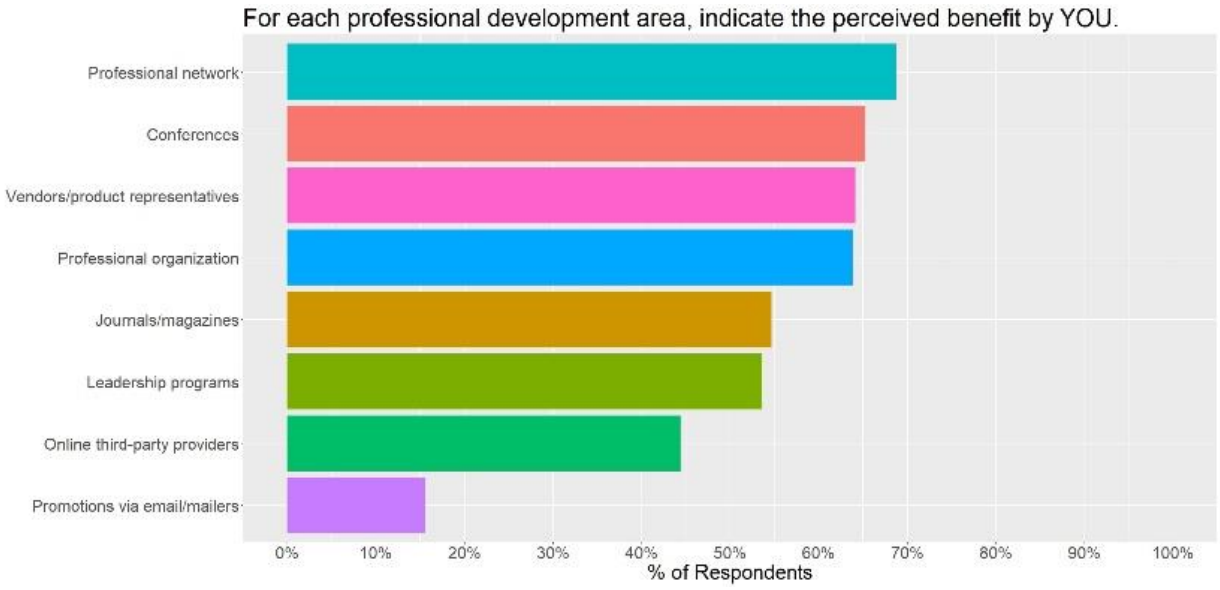
8. Prof. Development & Mentorship

Question: For each professional development area, indicate the perceived benefit by you, by your workplace, or if there is no perceived benefit to you or your workplace.

General Findings

- Respondents felt that the following professional development areas were beneficial to themselves:
    - Professional network (69%)
    - Conferences (65%)
    - Vendors/product representatives (64%)
    - Professional organization (64%)
- Most respondents across demographic groups found their professional network to be beneficial to themselves.

Figure 8.4

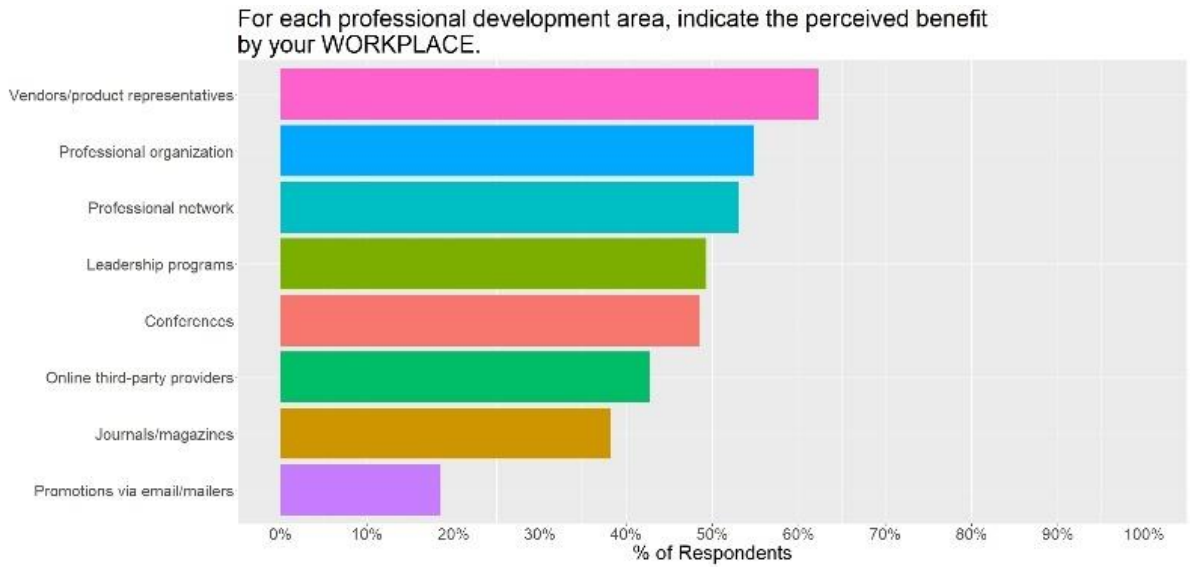


- Respondents indicated that their workplaces perceive the following professional development areas as beneficial to employees:
    - Vendors/product representatives (62%)
    - Professional organization (55%)
    - Professional network (53%)

8. Prof. Development & Mentorship

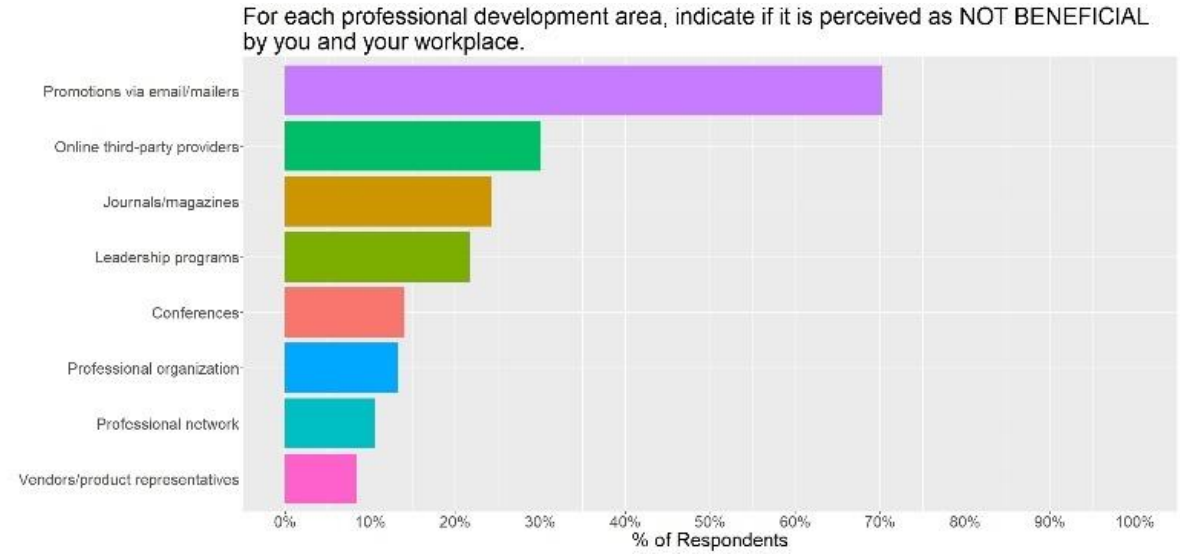
- Majorities across all demographic groups indicated that their workplaces perceive vendors/product representatives as beneficial.

Figure 8.5



- Strong majorities across demographic groups found promotions via email/mailers to be of no benefit.

Figure 8.6



8. Prof. Development & Mentorship

Full results for all professional development areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Licensure Information

- Respondents pursuing a license were less likely than those with a current license to see a perceived benefit for vendors/product representatives (55% versus 67%) and online third-party providers (35% versus 48%).

Experience

- As respondents' experience increased from less than one year to 20+ years, their perceived benefit of vendors/product representatives (48% to 68%), journals/magazines (48% to 58%), and online third-party providers (34% to 48%) also increased.

Workplace

- As the number of architects in the workplace increased from 0 to 100+, so did respondents' perceived benefit of leadership programs (44% to 68%) and professional organizations (57% to 73%).

Demographics

- Women were more likely than men to perceive leadership programs as a benefit (63% versus 50%).

- As age increased from 18-24 years old to 50 or older, respondents' perceived benefit of vendors/product representatives increased from 44% to 68%. Conversely, respondents felt that their workplaces perceived less of a benefit (75% to 58%) in vendors/product representatives as their age increased.

Comparison to Phase II results: The overall Phase III results partially confirm those of Phase II. Phase II results showed conferences as among the most beneficial professional development opportunities. Phase II did not ask questions about what was beneficial to the employer or what was not beneficial.

8. Prof. Development & Mentorship

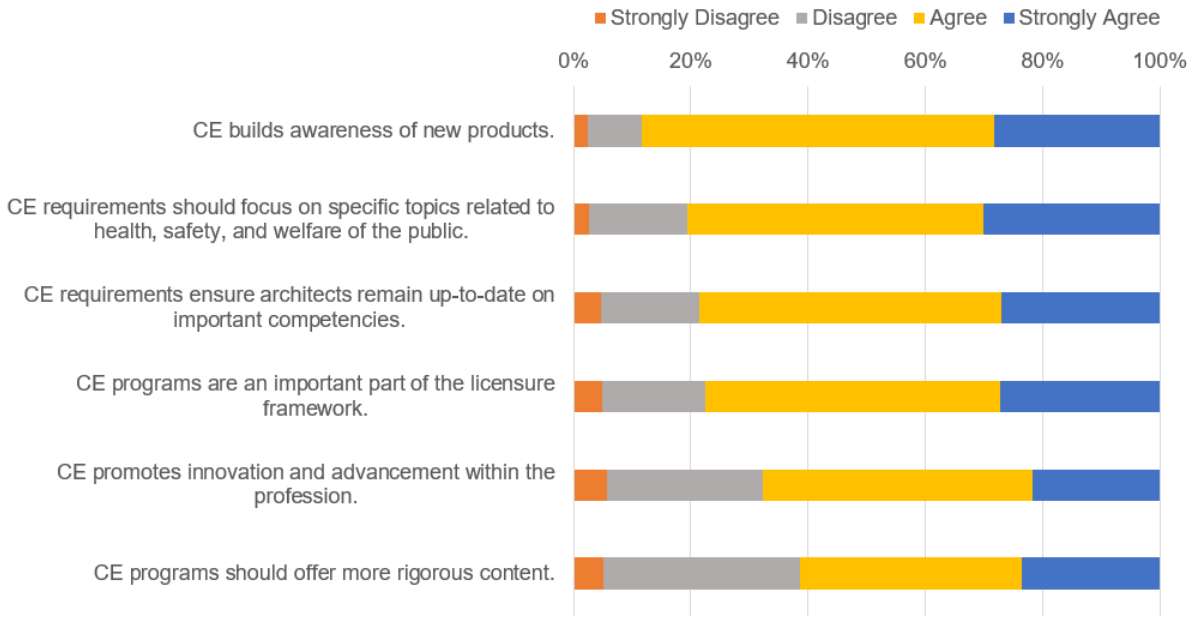
Question: Indicate the degree to which you strongly agree, agree, disagree, or strongly disagree with each statement.

General Findings

- Most respondents agreed or strongly agreed with all the surveyed statements related to continuing education (CE; see Figure 8.7). The highest percentage of respondents agreed/strongly agreed with the following statements:
    - CE builds awareness of new products (88%).
    - CE requirements should focus on specific topics related to health, safety, and welfare of the public (81%).
- The largest percentage of respondents (39%) disagreed/strongly disagreed with the statement "CE programs should offer more rigorous content".

The pattern of responses to this question was similar across demographic groups. There were very few differences in the percent of agree/strongly agree responses.

Figure 8.7. Indicate the degree to which you strongly agree, agree, disagree, or strongly disagree with each statement.



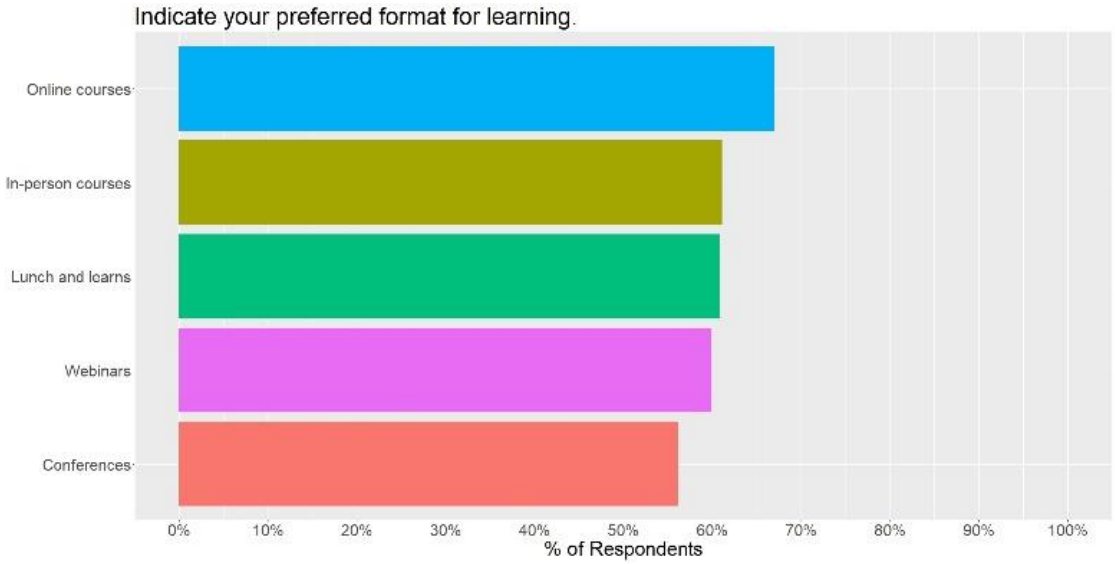
8. Prof. Development & Mentorship

Question: Indicate your preferred format for learning, the format your workplace supports, or if the format is neither preferred by you nor supported by your workplace.

General Findings

- When considering different formats for learning, respondents varied in their preferences (see Figure 8.8). Between 56% and 67% of respondents favored each of the five surveyed formats, with the highest percentage being online courses.

Figure 8.8



- Respondents reported that the learning formats supported by their workplaces also vary: lunch and learns were the format workplaces supported most often (69%); in-person courses were supported least often (48%).

- Although results were consistent across most respondent groups, there were some notable exceptions. For example:

    - Respondents from larger workplaces were uniformly more likely to respond that their workplace supports each learning format (regardless of format). Respondents whose workplace has 2-9 architects averaged 58%, compared to 69% for those from workplaces with more than 100 architects.

    - Respondents who work in urban communities were uniformly more likely than those from rural communities to respond that their workplace supports each learning format (58% versus 46%, on average).

- The preceding results likely are similar because of the relationship between workplace size and location: more than 80% of respondents who work at a workplace with 10 or more architects are located in an urban community.

Figure 8.9

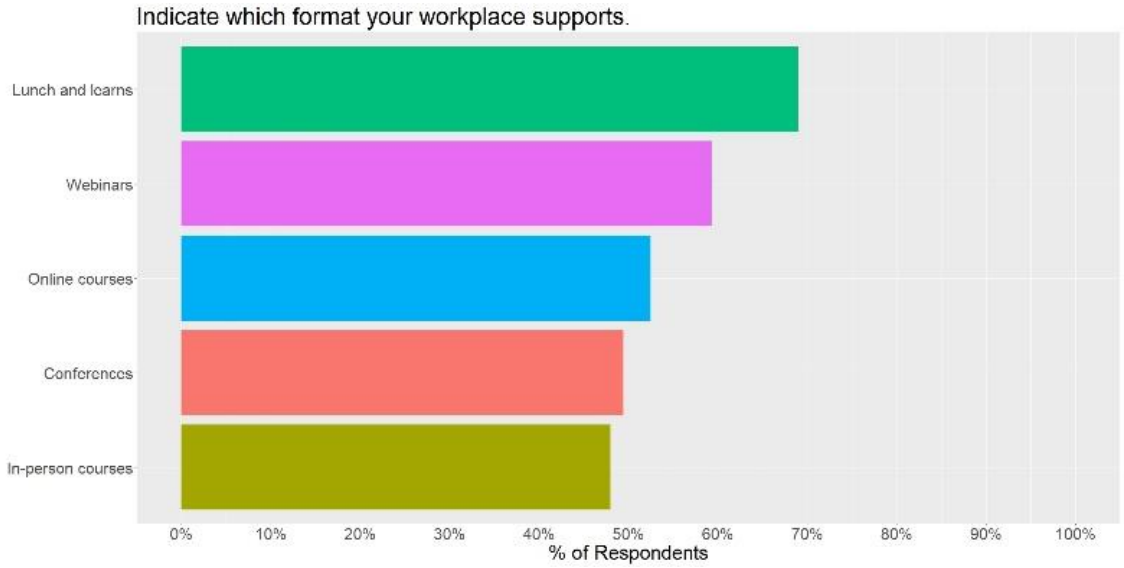
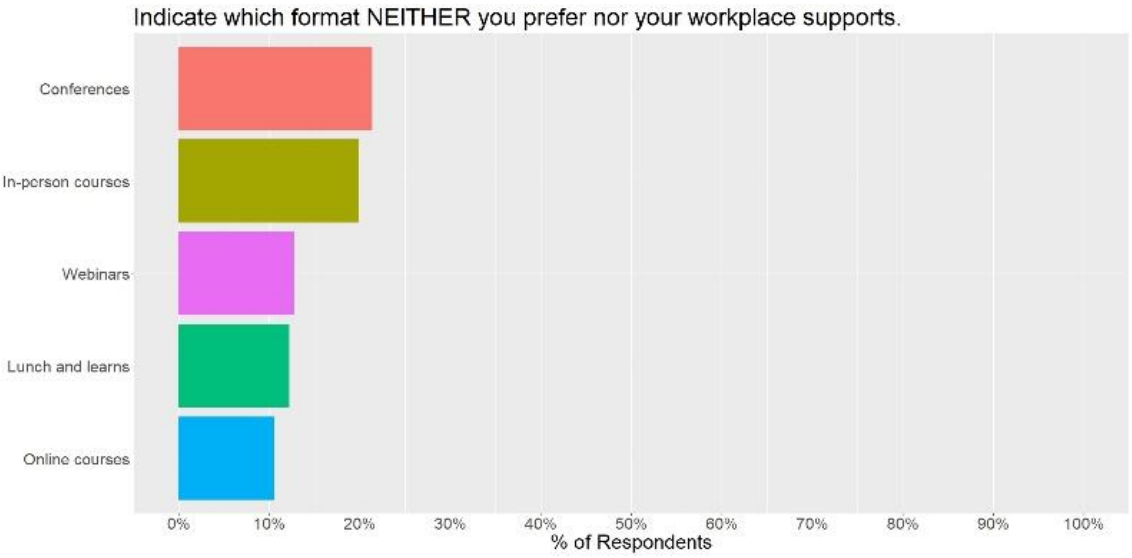


Figure 8.10



Full results for all learning formats and groups are included in Appendix A-5. Additional group differences are included below.

8. Prof. Development & Mentorship

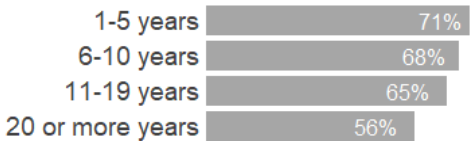
Group Differences/Trends

Licensure Information

- Those pursuing a license were less likely than those with a current license to indicate their workplace supports in-person courses (37% vs 51%).

Experience

- As work experience increased from less than one year to 20+ years, respondents' preference for lunch and learns decreased from 71% to 56%.



Comparison to Phase II results: Phase II questions did not address learning format.

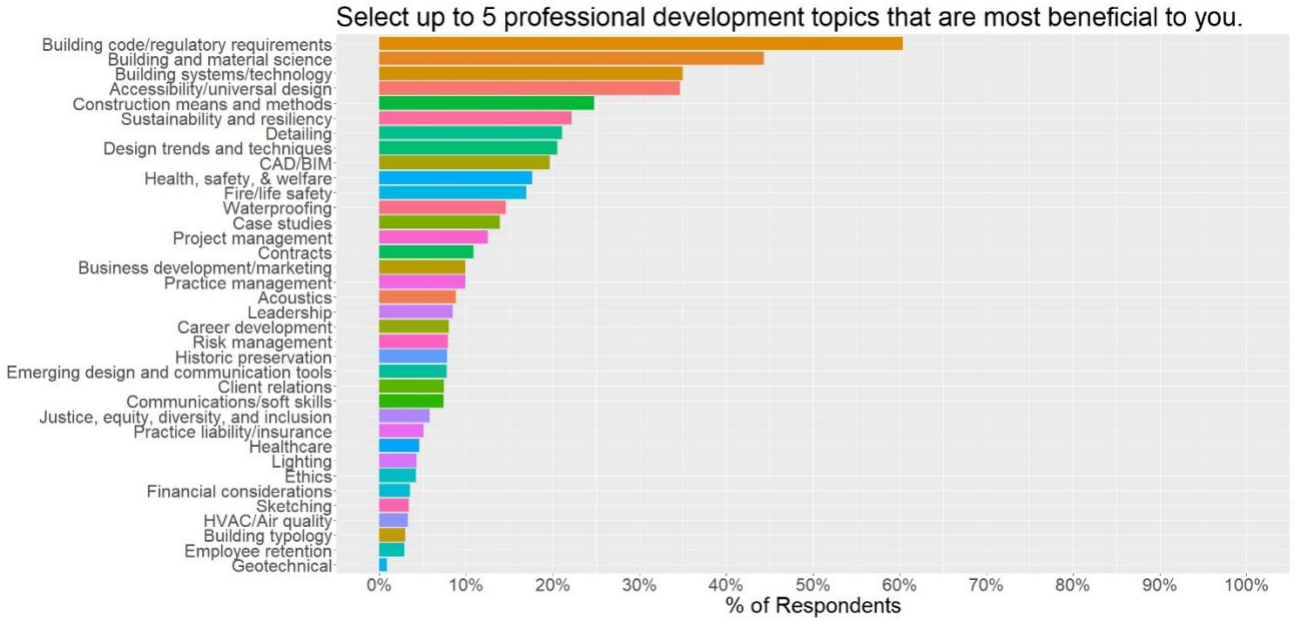
8. Prof. Development & Mentorship

Question: Select up to five professional development topics that are most beneficial to you.

General Findings

- Figure 8.11 displays the most frequently selected professional development topics respondents found beneficial. The most commonly selected topics were:
    - Building code/regulatory requirements (60%)
    - Building and material science (44%)
    - Building systems/technology (35%)
    - Accessibility/universal design (35%)
    - Construction means and methods (25%)
- While the specific ranking of the top reasons varied slightly by demographic group, the top three reasons for nearly all demographic groups are included in the list above.

Figure 8.11

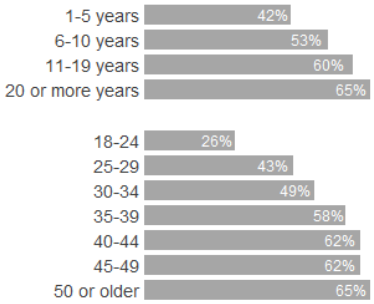


Full results for all reasons and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

8. Prof. Development & Mentorship

Group Differences/Trends

- The largest group differences were based on years of experience and age.
    - Sustainability and resiliency was selected as a top five topic by 39% of respondents who were 25-29 years old and 36% of respondents with 1-5 years of experience. Older (50+) and more experienced (20+ years) respondents were less likely to have selected this area (18% for both groups).
    - Building code/regulatory requirements was selected more often by older and more experienced respondents. It was selected as a top five topic by 65% of respondents who were 50+ years old and those with 20+ years of experience. Younger and less experienced respondents were less likely to have selected this area.



Comparison to Phase II results: These results partially confirm results from Phase II. In Phase II, "Code" was the top identified topic respondents found most beneficial. Areas like "building materials" and "systems" (top identified areas in Phase III) were mentioned by Phase II respondents, but not necessarily most frequently.

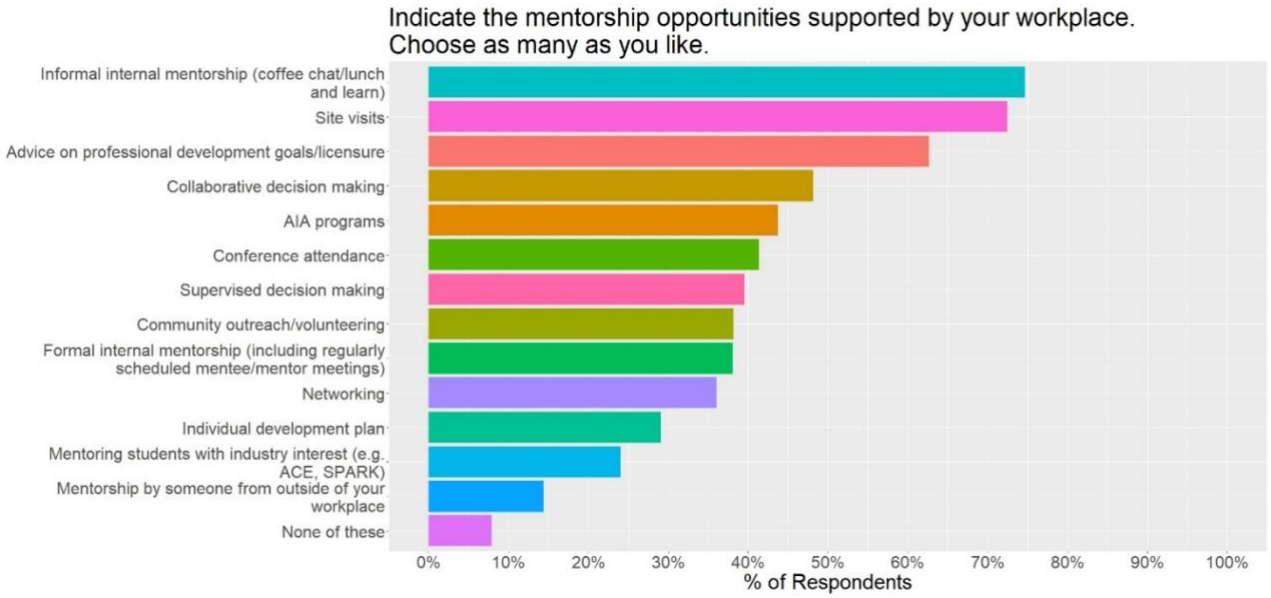
8. Prof. Development & Mentorship

Question: Indicate the mentorship opportunities supported by your workplace.

General Findings

- Figure 8.12 displays the most frequently selected mentorship opportunities respondents said were supported by their workplace. As shown in this figure, respondents most commonly selected:
    - Informal internal mentorship (coffee chat/lunch and learn) (75%)
    - Site visits (72%)
    - Advice on professional development goals/licensure (63%)
- While demographic groups ranked mentorship opportunities slightly differently, the top three listed above were the same for all demographic groups.

Figure 8.12



Full results for all opportunities and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Workplace

- There were substantial differences in mentorship opportunities based on workplace size. The percent of respondents who stated that their workplace supports most mentorship opportunities increased with the number of architects at their workplace. For example:

- 66% of respondents from workplaces with 100+ architects indicated there are opportunities for formal internal mentorship (including regularly scheduled mentee/mentor meetings), compared to only 32% of respondents from workplaces with 2-9 architects.
- 57% of respondents from workplaces with 100+ architects indicated that there are opportunities for mentoring students with industry interest (e.g., ACE, SPARK) compared to only 18% of respondents from workplaces with 2-9 architects.

- Similar (but less pronounced) differences were seen when comparing workplaces in urban and rural settings. Respondents who worked in urban communities tended to have more opportunities for mentorship. For example:
  - 42% of respondents who work in urban communities indicated there are opportunities for formal internal mentorship, compared to 25% of respondents working in rural communities.
  - 77% of respondents who work in urban communities indicated there are opportunities for informal internal mentorship, compared to 65% of respondents working in rural communities.

Demographics

- There were substantial disparities in mentorship opportunities for respondents who are Hispanic, Latino, or Spanish. They reported mentorship opportunities 8% to 49% less frequently than did those who are not Hispanic, Latino, or Spanish, across all types of mentorship opportunities. For example:
  - 29% of respondents who are Hispanic, Latino, or Spanish indicated that there were opportunities for informal internal mentorship (coffee chat/lunch and learn), compared to 78% of respondents who are not Hispanic, Latino, or Spanish.
  - 30% of respondents who are Hispanic, Latino, or Spanish indicated that there were opportunities for site visits, compared to 75% of respondents who are not Hispanic, Latino, or Spanish.

Comparison to Phase II results: These results generally confirm results from Phase II. In Phase II, “internal mentorship” was the top identified opportunity respondents found supported by their workplace. “Site visits” and “advice on professional development goals” were among the top five most frequently reported in Phase II.

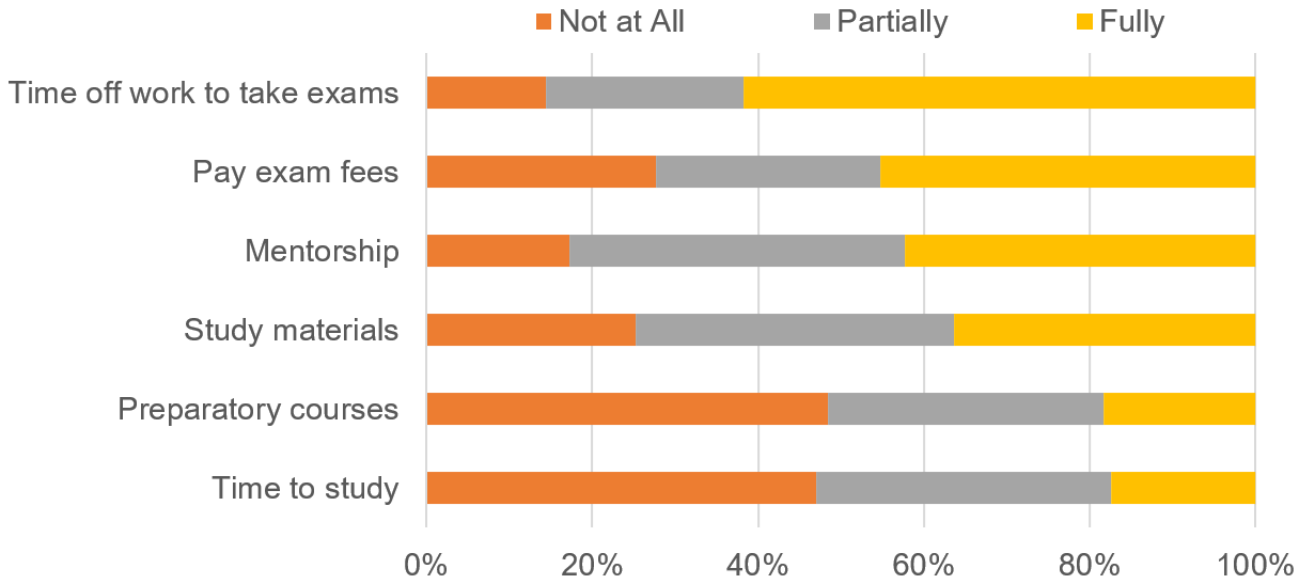
8. Prof. Development & Mentorship

Question: To what extent does your workplace provide each benefit for employees who are preparing for their licensure exams?

General Findings

- Respondents most frequently identified time off work to take exams as a fully provided benefit for employees (62%). This was consistent across nearly all respondent groups.
- Preparatory courses and time to study were least likely to be provided by employers (see Figure 8.13).

Figure 8.13. To what extent does your workplace provide each benefit for employees who are preparing for their licensure exams?



Full results for all benefits and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

8. Prof. Development & Mentorship

Group Differences/Trends

Licensure Information

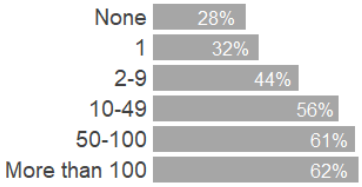
- Respondents pursuing a license were between 6% and 24% less likely than those with a current license to indicate their workplace fully provides any of the listed benefits.

Experience

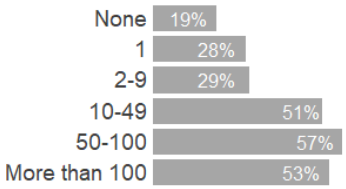
- Those with 20+ years of experience were uniformly more likely than all other experience levels to indicate their workplace fully provides any of the listed benefits (e.g., 3% to 25% higher versus those with 1-5 years of experience).

Workplace

- As the number of architects at a workplace increased, the likelihood of the workplace fully paying for exam fees gradually increased from 28% to 62%.



- Larger workplaces were more likely to fully support study materials (e.g., 57% for workplaces with 50-100 architects versus 29% for those with 2-9 architects).

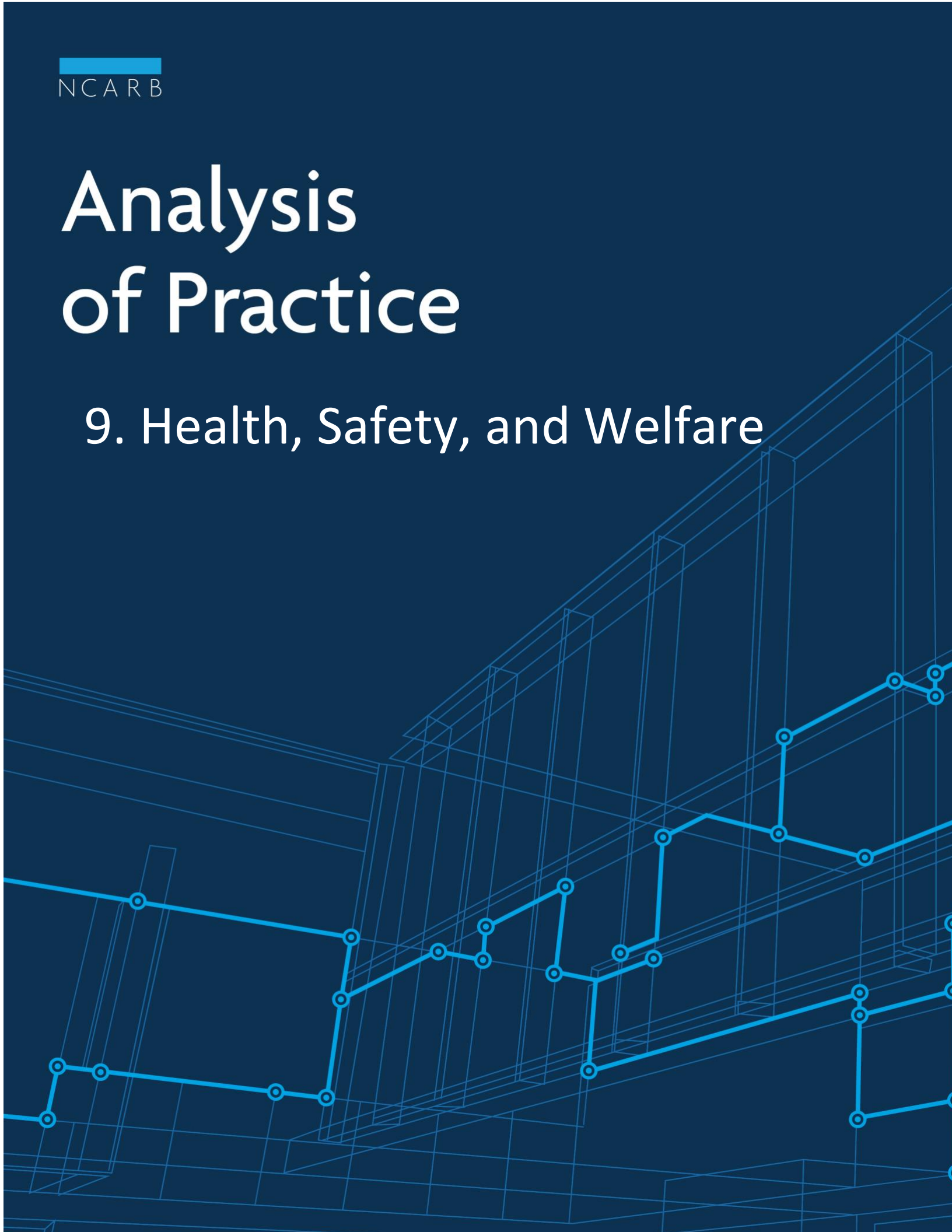


Comparison to Phase II results: Phase II questions did not address benefits provided for employees who are preparing for their licensure exams.

NCARB

Analysis of Practice

9. Health, Safety, and Welfare



9. Health, Safety, and Welfare

Introduction

This section provides the results from the health, safety, and welfare (HSW) portion of the survey. The analyses presented in this section address the meaning ascribed to health, safety, and welfare, as well as the role of HSW in the profession. Significant results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

HSW is a frequent consideration for architects. Respondents reported that architects consider health, safety, and welfare most or all of the time.

"Health and safety" means different things to different people, but survey respondents commonly identified meanings and ascribed importance to areas including public/fire safety, code compliance, preventing dangerous conditions, and protecting against loss of life or property.

Similarly, respondents most commonly related the meaning and importance of "welfare" to accessibility/universal design; creating a sense of safety and security; promoting mental, physical, and emotional health and wellness; and contributing to the greater good of the community/society.

The way architects address HSW evolves over time. Respondents indicated that the biggest drivers of this change over the past 10 years include public safety events/threats, environmental concerns (e.g., sustainability, natural disasters), and policy changes (e.g., administrative and building codes). Similarly, they believed that codes and regulations related to the environment (e.g., energy performance, carbon footprint) and resiliency should be strengthened. HSW codes could also be improved by decreasing ambiguity, clarifying application, and consolidating/increasing consistency.

Respondents identified client demands, value engineering, and financial considerations as the areas that pose the greatest challenges to the ability of architects to protect the HSW of the public.

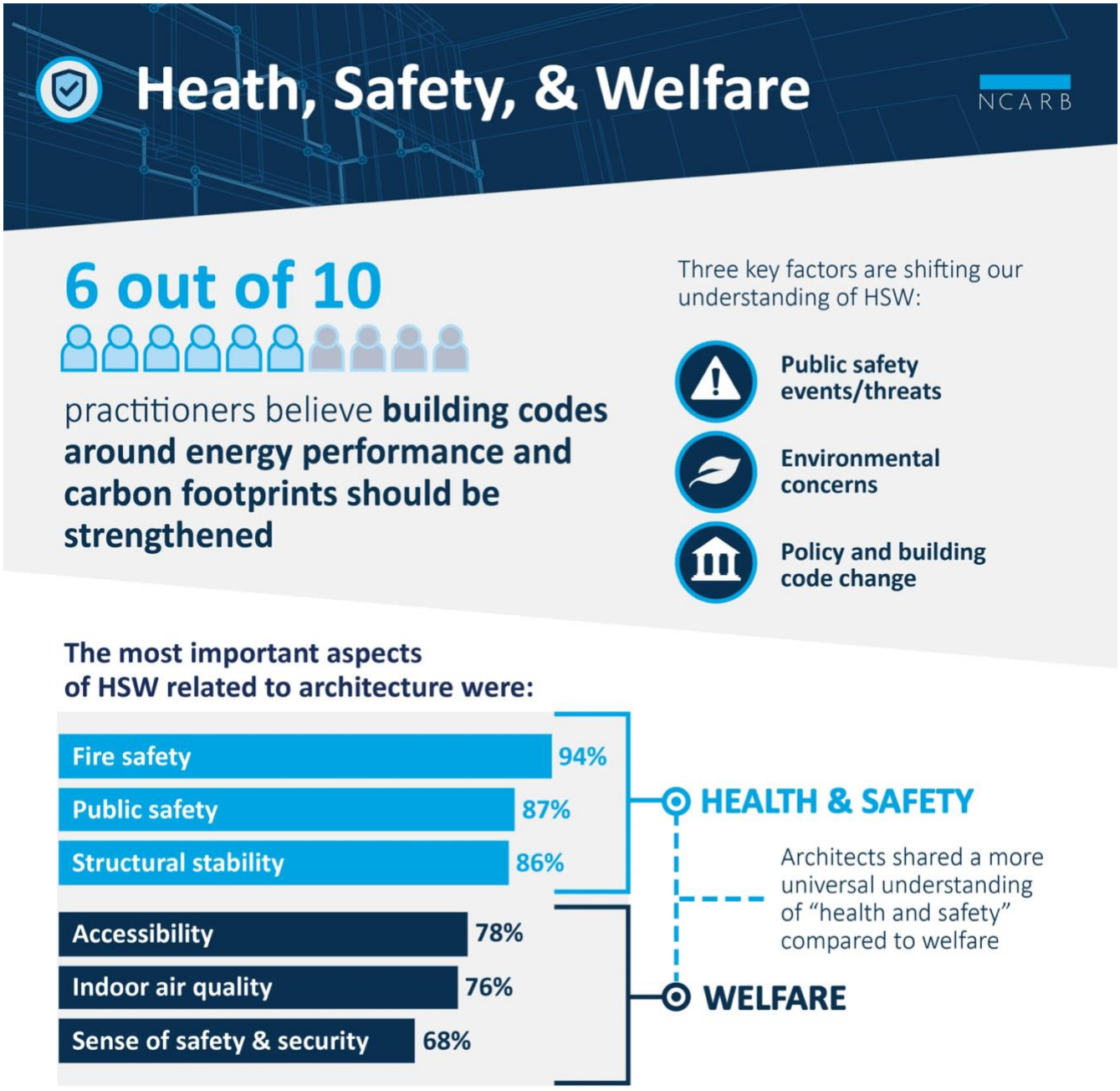
The responses to the HSW questions were similar across demographic groups. There were some differences in responses, but there were few high-level differences among the top responses based on a specific demographic variable.

Subsequent portions of this section describe findings from individual survey questions, focusing on broad, general findings as well as identifying important group differences.

9. Health, Safety, and Welfare

NCARB Supplemental Infographic: Health, Safety, and Welfare

The boundaries of the responsibility to protect the health, safety, and welfare (HSW) of the public can be difficult to define, especially as expectations around sustainability, fair labor practices, and global impact evolve. To better understand perceptions around health, safety, and welfare today, as well as how these perspectives may shift in the near future, NCARB created a supplemental infographic and blog post.



9. Health, Safety, and Welfare

Questions Asked in This Section

Q9.1 When you hear the phrase "health, safety, and welfare" used in the field of architecture, indicate what you believe to be the top 5 meanings of HEALTH and SAFETY.

Indicate the degree to which these HEALTH- and SAFETY-related topics are important to the job of an architect.

Q9.2 Environmental impact
Q9.3 Access to outdoors
Q9.4 Universal design
Q9.5 Indoor air quality
Q9.6 Healthy materials (e.g., Red List free, low or no VOC)
Q9.7 Access to sunlight
Q9.8 Lighting
Q9.9 Ergonomics and comfort
Q9.10 Access to clean drinking water
Q9.11 Mental wellness
Q9.12 Social connectivity
Q9.13 Public health
Q9.14 Code compliance
Q9.15 Exceeding code requirements
Q9.16 Injury prevention
Q9.17 Fire safety
Q9.18 Public safety
Q9.19 Construction safety (e.g., OSHA)
Q9.20 Structural stability
Q9.21 Redundancy systems (e.g., backup power)
Q9.22 Preventing dangerous/hazardous conditions
Q9.23 Protection from loss of life or property

9. Health, Safety, and Welfare

Q9.24 When you hear the phrase "health, safety, and welfare" used in the field of architecture, indicate what you believe to be the top 5 meanings of WELFARE.

Indicate the degree to which these WELFARE-related topics are important to the job of an architect.

Q9.25 Accessibility/universal design
Q9.26 Lighting
Q9.27 Access to sunlight
Q9.28 Sustainability
Q9.29 Indoor air quality
Q9.30 Contributing to the greater good of the community/society
Q9.31 Contributing to the greater good of the environment
Q9.32 Long-term maintenance/building upkeep
Q9.33 Code compliance
Q9.34 Exceeding code requirements
Q9.35 Promoting performance and productivity
Q9.36 Promoting cultural expression
Q9.37 Ergonomics and comfort
Q9.38 Creating a sense of safety and security
Q9.39 Creating delightful, enjoyable spaces
Q9.40 Promoting financial stability and success
Q9.41 Promoting overall physical health and wellness
Q9.42 Promoting overall mental and emotional wellness
Q9.43 Promoting social interaction and connectivity
Q9.44 Financial considerations
Q9.45 Diversity, equity, and inclusion

Indicate how frequently architects consider the health, safety, and welfare (HSW) of the public in their design decision making process.

Q9.46 Health
Q9.47 Safety
Q9.48 Welfare

Q9.49 Select the top 3 reasons architects have changed how they address the HSW of the public over the past 10 years.

9. Health, Safety, and Welfare

Indicate if you believe codes and regulations should be strengthened, weakened, or remain the same in these areas.

Q9.50 Building structures
Q9.51 Energy performance
Q9.52 Third-party rating systems
Q9.53 Health threats/disease mitigation
Q9.54 Material origins and lifecycle
Q9.55 Quality of materials
Q9.56 Resiliency to flooding
Q9.57 Resiliency to extreme temperatures
Q9.58 Community consultation
Q9.59 Litigation
Q9.60 Fire prevention
Q9.61 Carbon footprint

Q9.62 Select up to 3 ways in which you think HSW codes should be improved.

Indicate if you agree or disagree with each statement related to HSW.

Q9.63 The purpose of licensure is to protect the HSW of the public.
Q9.64 Architects protect the HSW of the public in a project.
Q9.65 Architects' day-to-day actions affect the HSW of the public.
Q9.66 The public generally understands the architect's role in protecting their HSW.
Q9.67 HSW is a shared responsibility between architects and other team members in the built environment.
Q9.68 Sustainability expertise is needed to ensure the long-term HSW of the public.
Q9.69 HSW in architecture is adequately addressed through codes.
Q9.70 Protecting the HSW of the public sometimes necessitates going beyond minimum code requirements.

Q9.71 Indicate up to 5 areas that pose the greatest challenge to architects' ability to meet the established expectation of protecting the HSW of the public.

Single-part questions are in dark blue font; multi-part questions are in light blue font.

9. Health, Safety, and Welfare

Demographic Variables Reviewed

The tables on the following pages list the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[23] based on the size of the proportional difference between groups (see keys on the following pages). For multi-part questions, the tables note which groups had notable differences on some/all parts.

[23] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2 = large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

9. Health, Safety, and Welfare

Demographic Variables Reviewed		Group Differences/Trends?																		
		Q9.1	Q9.2	Q9.3	Q9.4	Q9.5	Q9.6	Q9.7	Q9.8	Q9.9	Q9.10	Q9.11	Q9.12	Q9.13	Q9.14	Q9.15	Q9.16	Q9.17	Q9.18	Q9.19	Q9.20
Licensure Status	Current status of architectural license		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S
	Years since initial/first license		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Experience	Years of experience in architecture		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S
Workplace	Number of people at current workplace		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	N	S	S
	Workplace location	○	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S
	Workplace community		S	S	S	N	S	S	S	S	S	S	S	S	S	S	S	N	S	N	S
Demographics	Gender		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S
	Race (by individual race)		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Race (by white vs. non-white)		S	S	N	N	S	S	S	S	S	S	S	S	S	S	S	S	N	S	N
	Ethnicity		S	S	S	N	S	N	N	S	S	S	S	S	S	S	S	S	N	S	N
Education	NAAB-accredited program		N	S	S	N	N	N	N	S	S	S	S	S	N	S	S	N	N	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

9. Health, Safety, and Welfare

Demographic Variables Reviewed		Group Differences/Trends?																		
		Q9.21	Q9.22	Q9.23	Q9.24	Q9.25	Q9.26	Q9.27	Q9.28	Q9.29	Q9.30	Q9.31	Q9.32	Q9.33	Q9.34	Q9.35	Q9.36	Q9.37	Q9.38	Q9.39	Q9.40
Licensure Status	Current status of architectural license	S	S	S		S	S	S	S	N	S	S	S	S	S	S	S	S	S	S	S
	Years since initial/first license	S	S	S		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Experience	Years of experience in architecture	S	S	S		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Workplace	Number of people at current workplace	S	S	N		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Workplace location	S	S	S		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Workplace community	S	S	S		N	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S
Demographics	Gender	S	S	S		S	N	S	S	N	S	S	S	S	S	S	S	S	S	S	S
	Race (by individual race)	S	S	S		S	N	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Race (by white vs. non-white)	S	N	S		S	N	S	S	S	S	S	S	N	S	S	S	S	S	S	S
	Ethnicity	S	S	N		S	S	S	N	N	S	S	N	S	S	S	S	S	N	N	S
Education	NAAB-accredited program	S	S	N		N	N	N	S	N	N	S	N	S	S	N	S	S	N	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

9. Health, Safety, and Welfare

Demographic Variables Reviewed		Group Differences/Trends?																			
		Q9.41	Q9.42	Q9.43	Q9.44	Q9.45	Q9.46	Q9.47	Q9.48	Q9.49	Q9.50	Q9.51	Q9.52	Q9.53	Q9.54	Q9.55	Q9.56	Q9.57	Q9.58	Q9.59	Q9.60
Licensure Status	Current status of architectural license	S	S	S	S	S	S	S	S		S	S	M	S	S	S	S	S	M	M	S
	Years since initial/first license	N	S	S	S	S	S	S	S		S	S	L	S	M	S	S	S	L	S	S
Experience	Years of experience in architecture	S	S	S	S	S	S	S	S		S	S	L	S	M	S	S	S	L	S	S
Workplace	Number of people at current workplace	S	S	S	S	S	S	S	S		S	S	S	S	S	S	S	S	S	S	S
	Workplace location	S	S	S	S	S	S	S	S		S	S	M	S	S	S	S	S	S	S	S
	Workplace community	S	S	S	S	S	S	S	S		S	S	S	S	S	S	S	S	S	M	S
Demographics	Gender	N	S	S	S	S	S	S	S		S	S	S	S	S	S	S	S	M	N	S
	Race (by individual race)	S	S	S	S	S	S	S	S		L	S	M	S	S	S	S	S	L	L	M
	Race (by white vs. non-white)	N	S	S	S	S	S	S	S		M	S	M	S	S	S	S	S	M	L	S
	Ethnicity	S	S	S	S	S	S	S	S		M	S	M	S	S	S	S	S	S	M	S
Education	NAAB-accredited program	N	S	N	S	N															

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

9. Health, Safety, and Welfare

Demographic Variables Reviewed		Group Differences/Trends?										
		Q9.61	Q9.62	Q9.63	Q9.64	Q9.65	Q9.66	Q9.67	Q9.68	Q9.69	Q9.70	Q9.71
Licensure Status	Current status of architectural license	S		S	S	S	M	S	S	S	S	
	Years since initial/first license	S		S	S	S	S	S	S	S	S	
Experience	Years of experience in architecture	S	○	S	S	S	S	S	S	S	S	
Workplace	Number of people at current workplace	S		S	S	S	S	S	S	S	S	
	Workplace location	S		S	S	S	M	S	S	S	S	
	Workplace community	S		S	S	S	S	S	S	S	S	
Demographics	Gender	S	○	S	S	S	S	S	S	S	S	
	Race (by individual race)	S		S	S	S	L	S	S	S	S	
	Race (by white vs. non-white)	S		S	S	S	M	S	S	S	S	
	Ethnicity	S		S	S	S	M	S	S	S	S	
Education	NAAB-accredited program											

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

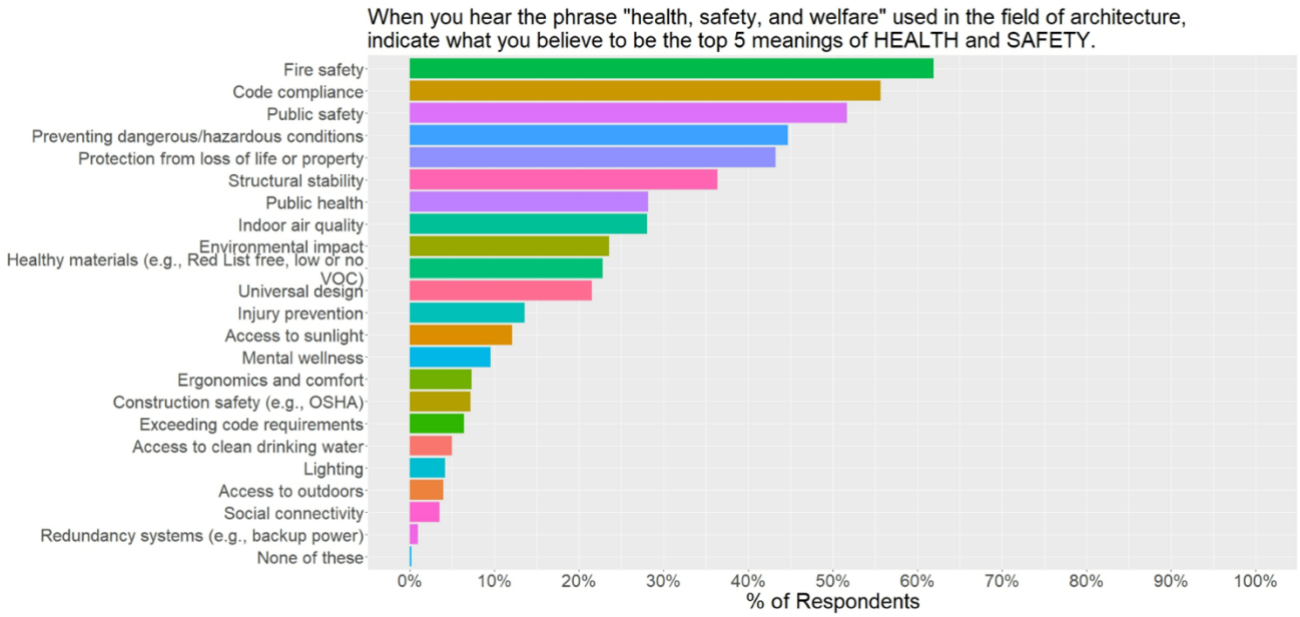
9. Health, Safety, and Welfare

Question: When you hear the phrase "health, safety, and welfare" used in the field of architecture, indicate what you believe to be the top 5 meanings of health and safety.

General Findings

- Figure 9.1 displays the meanings that respondents ascribed to the phrase “health and safety”. As shown in this figure, the most common meanings respondents provided were:
    - Fire safety (62%)
    - Code compliance (56%)
    - Public safety (52%)
    - Preventing dangerous/hazardous conditions (45%)
    - Protection from loss of life or property (43%)
- While the specific ranking of the top reasons varied slightly by demographic group, the top ranked reasons for nearly all demographic groups are included in the above list.

Figure 9.1



Full results for all reasons and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

9. Health, Safety, and Welfare

Group Differences/Trends

Workplace

- Respondents from Region 1[24] (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) were most likely to identify Environmental Impact in their top three (31%). Respondents from Region 5 (Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming) were least likely (14%).

Comparison to Phase II results: These results partially confirm results from Phase II. In Phase II, respondents identified "No adverse effects/harm" and "General well-being of occupants" as the top areas that respondents thought about related to health. "Prevent injury" and "Safe for use" were the top areas respondents thought about related to safety. Areas like "fire safety" and "code compliance" (the top identified areas in Phase III) were mentioned by Phase II respondents, but not necessarily most frequently.

[24] A full list of members of the NCARB regions is located on NCARB's website.

9. Health, Safety, and Welfare

Question: How important is the following health- and safety-related topic to the job of an architect?

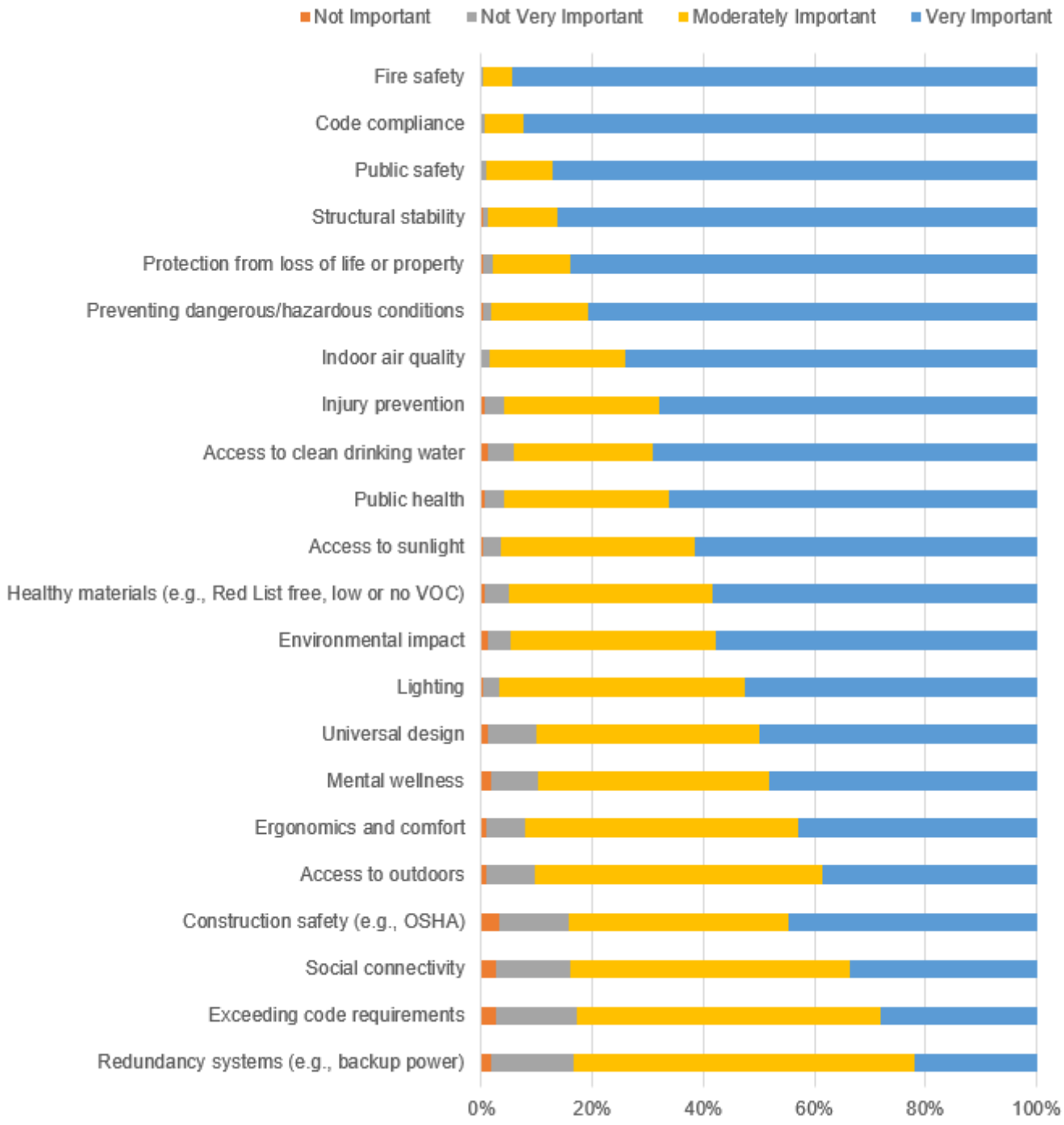
General Findings

- Results for the 22 topics considered, based on all respondents, are summarized in Figure 9.2.
- All topic areas were rated moderately or very important by more than 80% of respondents.
- The topics that respondents most frequently identified as very important were:
    - Fire safety (94%)
    - Code compliance (92%)
    - Public safety (87%)
    - Structural stability (86%)
    - Protection from loss of life or property (84%)
    - Preventing dangerous/hazardous conditions (81%)
- There was substantial similarity across groups with respect to moderate/very important ratings.

Full results for all topics and groups are included in Appendix A-5.

9. Health, Safety, and Welfare

Figure 9.2. How important is the following health- and safety-related topic to the job of an architect?



Comparison to Phase II results: This question was not asked directly during Phase II.

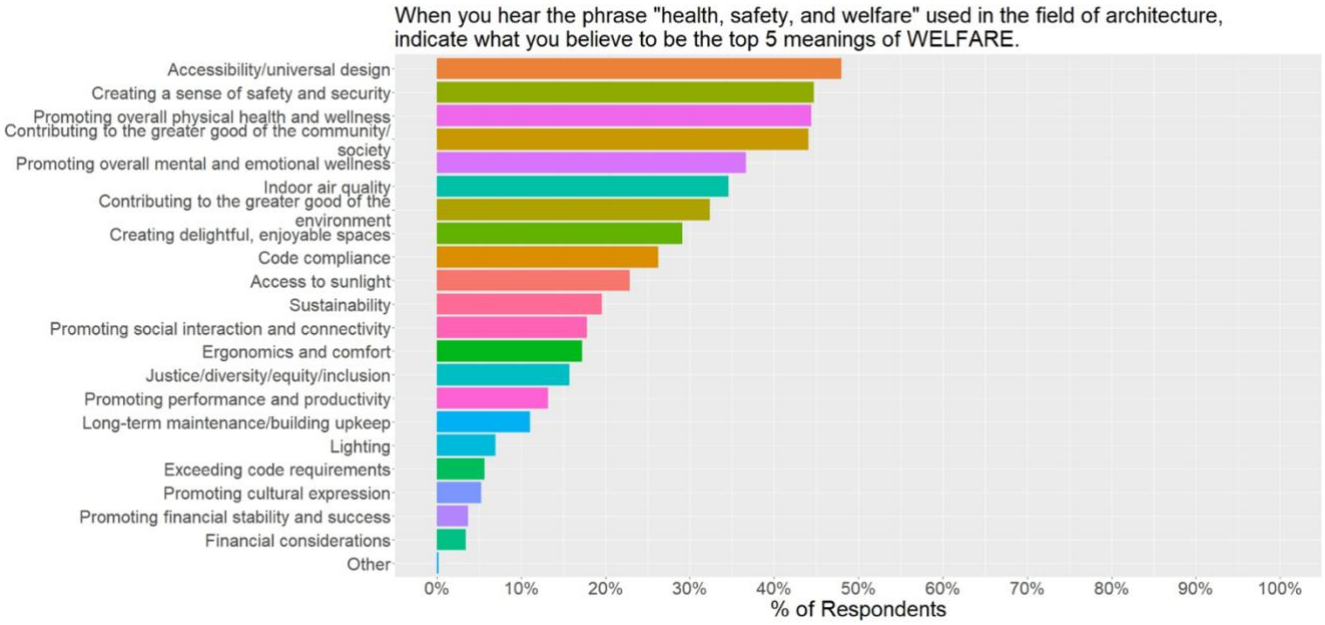
9. Health, Safety, and Welfare

Question: When you hear the phrase "health, safety, and welfare" used in the field of architecture, indicate what you believe to be the top 5 meanings of welfare.

General Findings

- Figure 9.3 displays the meanings that respondents ascribed to the term “welfare”. As shown in this figure, the most frequently selected meanings were:
    - Accessibility/universal design (48%)
    - Creating a sense of safety and security (45%)
    - Promoting overall physical health and wellness (44%)
    - Contributing to the greater good of the community/society (44%)
    - Promoting overall mental and emotional wellness (37%)
    - Indoor air quality (35%)
- The specific ranking of the top meanings varied slightly by demographic group. However, the most frequently selected meanings for nearly all demographic groups are included in the above list.

Figure 9.3



Full results for all meanings and groups are included in Appendix A-5.

9. Health, Safety, and Welfare

Comparison to Phase II results: Phase III results generally confirmed those from Phase II. When respondents were asked what they thought of when considering welfare, the top Phase II responses were:

- Supporting general well being
- Thoughtful design
- Contributing to the greater good/community
- Safety
- Accessibility/ADA

Several of these areas were also identified in Phase III.

9. Health, Safety, and Welfare

Question: How important is the following welfare-related topic to the job of an architect?

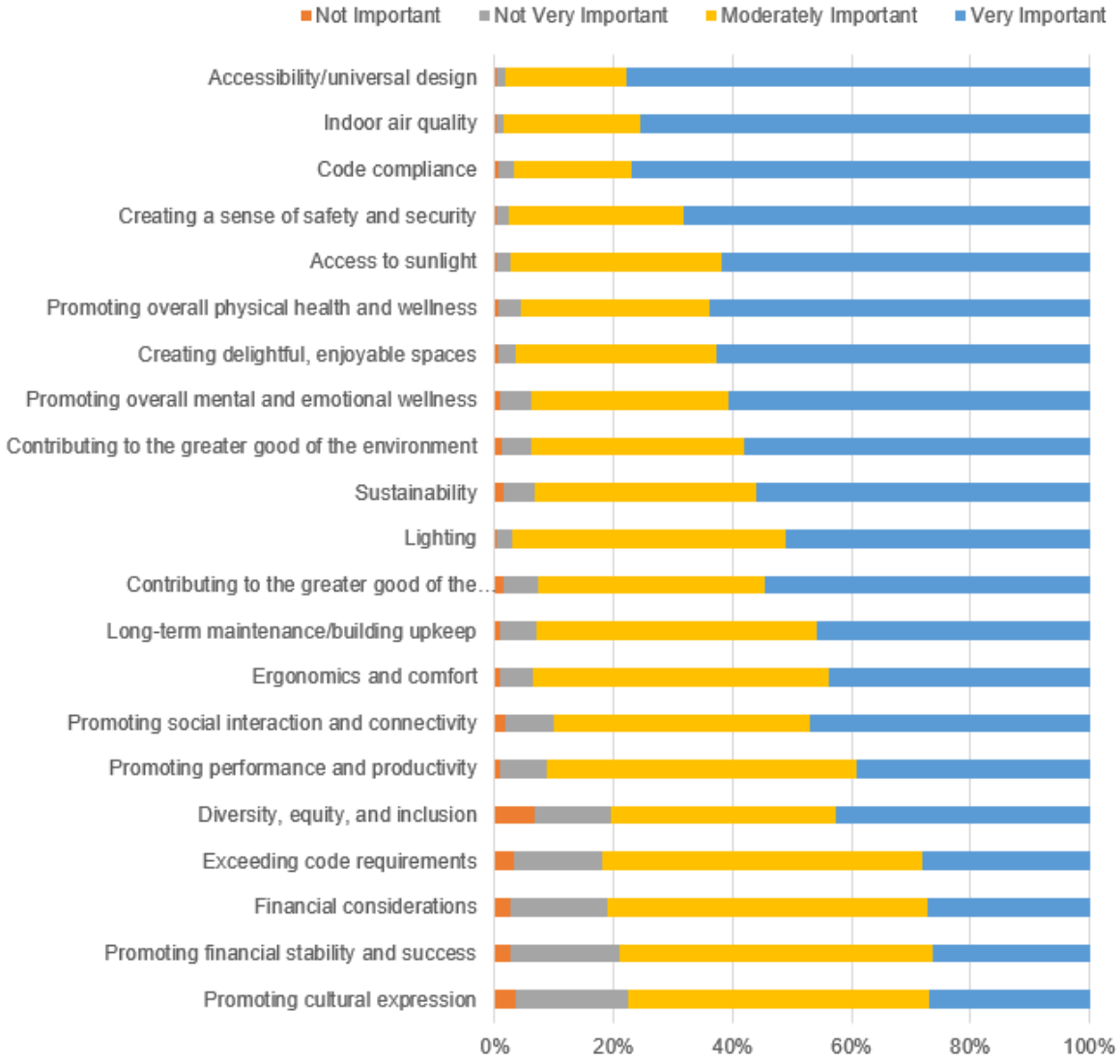
General Findings

- Results for the 21 topics considered, based on all respondents, are summarized in Figure 9.4.
- All topic areas were rated moderately or very important by more than 75% of respondents.
- The topics that respondents most frequently identified as very important were:
    - Accessibility/universal design (78%)
    - Code compliance (77%)
    - Indoor air quality (76%)
    - Creating a sense of safety and security (68%)
    - Promoting overall physical health and wellness (64%)
    - Creating delightful, enjoyable spaces (63%)
    - Access to sunlight (62%)
- There was substantial similarity across groups with respect to moderate/very important ratings.

Full results for all reasons and groups are included in Appendix A-5.

9. Health, Safety, and Welfare

Figure 9.4. How important is the following welfare-related topic to the job of an architect?



Comparison to Phase II results: This question was not asked directly in Phase II.

9. Health, Safety, and Welfare

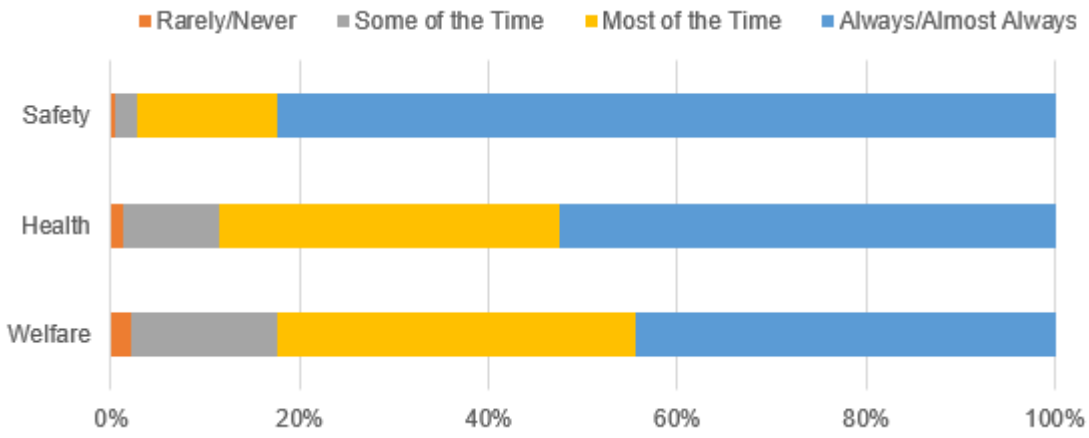
Question: Indicate how frequently architects consider the health/safety/welfare of the public in their design decision making process.

General Findings

- Results, based on all respondents, are summarized in Figure 9.5.
- More than 80% of respondents reported that architects consider health, safety, and welfare most or all of the time.
- Respondents indicated that safety is at the forefront of the consideration of architects: 82% reported that architects always/almost always consider safety in their design decision-making process.
- There was substantial similarity across groups with respect to moderate/very important ratings.

Full results for all reasons and groups are included in Appendix A-5.

Figure 9.5. Indicate how frequently architects consider the health/safety/welfare of the public in their design decision-making process.



Comparison to Phase II results: These results confirm the results from Phase II; 85% of Phase II mini-engagement survey respondents said that they considered the health, safety, and welfare of the public "almost always" or "most of the time".

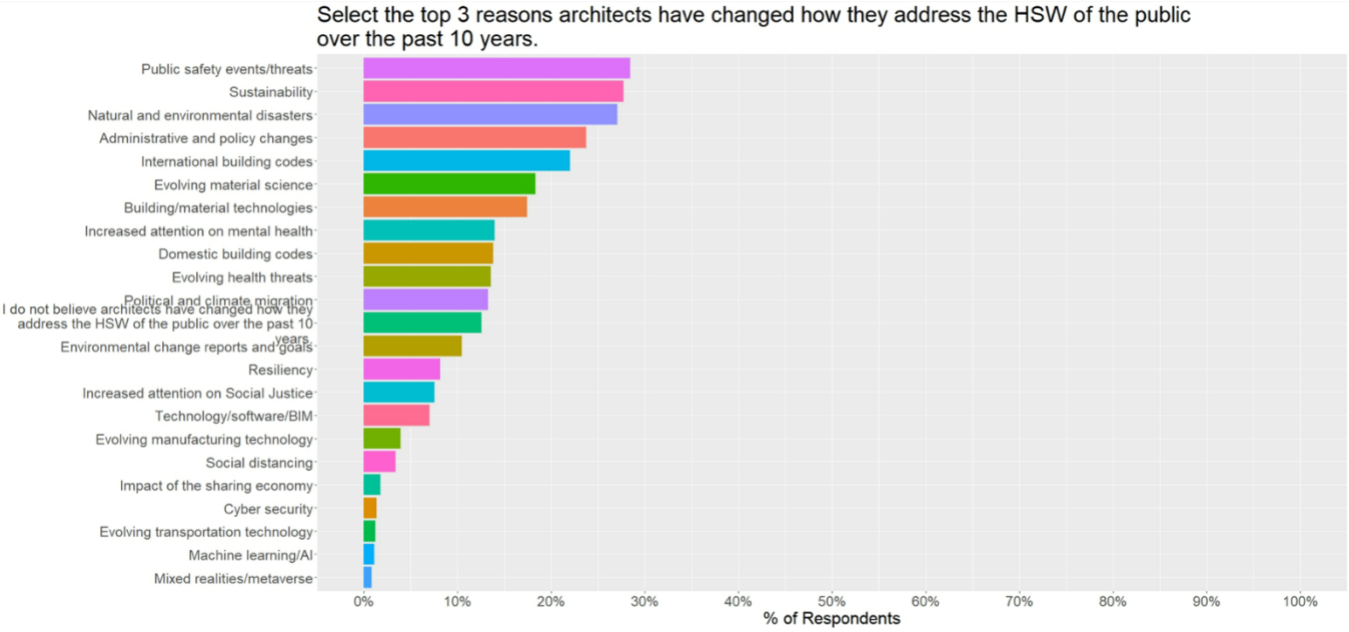
9. Health, Safety, and Welfare

Question: Select the top 3 reasons architects have changed how they address the HSW of the public over the past 10 years.

General Findings

- Figure 9.6 displays reasons architects have changed how they address the HSW of the public over the past 10 years. As shown in this figure, the most common reasons respondents provided were:
    - Public safety events/threats (28%)
    - Sustainability (28%)
    - Natural and environmental disasters (27%)
    - Administrative and policy changes (24%)
    - International building codes (22%)
- While the specific ranking of the top reasons varied slightly by demographic group, the top three reasons for all demographic groups are included in the above list.

Figure 9.6



Full results for all reasons and groups are included in Appendix A-5.

Comparison to Phase II results: This question was not asked directly in Phase II. However, 70% of Phase II mini-engagement survey respondents agreed that recent changes in the profession and built environment make HSW more important for the architect.

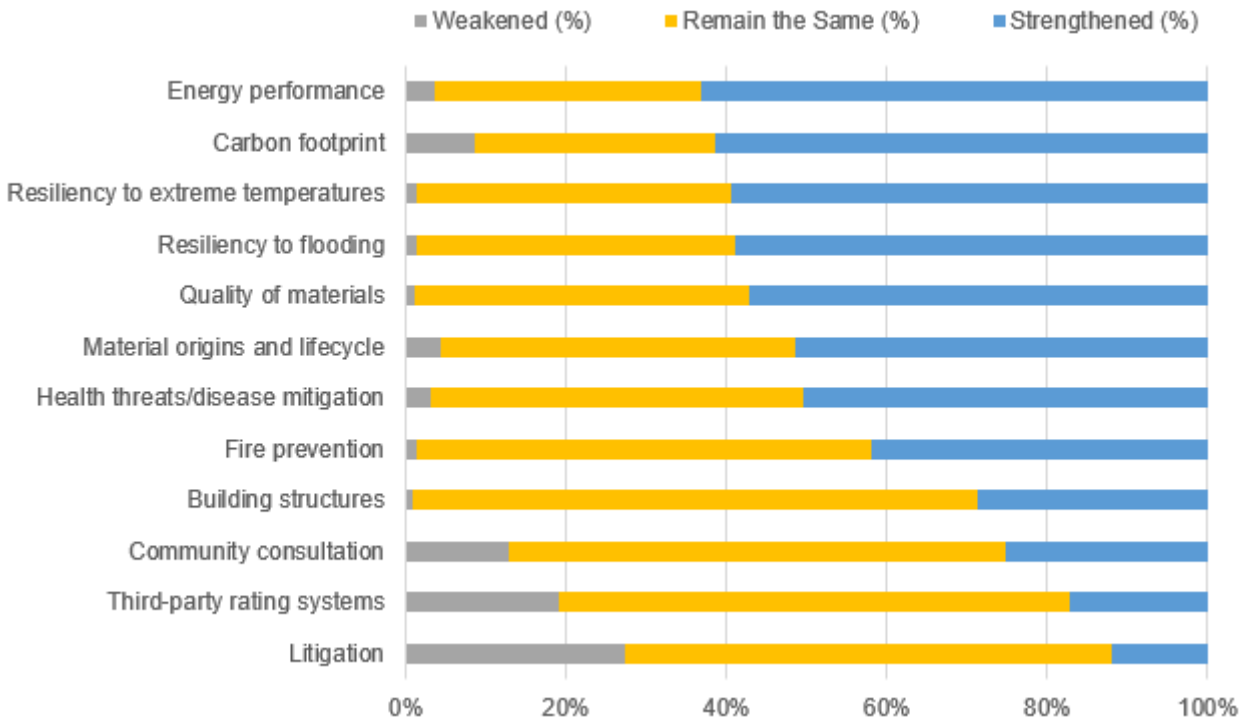
9. Health, Safety, and Welfare

Question: Indicate if you believe codes and regulations should be strengthened, weakened, or remain the same in this area.

General Findings

- Results for the 12 areas considered, based on all respondents, are summarized in Figure 9.7.

Figure 9.7. Indicate if you believe codes and regulations should be strengthened, weakened, or remain the same in this area.



- The top areas where respondents believed codes and regulations should be strengthened were all related to environmental considerations and resiliency:
    - Energy performance (63%)
    - Carbon footprint (61%)
    - Resiliency to extreme temperatures (59%)
    - Resiliency to flooding (59%)
    - Quality of materials (57%)

9. Health, Safety, and Welfare

- There were many differences between groups with respect to the areas where codes and regulations should be strengthened. These differences are discussed below.

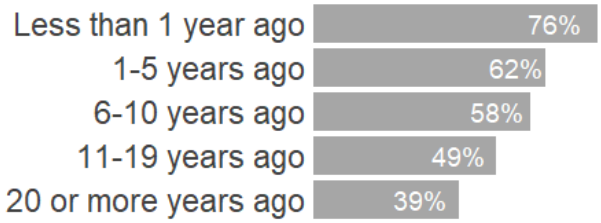
Full results for all areas and groups are included in Appendix A-5.

Group Differences/Trends

Licensure Status

- Respondents who are pursuing their license are uniformly more likely than licensed respondents to support strengthening codes and regulations across all surveyed areas.

- There are several areas where the likelihood of supporting strengthening codes and regulations tends to decrease with years since receiving one's license. For example, 76% of respondents who received their license less than 1 year ago support strengthening codes and regulations related to material origins and lifecycle. This percentage decreases steadily with more licensed experience, dropping to 39% for those who received their license 20+ years ago. Similar patterns (though not always as pronounced) can be seen for other areas as well:



    - Energy performance
    - Quality of materials
    - Resiliency to flooding
    - Resiliency to extreme temperatures
    - Community consultation
    - Carbon footprint
    - Third-party rating systems

Experience

- Similarly, there are several areas where the likelihood of supporting strengthening codes and regulations tends to decrease with years of experience in architecture:

    - Energy performance
    - Third-party rating systems
    - Material origins and lifecycle
    - Community consultation

9. Health, Safety, and Welfare

Gender

- Female respondents tended to be more likely than male respondents to support strengthening codes and regulations across most surveyed areas. For example, 76% of female respondents support strengthening codes and regulations related to carbon footprint, compared to 56% of male respondents. Similar differences were seen for other areas, including material origins and lifecycle (66% versus 46%).

Race

- Non-white respondents were uniformly more likely than white respondents to support strengthening codes and regulations across all surveyed areas.

- This was especially true for Black or African American respondents, who were much more likely than white respondents to support strengthening codes and regulations in many surveyed areas.

- For example, 63% of Black or African American respondents support strengthening codes and regulations related to fire prevention, compared to 39% of white respondents. Similar differences were seen for other areas:

    - Health threats/disease mitigation (71% versus 48%)
    - Community consultation (50% versus 22%)
    - Building structures (52% versus 25%)
    - Resiliency to flooding (79% versus 58%)

Comparison to Phase II results: This question was not asked directly in Phase II. However, respondents to the Phase II mini-engagement survey identified climate change/environmental concerns as one of the greatest threats to HSW.

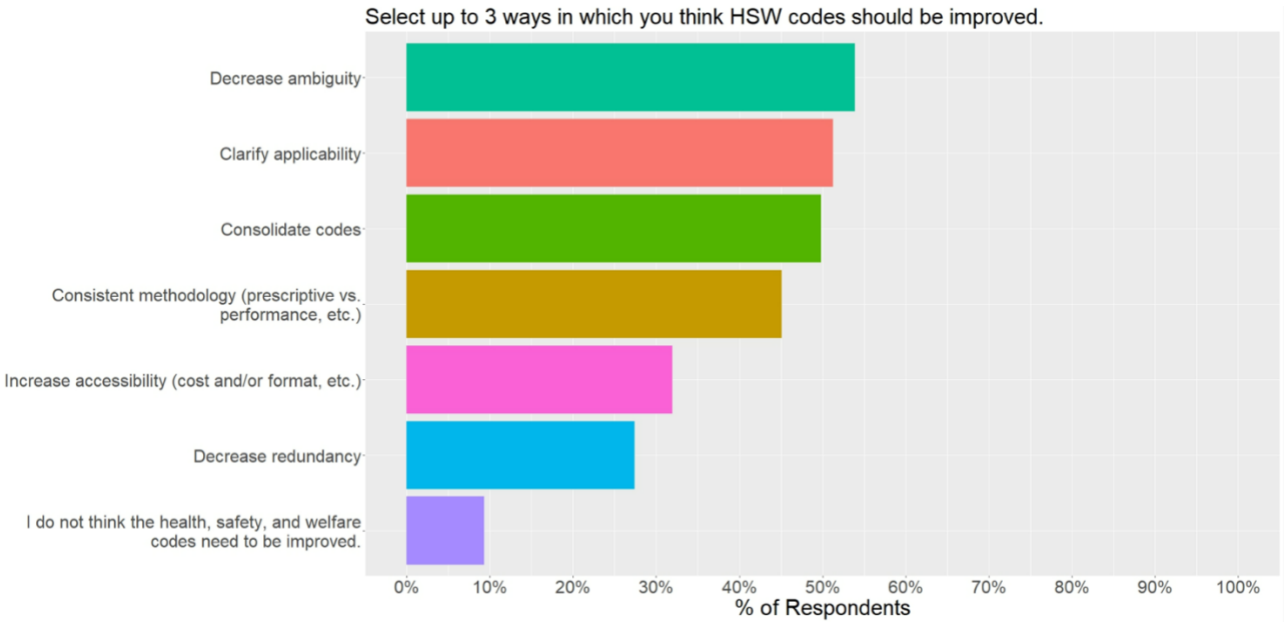
9. Health, Safety, and Welfare

Question: Select up to three ways in which you think HSW codes should be improved.

General Findings

- Figure 9.8 displays ways in which respondents thought HSW codes should be improved. As shown in this figure, the most common reasons respondents provided were:
    - Decrease ambiguity (54%)
    - Clarify applicability (51%)
    - Consolidate codes (50%)
    - Consistent methodology (prescriptive vs performance, etc.) (45%)
- The specific ranking of the top options varied slightly by demographic group. However, the top three options for nearly all demographic groups were included in the above list.

Figure 9.8



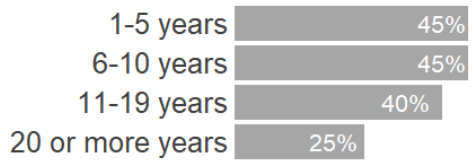
Full results for all reasons and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

9. Health, Safety, and Welfare

Group Differences/Trends

Experience

- As experience increased, the likelihood of respondents identifying increase accessibility (cost and/or format, etc.) as an area of improvement decreased: Respondents with 20+ years of experience were least likely to have identified it in their top three (25%). Respondents with 10 or fewer years of experience were most likely (45%).



Demographics

- Female respondents were more likely than male respondents to have identified Increase accessibility (cost and/or format, etc.) in their top three (41% versus 29%).

Comparison to Phase II results: This question was not asked in Phase II.

9. Health, Safety, and Welfare

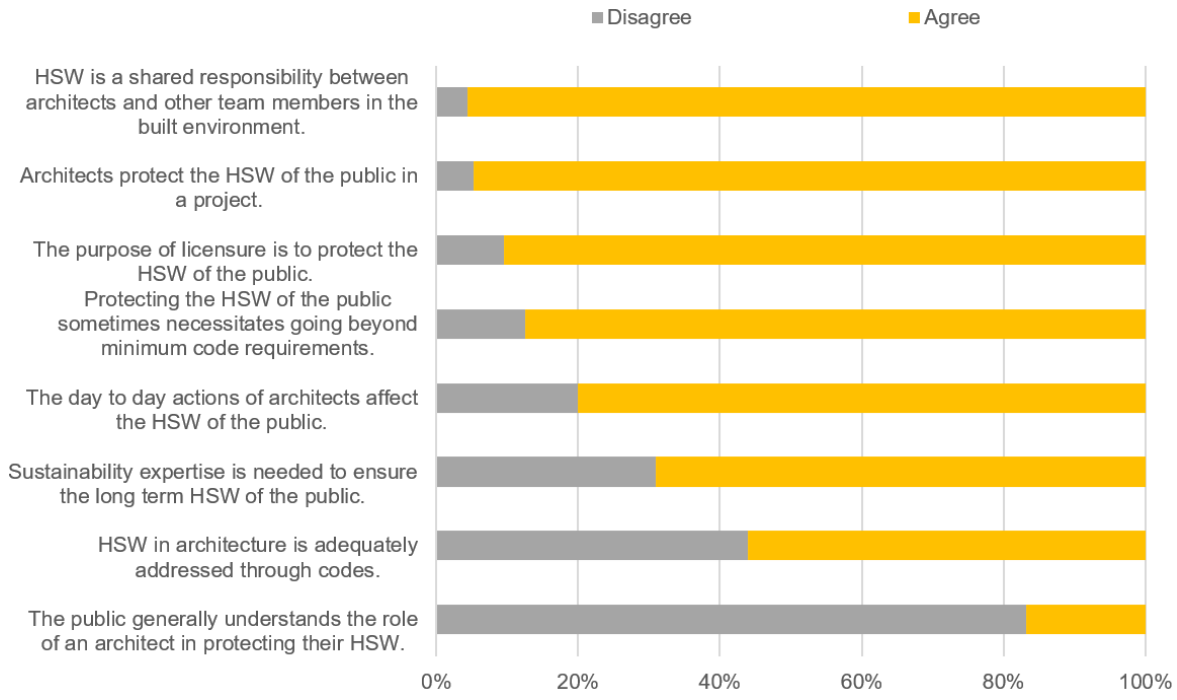
Question: Indicate if you agree or disagree with each statement related to HSW.

General Findings

- Results for the 22 topics considered, based on all respondents, are summarized in Figure 9.9.
- The top statements with which respondents agreed were:
    - HSW is a shared responsibility between architects and other team members in the built environment (96%).
    - Architects protect the HSW of the public in a project (95%).
    - The purpose of licensure is to protect the HSW of the public (90%).
- More than 80% of respondents believed that the public generally does not understand the architect's role in protecting their HSW. However, there were differences between groups for this question.
- For all other statements, there was substantial similarity across groups.

Full results for all reasons and groups are included in Appendix A-5.

Figure 9.9. Indicate if you agree or disagree with each statement related to HSW.



9. Health, Safety, and Welfare

Group Differences/Trends

- Only 17% of respondents agreed with the statement, “The public generally understands the role of an architect in protecting their HSW”.

- Groups that were more likely to agree with this statement include:

    - Asian respondents (43%)
    - Non-white respondents (29%)
    - Respondents pursuing a license (25%)
    - Hispanic, Latino, or Spanish respondents (24%)
    - Respondents who have 1-5 years of experience (23%)

Comparison to Phase II results: These results confirm the results from Phase II. Respondents to the Phase II mini-engagement survey frequently agreed/strongly agreed with the following statements:

- Architects protect the health, safety, and welfare of the public (87%).
- Architects place a high priority on the health, safety, and welfare of the public in their day-to-day work (83%).

Phase II mini-engagement survey respondents frequently disagreed/strongly disagreed with the following statement:

- The general public understands the architect’s role in protecting health, safety, and welfare (66%).

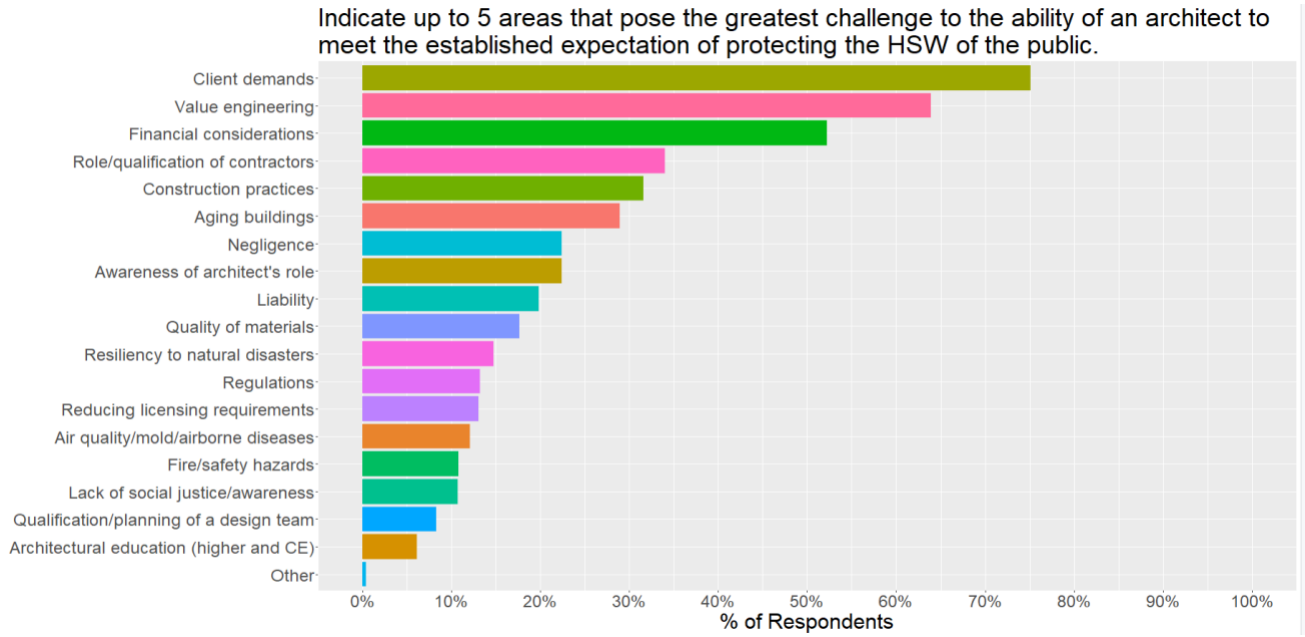
9. Health, Safety, and Welfare

Question: Indicate up to five areas that pose the greatest challenge to architects' ability to meet the established expectation of protecting the HSW of the public.

General Findings

- Figure 9.10 displays the challenges that respondents noted affect an architect's ability to meet expectations related to HSW. As shown in this figure, the most common challenges respondents selected were:
    - Client demands (75%)
    - Value engineering (64%)
    - Financial considerations (52%)
    - Role/qualification of contractors (34%)
    - Construction practices (32%)
- While the specific ranking of the top areas varied slightly by demographic group, the top areas for nearly all demographic groups are included in the above list.

Figure 9.10



Full results for all reasons and groups are included in Appendix A-5.

9. Health, Safety, and Welfare

Comparison to Phase II results: These results partially confirm the results from Phase II. The top threats to HSW that respondents identified by the Phase II mini-engagement survey respondents included:

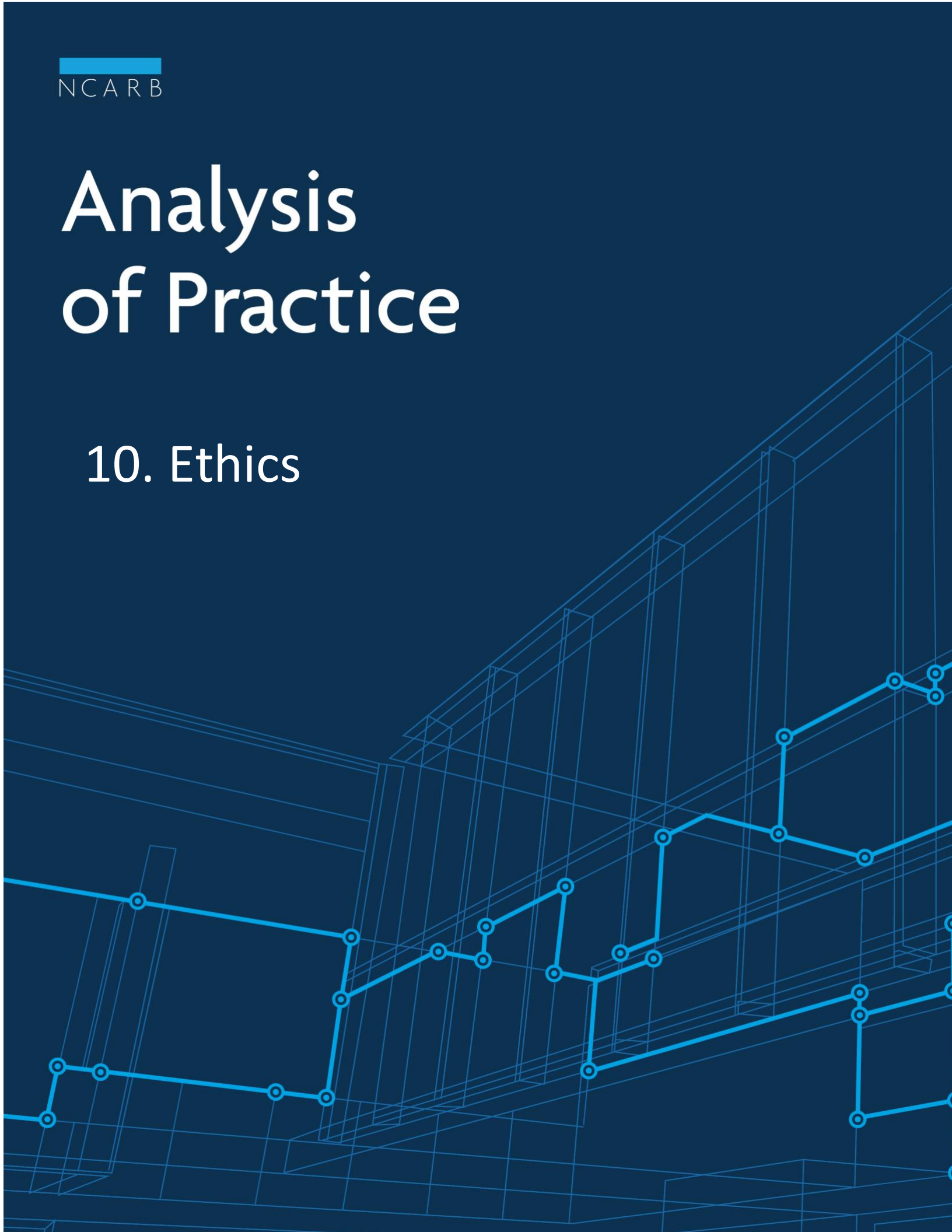
- Budget constraints/money
- Climate change/environmental concerns
- Lack of knowledge/training
- Quality of materials
- Client demands

Financial concerns and client demands were identified as top threats in both phases.

NCARB

Analysis of Practice

10. Ethics



10. Ethics

Introduction

This section provides the results from ethics, which address questions related to an architect's ethical responsibilities and related challenges that have occurred or may have occurred in the workplace.

The analysis for this section was filtered to include only individuals currently working in the field of architecture or students in the field of architecture or a related field. In addition, the data were filtered to only include those who are pursuing, active, or retired license holders. Significant results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

Ninety-six percent (96%) of respondents agreed/strongly agreed that an architect's primary responsibility is protecting the health, safety, and welfare of the public. Most also agreed/strongly agreed that licensure requirements have a component of ethical responsibility (92%) that aligns with their ability to make decisions (84%).

Most respondents agreed/strongly agreed that an architect's ethical responsibilities are clearly defined (83%), outlined by professional organizations more so than by state licensures (70%), and exist in perpetuity, long after the project is completed (69%).

Being responsible to the client (87%) and being honest/having integrity (87%) are the most strongly endorsed actions that respondents felt architects have a clear ethical responsibility to follow.

About half (51%) of respondents indicated that they had encountered situations in which their job assignments had challenged their ethical responsibilities. For those who had observed these situations, client expectations/demands and value engineering were the most frequently reported types of situations that had resulted in ethical challenges.

The responses to the ethics questions were very similar across demographic groups, but there were some differences. One notable group difference is that the percent of respondents who agreed to the statement: "Are there situations in which your job assignments have challenged your ethical responsibilities?" increases with years since initial licensure and age.

Subsequent portions of this section describe findings from individual survey questions, focusing on broad, general findings, as well as identifying important group differences.

10. Ethics

NCARB Supplemental Infographic: Ethics

As professionals responsible for the public's health, safety, and welfare, architects are typically held to ethics requirements that govern their professional conduct—but identifying the boundary between ethical responsibilities versus ideal best practices can make it difficult to create a code of conduct. To better understand where architects perceive their responsibilities, NCARB created a supplemental infographic and blog post.

10. Ethics

Questions Asked in This Section

Q10.1 Does a license in architecture indicate that an architect has an ethical responsibility to the public?

Indicate to what extent you agree or disagree with each statement.

- **Q10.2** Architects' ethical responsibilities are clearly defined.
- **Q10.3** Licensure requirements have a component of ethical responsibility.
- **Q10.4** Architects' ethical responsibilities are outlined by professional organizations more so than by state licensure.
- **Q10.5** Architects' primary responsibility is protecting the health, safety, and welfare of the public.
- **Q10.6** Architects' ethical responsibilities to a project exist in perpetuity, long after the project is completed.
- **Q10.7** Architects' ethical responsibilities align with their ability to make decisions.

Q10.8 Indicate which actions architects have a CLEAR ethical responsibility to follow.

Q10.9 Are there situations in which your job assignments have challenged your ethical responsibilities?

Q10.10 Indicate in which situation(s) you have personally witnessed or experienced a conflict between an architect's work requirements and their ethical responsibilities.

Single-part questions are in dark blue font; multi-part questions are in light blue font.

10. Ethics

Demographic Variables Reviewed

The table on the following page lists the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[25] based on the size of the proportional difference between groups (see key below). For multi-part questions, the table notes which groups had notable differences on some/all parts.

[25] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2= Large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

10. Ethics

Demographic Variables Reviewed		Group Differences/Trends?									
		Q10.1	Q10.2	Q10.3	Q10.4	Q10.5	Q10.6	Q10.7	Q10.8	Q10.9	Q10.10
Licensure Status	Current status of architectural license	S	S	S	S	S	S	S	○	S	○
Experience	Years of experience in architecture	S	S	S	S	S	S	S	○	S	○
Workplace	Number of people at current workplace	S	S	S	S	S	S	S	○	S	
	Workplace community	S	S	S	S	S	S	S		S	
Demographics	Gender	S	S	S	S	S	S	S		S	○
	Race (by individual race)	S	S	S	S	S	S	S		S	
	Race (by white vs. non-white)	S	S	S	S	S	S	S		S	
	Ethnicity	S	S	S	S	S	S	S		S	○
	Age	S	S	S	S	S	S	S	○	S	○

Key	
Single-Part Questions	Multi-Part Questions
N = None S = Small M = Moderate L = Large	○ = Difference(s) observed on some part(s) ● = Differences observed on all parts ■ = N/A

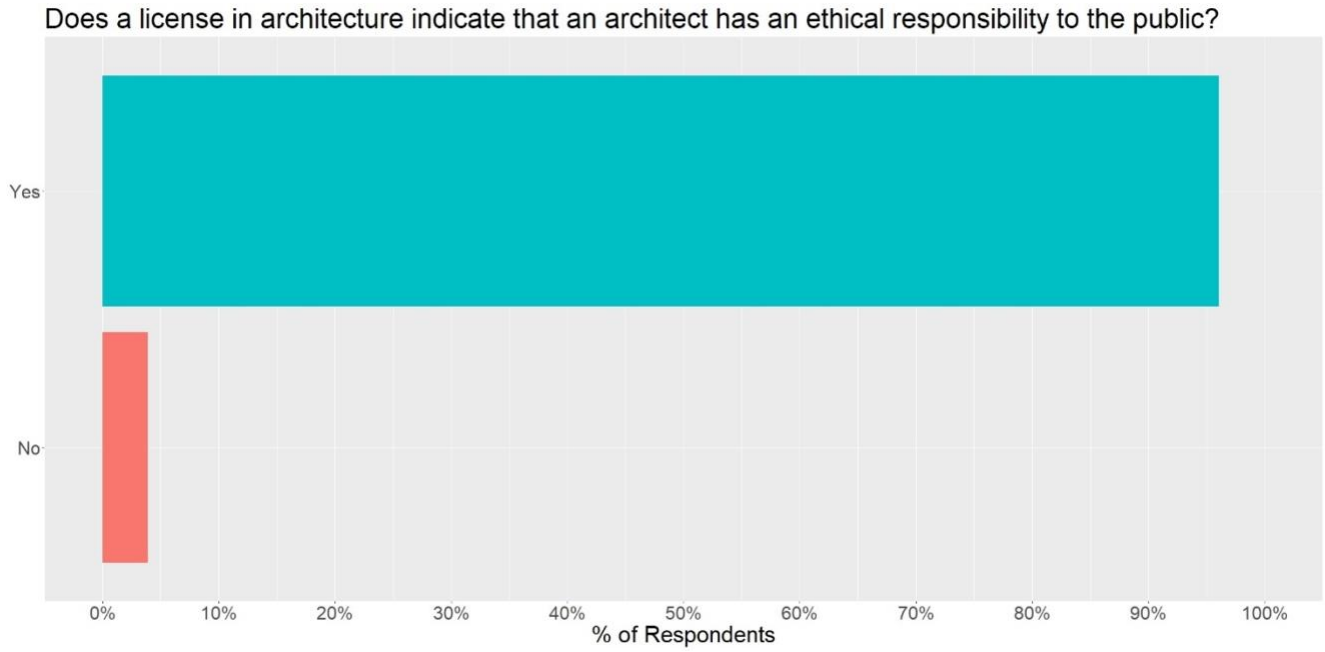
10. Ethics

Question: Does a license in architecture indicate that an architect has an ethical responsibility to the public?

General Findings

- 96% of respondents agreed that a license in architecture indicates an ethical responsibility to the public (see Figure 10.1).
- The pattern of responses to this question was similar across demographic groups, with 92% or more replying “Yes” in all groups with at least 100 respondents.

Figure 10.1



Complete results for all groups are included in Appendix A-5.

Comparison to Phase II results: The overall Phase III results confirmed those of Phase II. Both the mini-engagement survey of Phase II (n = 262) and this survey found approximately 96% of respondents believe a license in architecture confers an ethical responsibility to the public.

10. Ethics

Question: Indicate the degree to which you strongly agree, agree, disagree, or strongly disagree with each statement (ethical responsibilities of architects).

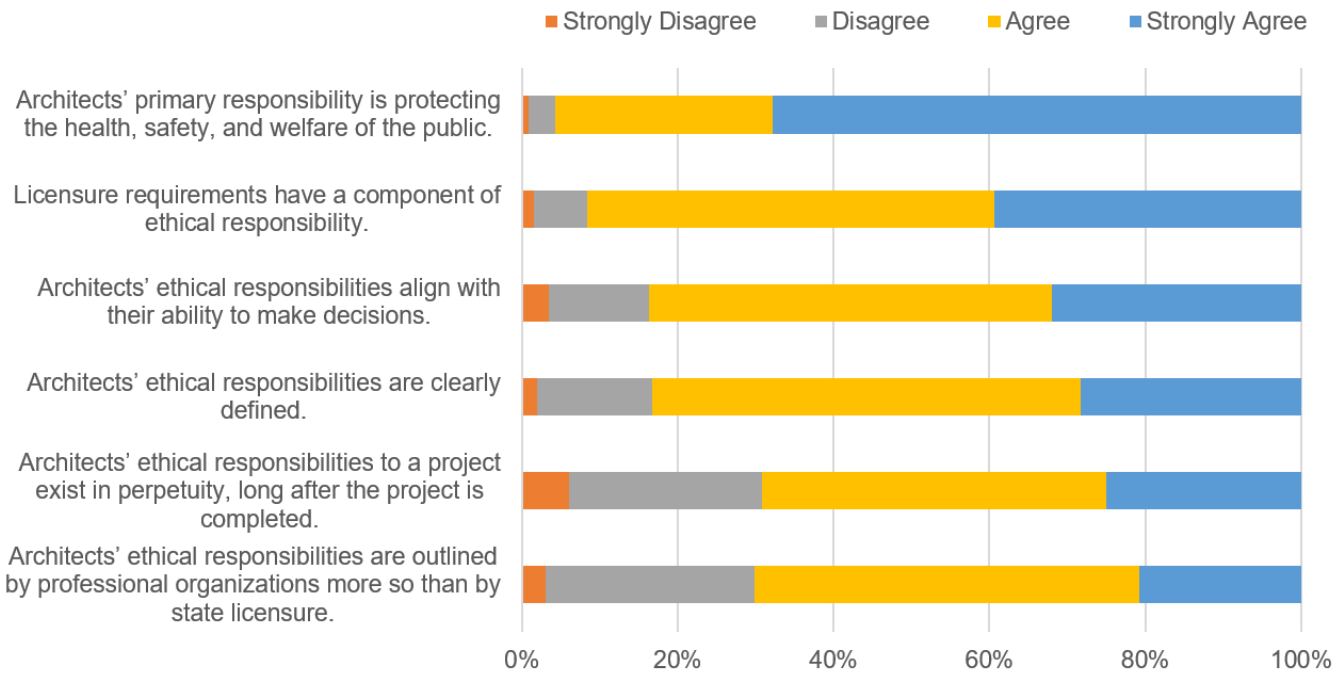
General Findings

- Nearly all respondents (96%) agreed or strongly agreed that an architect's primary responsibility is protecting the health, safety, and welfare of the public (see Figure 10.2). This was the most frequent area of strong agreement across every respondent subgroup.

- Similarly, 92% agreed or strongly agreed that licensure requirements have a component of ethical responsibility.

- A large majority of respondents (84%) agreed or strongly agreed that an architect's ethical responsibilities align with their ability to make decisions. 83% replied that an architect's ethical responsibilities are clearly defined.

Figure 10.2



10. Ethics

- Most respondents (70%) agreed or strongly agreed that an architect's ethical responsibilities are outlined by professional organizations more so than by state licensure.
- 69% believed that an architect's ethical responsibilities to a project exist in perpetuity, long after the project is completed.

The pattern of responses to this question was similar across demographic groups, with only small group differences. Complete results for all statements and groups are included in Appendix A-5.

Comparison to Phase II results: The overall Phase III results confirmed those of Phase II. Both the mini-engagement survey of Phase II (n = 262) and this survey found approximately 82% of respondents believed an architect's ethical responsibilities are clearly defined, and nearly all architects believed their primary ethical responsibility is protecting the health, safety, and welfare of the public.

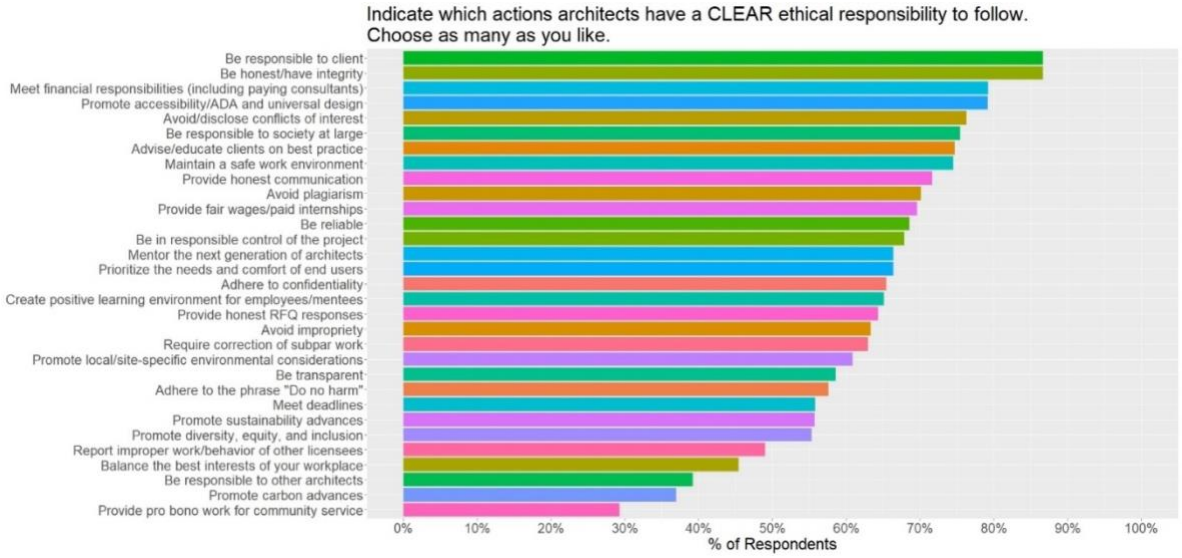
10. Ethics

Question: Indicate which actions architects have a clear ethical responsibility to follow.

General Findings

- Figure 10.3 shows actions related to ethical responsibilities. As shown in this figure, the most common actions respondents believed architects have a clear ethical responsibility to follow are:
    - Be responsible to client (87%)
    - Be honest/have integrity (87%)
    - Meet financial responsibilities (79%)
    - Promote accessibility/ADA and universal design (79%)
- Almost all demographic groups had some combination of these four responses as their top selections.

Figure 10.3



Full results for all reasons and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Licensure Status

- Of those pursuing a license, be responsible to client was the most frequently selected option (72%). Those with a current license selected be honest/have integrity most frequently (79%).

10. Ethics

- Respondents with a current license were more likely than those pursuing a license to select avoid impropriety (60% versus 40%).

Experience

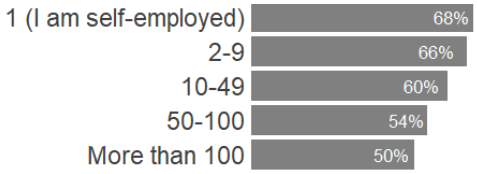
- Those with 1-19 years of experience selected be responsible to client most frequently (all groups 72%). Those with 20+ years selected be honest/have integrity as their top choice (78%).

- Respondents with less than 1 year of experience in architecture were less likely to select avoid/disclose conflicts of interest.

- Respondents with 20+ years of experience were 1.4 times more likely than those with 1-5 years of experience to select avoid impropriety (61% versus 44%).

Workplace

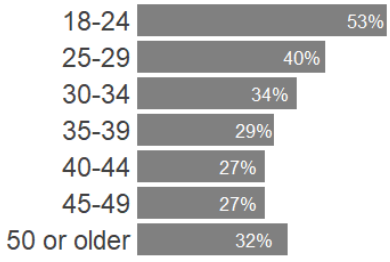
- Respondents from smaller workplaces were more likely to select be reliable.



Age

- Respondents between 18 and 24 years old were the most likely of any age group to select the following:
    - Maintain a safe work environment (81%)
    - Provide fair wages/paid internships (77%)
    - Prioritize the needs and comfort of end users (72%)
    - Be reliable (72%)
    - Promote local/site-specific environmental considerations (70%)
    - Promote diversity, equity, and inclusion (69%)
    - Promote sustainability advances (68%)
    - Meet deadlines (61%)
    - Balance the best interests of your workplace (53%)
    - Promote carbon advances (53%)

- For each of the above actions, respondents between 18 and 24 years old were at least 20% higher than another age group (usually those in their 40s). For example, 53% of respondents between 18 and 24 years old believed that architects have a clear ethical responsibility to promote sustainability advances, compared to 27% of respondents aged 40-49.



10. Ethics

Comparison to Phase II results: The overall Phase III results partially confirmed those of Phase II, although the question was phrased differently in Phase II. In both the mini-engagement survey of Phase II (n = 262) and this survey, be responsible to the client and be honest/have integrity were among the top responses. However, meet financial responsibilities and promote accessibility/ADA and universal design were not among the top responses in Phase II.

10. Ethics

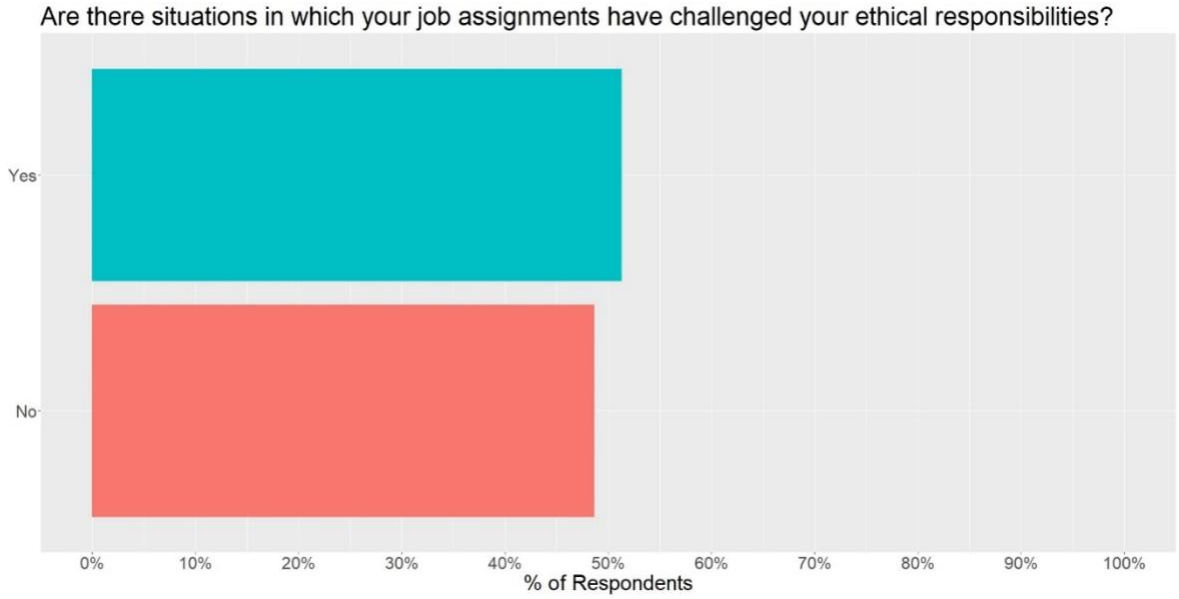
Question: Are there situations in which your job assignments have challenged your ethical responsibilities?

General Findings

- Overall, 51% of all respondents have had situations in which job assignments have challenged their ethical responsibilities (see Figure 10.4).

- The pattern of responses to this question was similar across demographic groups, with 35% and 55% replying “Yes” in all groups with at least 100 respondents.

Figure 10.4



Some small, but notable, group differences in responses are detailed in the following section.

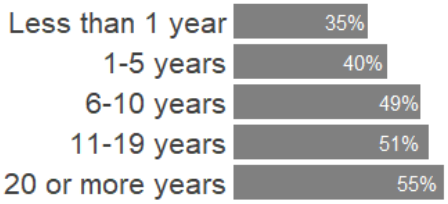
Group Differences/Trends

Licensure Status

- 43% of those pursuing a license and 55% of those with a current license responded “Yes” to the question.

Experience

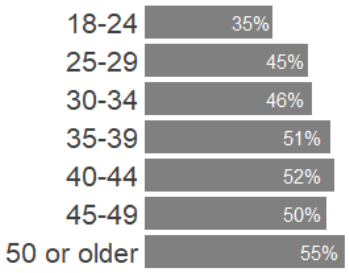
- Those with fewer years of experience were progressively less likely to have answered “Yes” to the question. 55% of respondents with 20+ years of experience had encountered situations that



challenged their ethical responsibilities, compared to 35% for respondents with less than 1 year of experience.

Demographics

- The demographic comparisons by gender, race, ethnicity, and age all showed mostly small differences. Younger respondents were progressively less likely to have answered "Yes" to the question.



Comparison to Phase II results: The overall Phase III results confirmed those of Phase II. Both the mini-engagement survey of Phase II (n = 262) and this survey found just over half of respondents have had situations in which their job responsibilities have challenged their ethical responsibilities.

10. Ethics

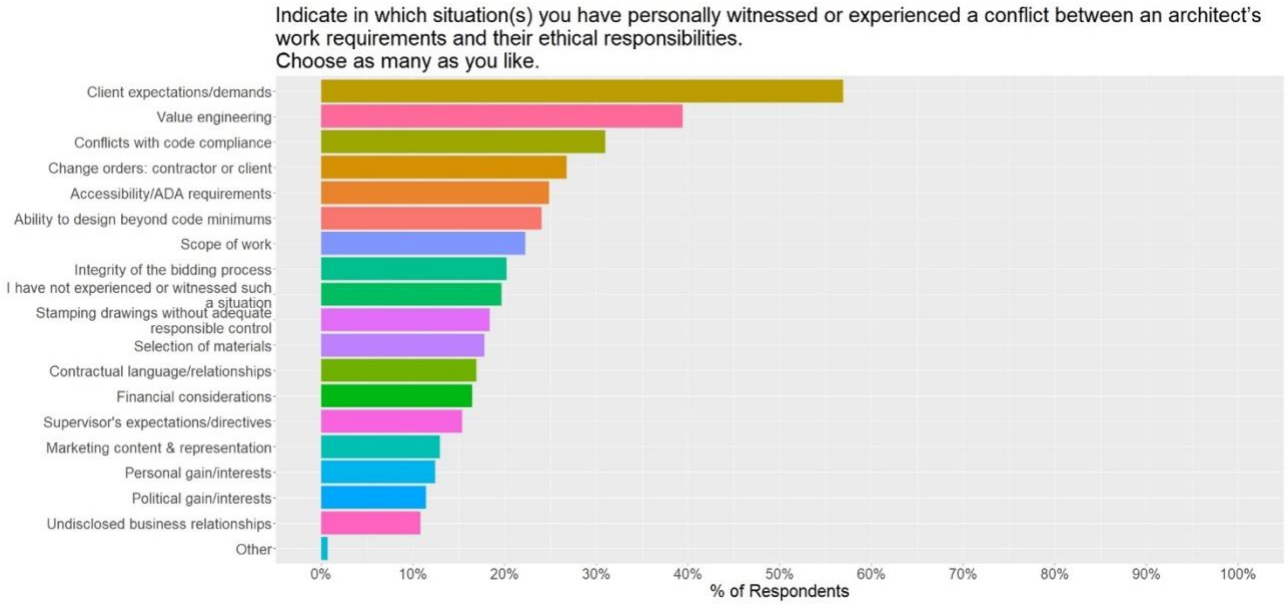
Question: Indicate in which situation(s) you have personally witnessed or experienced a conflict between an architect's work requirements and their ethical responsibilities.

General Findings

- Respondents most frequently selected client expectations/demands (57%) followed by value engineering (39%) (see Figure 10.5).
- 20% of respondents have not personally witnessed or experienced a conflict between an architect's work requirements and their ethical responsibilities.
- Almost all demographic groups had client expectations/demands as their top selection and value engineering as their second most frequent selection.

Full results for all reasons and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Figure 10.5



10. Ethics

Group Differences/Trends

Licensure Status

- Of those pursuing a license, "I have not experienced or witnessed such a situation" was the third most frequently selected option (27%). For those with a current license, "Conflicts with code compliance" was the third most frequently selected option (35%). Sixteen percent (16%) with a current license selected "I have not experienced or witnessed such a situation."

- Licensed respondents were more likely than respondents pursuing a license to have encountered certain types of ethical conflicts:

    - Stamping drawings without adequate responsible control (1.8 times more likely)
    - Integrity of the bidding process (1.8 times more likely)
    - Marketing content and representation (1.7 times more likely)
    - Contractual language/relationships (1.7 times more likely)

Experience

- Those with less than 1 year or no experience in architecture selected "I have not experienced or witnessed such a situation" most frequently.

- Respondents with 20+ years of experience were much more likely than those with less experience (1-5 years) to have encountered certain types of ethical conflicts:

    - Integrity of the bidding process (2.8 times more likely)
    - Contractual language/relationships (2.1 times more likely)
    - Conflicts with code compliance (1.9 times more likely)
    - Undisclosed business relationships (1.9 times more likely)

Demographics

- Male respondents were more likely than female respondents to have encountered certain types of ethical conflicts:

    - Integrity of the bidding process (1.8 times more likely)
    - Contractual language/relationships (1.8 times more likely)
    - Undisclosed business relationships (1.7 times more likely)
    - Marketing content and representation (1.6 times more likely)
    - Political gain/interests (1.6 times more likely)

- Respondents who were not Hispanic, Latino, or Spanish were more likely than Hispanic, Latino, or Spanish respondents to have encountered certain types of ethical conflicts:

    - Marketing content and representation (1.6 times more likely)

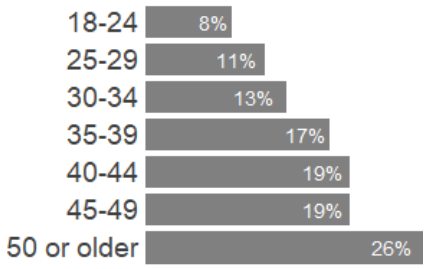
- Value engineering (1.5 times more likely)

- Hispanic, Latino, or Spanish respondents were also 1.5 times more likely to have not experienced or witnessed a conflict.

- Older respondents (50+) were more likely than younger respondents (18-24) to have encountered certain types of ethical conflicts:

  - Integrity of the bidding process (3.3 times more likely)
  - Undisclosed business relationships (2.3 times more likely)
  - Contractual language/relationships (2.0 times more likely)
  - Marketing content and representation (1.8 times more likely)

These differences are part of a general increasing trend in these areas. For example, the proportion of respondents who have encountered ethical conflicts in relation to the integrity of the bidding process increases with respondent age.



Comparison to Phase II results: The overall Phase III results partially confirmed those of Phase II. The related question asked in Phase II was not the same as Phase III, although "conflicts between clients' interests and an architect's values" was a top Phase II response. This seems analogous to "client expectations/demands," which was the top response in Phase III.

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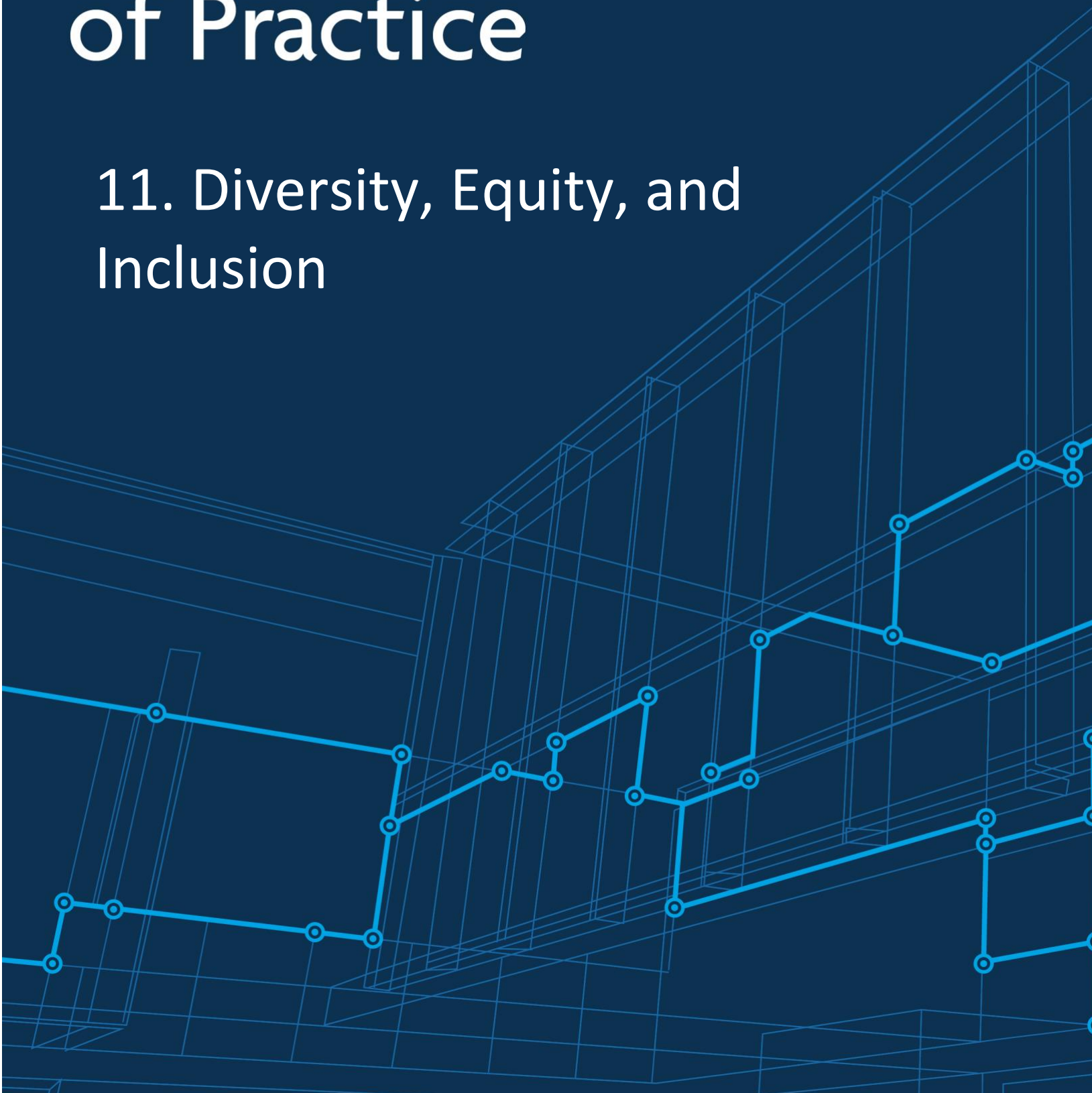
Analysis of Practice

11. Diversity, Equity, and Inclusion



11. Diversity, Equity, and Inclusion

Introduction

This section provides the results from diversity, equity, and inclusion (DEI). The analyses presented in this section address respondents' views on DEI-related issues within the architecture profession, the fairness of the licensure process, and experiences with discrimination. Significant results are provided in the body of this report. Detailed analysis results are provided in Appendix A-5.

Overall Findings

Most respondents rated their place of employment and educational institutions as moderately/very successful in addressing DEI in architecture (82% and 75%, respectively). However, slim majorities of respondents rated their regulatory and representative organizations and the profession as a whole as moderately/very successful (58% and 54%, respectively).

There were also pronounced differences between demographic groups, especially based on race and gender. For example, only 38% of women identified the profession as a whole as moderately/very successful in addressing DEI, compared to 60% of men. Similarly, only 28% of Black or African American respondents identified the profession as moderately/very successful in addressing DEI, compared to 55% of white respondents.

Respondents identified many DEI issues that exist within the profession that have not been adequately addressed. These most frequently include:

- Lack of outreach to underrepresented communities/schools (60%)
- Socioeconomic barriers (60%)
- Lack of exposure to the architecture profession (59%)
- Lack of equal compensation (56%)
- Lack of career options for caregivers/families (56%)
- Lack of diversity in managers/supervisors/mentors (54%)
- Lack of access to education (53%)
- Unequal access to promotions and professional growth opportunities (53%)
- Lack of diversity within the applicant pool for architect positions (51%)
- Lack of demographic representation in the architectural field (50%)

Large majorities of respondents believed that diversity is increasing within the profession (87%) and that a diverse, inclusive profession is better able to protect the health, safety, and welfare of the public (79%). There was also widespread support for multiple strategies to foster diversity within the profession:

- Increasing the number of real-world experiences that involve working with a diverse group of professionals will help address DEI (89%)
- Addressing DEI starts with firm culture (87%)

- Beginning outreach efforts to diverse populations early in the education cycle (including, but not limited to elementary education) to introduce them to architecture (87%)
- Hiring, promoting, and highlighting success stories of underrepresented groups in the field of architecture (76%)
- Providing additional financial support to underrepresented students will help the next generation of architects be more diverse (75%)

Respondents were asked if they have witnessed or experienced different types of discrimination either in the field of architecture or at their place of work. More respondents report witnessing/experiencing discrimination in the field of architecture, generally, than at their own place of work. Gender and age discrimination have been witnessed/experienced most frequently.

Forty-eight percent (48%) of respondents have witnessed/experienced gender discrimination in the field of architecture, and 22% have witnessed it at work. Similarly, 44% of respondents have witnessed/experienced age discrimination in the field of architecture, and 19% have witnessed it at work.

Women and non-white respondents were more likely to have witnessed/experienced discrimination. For example, women were nearly three times as likely as men to witness/experience gender discrimination at their workplace (41% versus 14%). Black or African American respondents were nearly five times more likely than white respondents to witness/experience racial discrimination at their workplace (42% vs 9%).

Respondents generally believed that various elements of the current licensure process are fair. More than 75% of respondents describe each part (i.e., experience, examination, education, overall licensure process) as somewhat or very fair, and 34-40% describe each part as very fair.

In addition to those differences noted previously, other notable group differences include:

- Respondents pursuing a license were more likely to have witnessed/experienced discrimination and less likely to describe the licensure process as fair.

- Younger respondents were less likely to …

    - Agree that the licensure process is equitable, and neither advantages nor disadvantages any specific group(s) based on demographic factors (e.g., gender, ethnicity, socioeconomic status).

    - Describe the examination as somewhat/very fair.

- Respondents at larger workplaces were more likely to witness/experience discrimination at their workplace.

- Respondents with fewer years of experience were …

    - Less likely to describe the examination as somewhat/very fair.
    - More likely to believe that DEI issues are not adequately addressed in the field of architecture.

Subsequent portions of this section describe findings from individual survey questions, focusing on broad, general findings, as well as identifying important group differences.

11. Diversity, Equity, and Inclusion

NCARB Supplemental Infographic: Diversity, Equity, and Inclusion

NCARB is committed to encouraging greater diversity, equity, and inclusion (DEI) throughout all aspects of the NCARB community, including on the path to licensure. To better understand respondents' perspectives on the fairness of the licensure process and how the profession is addressing DEI issues, NCARB created a supplemental infographic and blog post.

11. Diversity, Equity, and Inclusion

Questions Asked in This Section

Indicate how successful each element is in addressing diversity, equity, and inclusion (DEI) in architecture.

- **Q11.1** The profession as a whole
- **Q11.2** Your current place of employment
- **Q11.3** Educational institutions
- **Q11.4** Regulatory and representative organizations

Indicate the extent to which you agree or disagree with each statement.

- **Q11.5** A diverse, inclusive profession is better able to protect the health, safety, and welfare of the public.
- **Q11.6** Diversity is an important consideration when recruiting a recently licensed architect.
- **Q11.7** The licensure process is equitable, and neither advantages nor disadvantages any specific group(s) based on demographic factors (gender, ethnicity, socioeconomic status, etc.)
- **Q11.8** Underlying biases affect the assignment of roles and responsibilities.
- **Q11.9** Diversity is increasing in the field of architecture.
- **Q11.10** The licensure process should ensure that architects have the knowledge and skills that will enable them to address issues related to DEI.
- **Q11.11** It is more difficult to address DEI in the profession of architecture compared to other professions.
- **Q11.12** Addressing DEI starts with firm culture.
- **Q11.13** Creating an equitable built environment requires prioritizing diversity within the field of architecture.
- **Q11.14** Creating an equitable built environment requires prioritizing diversity within architectural education.
- **Q11.15** Including public spaces in projects helps to foster a sense of community across demographics.
- **Q11.16** Outreach efforts to a more diverse profession need to begin early in the education cycle (including, but not limited to elementary education) to introduce them to architecture.
- **Q11.17** Providing additional financial support to underrepresented students will help the next generation of architects be more diverse.
- **Q11.18** Increasing the number of real-world experiences that involve working with a diverse group of professionals will help address DEI.

11. Diversity, Equity, and Inclusion

Q11.19 The licensure process should ensure architects have the knowledge and skills that will enable them to address DEI.

Q11.20 The architectural field should hire, promote, and highlight success stories of underrepresented groups.

Q11.21 Gender plays a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture.

Q11.22 Race and ethnicity play a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture.

Q11.23 Indicate if you have witnessed or experienced discrimination in any of these categories.

Indicate how fair each component of the current licensure process is.

Q11.24 Education

Q11.25 Experience

Q11.26 Examination

Q11.27 The licensure process overall

Q11.28 Indicate if the listed DEI-related issues exist within the field of architecture, and, if so, if they are being adequately addressed.

Single-part questions are in dark blue font; multi-part questions are in light blue font.

11. Diversity, Equity, and Inclusion

Demographic Variables Reviewed

The tables on the following pages list the demographic groups/variables analyzed and compared for this section of the survey.

This section of the survey contains both single- and multi-part questions. Group differences/trends were observed for some variables. For single-part questions, differences were classified[26] based on the size of the proportional difference between groups (see keys below). For multi-part questions, the table notes which groups had notable differences on some/all parts.

[26] For convenience and consistency, we describe differences qualitatively (small, moderate, large) based on the following quantitative criteria: Percentages are compared by taking their ratio, r. Ratio values of 1 = none; 1 < r < 1.5 = small; 1.5 <= r < 2 = moderate; r >= 2= large. For example, if in one group 68% of respondents agree with a particular statement and in another group 40% of respondents agree, then r = 68%/40% = 1.7, which would be described as a moderate difference between groups. A similar process is used when comparing groups based on mean responses. When more than two categories are compared within a demographic category (e.g., respondent age is broken into seven different groups), the qualitative indicator shown here is based on the largest within the category when comparing to a reference group (e.g., the group within that category with the most respondents). To avoid overinterpreting differences based on small samples, these comparisons are only made for groups with at least 100 respondents.

11. Diversity, Equity, and Inclusion

Demographic Variables Reviewed		Group Differences/Trends?																			
		Q11.1	Q11.2	Q11.3	Q11.4	Q11.5	Q11.6	Q11.7	Q11.8	Q11.9	Q11.10	Q11.11	Q11.12	Q11.13	Q11.14	Q11.15	Q11.16	Q11.17	Q11.18	Q11.19	Q11.20
Job Role	Responsible for hiring staff					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Licensure Status	Current status of architectural license	S	S	S	S	S	S	S	S	S	S	M	N	S	S	S	S	S	S	S	S
Experience	Years of experience in architecture	M	S	S	S	S	S	M	S	S	S	S	N	S	S	S	S	S	S	S	S
Workplace	Number of people at current workplace	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Workplace community	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Demographics	Gender	M	S	S	S	S	S	M	S	S	S	S	S	S	S	S	S	S	S	S	S
	Race (by individual race)	M	S	M	S	S	S	M	S	S	S	L	S	S	S	S	S	S	S	S	S
	Race (by white vs. non-white)	S	S	S	S	S	S	S	S	S	S	M	S	S	S	S	S	S	S	S	S
	Ethnicity	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S	S	S
	Age	M	S	S	S	S	S	M	S	S	S	S	S	M	S	S	S	S	S	S	S
Education	Highest degree					S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	NAAB-accredited program	S	S	S	S	S	S	S	S	S	S	S	N	S	S	S	S	S	S	S	S

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

11. Diversity, Equity, and Inclusion

Demographic Variables Reviewed		Group Differences/Trends?							
		Q11.21	Q11.22	Q11.23	Q11.24	Q11.25	Q11.26	Q11.27	Q11.28
Job Role	Responsible for hiring staff	S	S						
Licensure Status	Current status of architectural license	S	S	●	S	S	M	M	
Experience	Years of experience in architecture	M	M	●	S	S	M	M	○
Workplace	Number of people at current workplace	S	S	●	S	S	S	S	
	Workplace community	S	S	●	S	S	S	S	
Demographics	Gender	M	M	●	S	S	S	S	○
	Race (by individual race)	M	M	●	S	S	S	S	○
	Race (by white vs. non-white)	S	M	○	S	S	S	S	
	Ethnicity	S	S		S	S	S	S	
	Age	M	M	●	S	S	M	M	
Education	Highest degree	S	S						
	NAAB-accredited program	S	S		S	S	S	S	

Key	
Single-Part Questions	Multi-Part Questions
N = None	○ = Difference(s) observed on some part(s)
S = Small	● = Differences observed on all parts
M = Moderate	■ = N/A
L = Large	
■ = N/A	

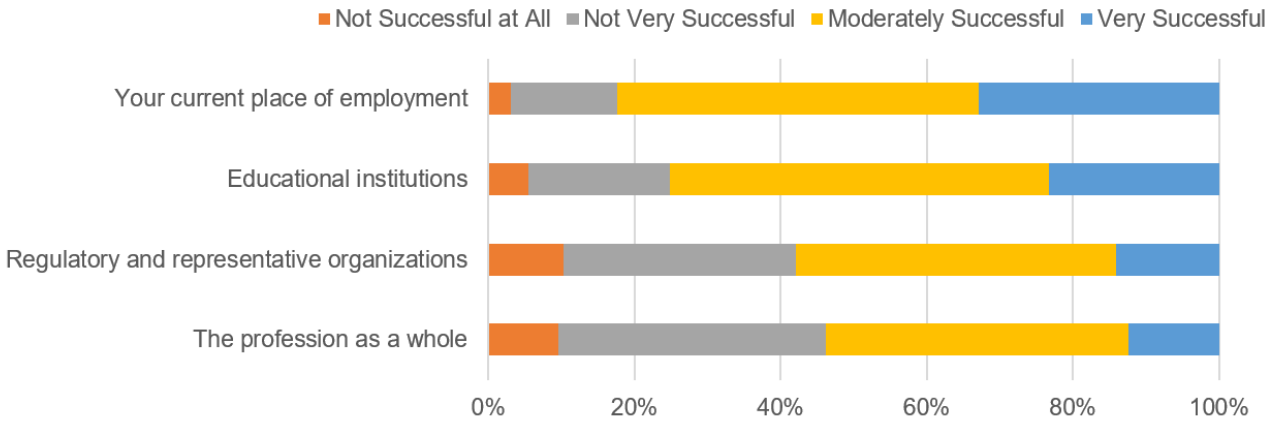
11. Diversity, Equity, and Inclusion

Question: Indicate how successful each element is in addressing diversity, equity, and inclusion (DEI) in architecture.

General Findings

- Figure 11.1 displays respondents' views about how successfully different entities address DEI.
- Most respondents rated their place of employment and educational institutions as moderately/very successful (82% and 75%, respectively).
- Slim majorities of respondents rated their regulatory and representative organizations and the profession as a whole as moderately/very successful (58% and 54%, respectively).
- Out of the four entities, all groups of respondents viewed their place of employment as the most successful in addressing DEI; 67% to 100% of respondents within a demographic group containing at least 50 respondents rated their place of employment as moderately/very successful.
- Out of the four entities, all groups of respondents viewed the profession as a whole as the least successful in addressing DEI; 28% to 65% of respondents within a demographic group containing at least 50 respondents rated the profession as moderately/very successful.

Figure 11.1. Indicate how successful each element is in addressing diversity, equity, and inclusion (DEI) in architecture.



The pattern of responses to this question was similar across demographic groups, but in some cases, there were notable differences. Full results for all professional development areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

11. Diversity, Equity, and Inclusion

Group Differences/Trends

Demographics

- 38% of women identified the profession as a whole as moderately/very successful in addressing DEI, compared to 60% of men.

- 28% of Black or African American respondents identified the profession as a whole as moderately/very successful in addressing DEI, compared to 55% of white respondents.

    - Results were similar for identifying how well educational institutions address DEI (43% Black or African American versus 78% white).

- 39% of respondents aged 25-34 identified the profession as a whole as moderately/very successful in addressing DEI, compared to 62% of respondents age 50+.

Experience

- Forty percent (40%) of respondents with 6-10 years of experience in architecture identified the profession as a whole as moderately/very successful in addressing DEI, compared to 61% of respondents with 20+ years of experience.

Comparison to Phase II results: These results partially confirm results from Phase II. Although this question was asked in a slightly different format, 11% of respondents in the field of architecture believed the field is doing a very good job of addressing DEI issues. This closely mirrors the 12% of Phase III respondents who said the profession as a whole is very successful in addressing DEI in architecture.

11. Diversity, Equity, and Inclusion

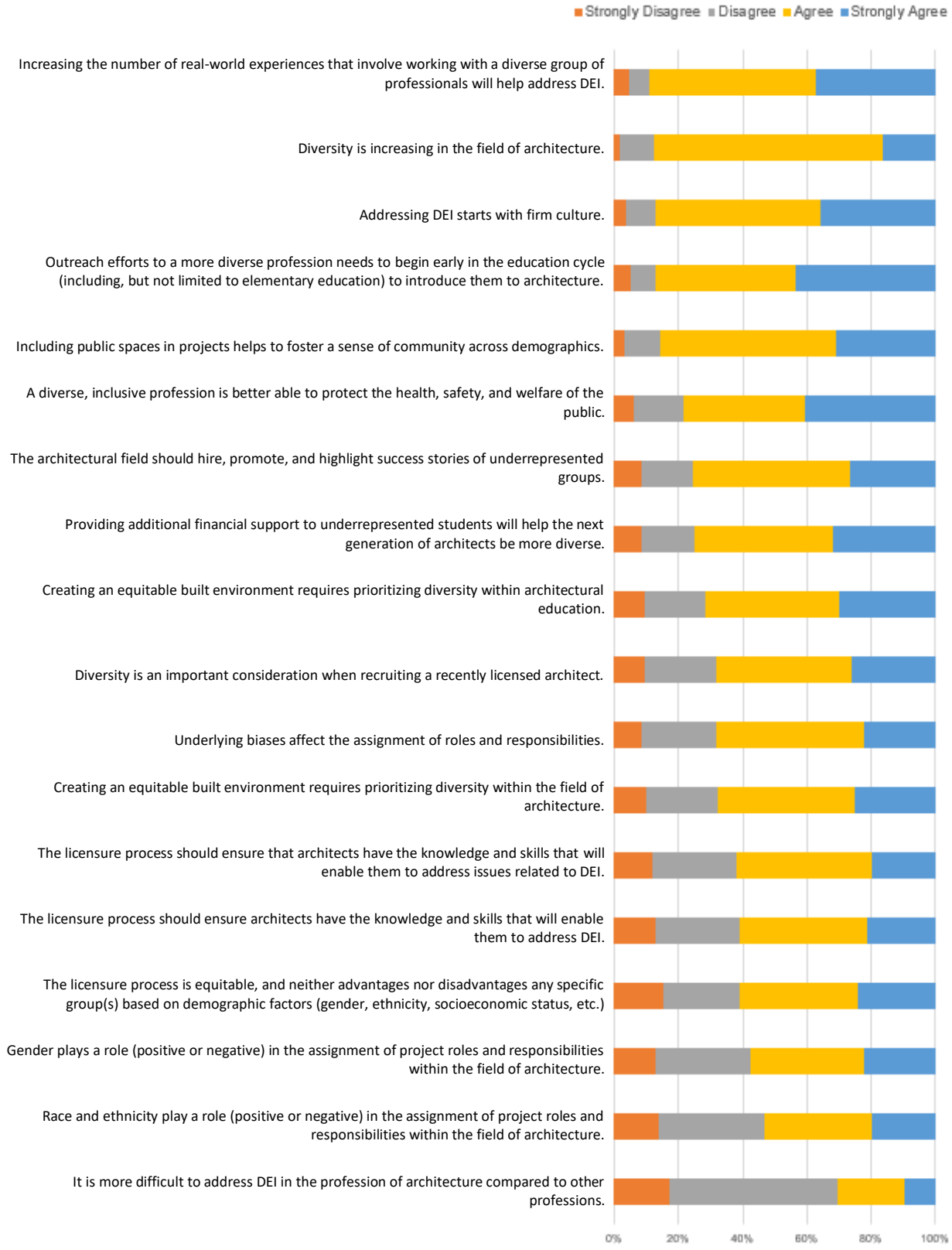
Question: Indicate the extent to which you agree or disagree with each statement.

General Findings

- Results for the 18 DEI statements considered are summarized in Figure 11.2.
- More than 50% of respondents agreed/strongly agreed with all DEI statements except one. Only 30% agreed/strongly agreed with the following statement: “It is more difficult to address DEI in the profession of architecture compared to other professions.”
- The top five statements respondents most frequently agreed/strongly agreed with include:
    - Increasing the number of real-world experiences that involve working with a diverse group of professionals will help address DEI (89%).
    - Diversity is increasing in the field of architecture (87%).
    - Addressing DEI starts with firm culture (87%).
    - Beginning outreach efforts to a more diverse population early in the education cycle (including, but not limited to elementary education) will introduce them to architecture (87%).
    - Including public spaces in projects helps to foster a sense of community across demographics (86%).

11. Diversity, Equity, and Inclusion

Figure 11.2. Indicate the extent to which you agree or disagree with each statement.



11. Diversity, Equity, and Inclusion

Full results for all professional development areas and groups are included in Appendix A-5. There were moderate to large differences between demographic groups. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Licensure Status

- 42% of respondents pursuing a license agreed/strongly agreed with the statement, "It is more difficult to address DEI in the profession of architecture compared to other professions," compared to 26% of respondents with a license.

Gender

- 44% of women agreed/strongly agreed with the statement, "The licensure process is equitable, and neither advantages nor disadvantages any specific group(s) based on demographic factors (gender, ethnicity, socioeconomic status, etc.)," compared to 67% of men.

- Women were more likely than men to agree/strongly agree with the following statements:

    - "Gender plays a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture." (82% of women versus 48% of men).

    - "Race and ethnicity play a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture." (75% of women versus 45% of men).

Race

- 38% of Black or African American respondents agreed/strongly agreed with the statement, "The licensure process is equitable, and neither advantages nor disadvantages any specific group(s) based on demographic factors (gender, ethnicity, socioeconomic status, etc.)", compared with 62% of white respondents.

- Black or African American respondents were more likely than white respondents to agree/strongly agree with the statements:

    - "Gender plays a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture." (86% of Black or African respondents versus 55% of white respondents).

    - "Race and ethnicity play a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture." (91% of Black or African American respondents versus 49% of white respondents).

- "It is more difficult to address DEI in the profession of architecture compared to other professions." (45% of Black or African American respondents versus 27% of white respondents).

- 54% of Asian respondents agreed/strongly agreed with the statement, "It is more difficult to address DEI in the profession of architecture compared to other professions", compared to 27% of white respondents.

- Overall, non-white respondents were more likely than white respondents to agree/strongly agree with the statements:

  - "It is more difficult to address DEI in the profession of architecture compared to other professions." (50% of non-white respondents versus 27% of white respondents).

  - "Race and ethnicity play a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture." (78% of non-white respondents versus 49% of white respondents).

Age

- 43% of respondents aged 25-39 agreed/strongly agreed with the statement, "The licensure process is equitable, and neither advantages nor disadvantages any specific group(s) based on demographic factors (gender, ethnicity, socioeconomic status, etc.)", compared to 72% of respondents age 50+.

- Younger respondents were more likely than older respondents to agree/strongly agree with the statements:

  - "Gender plays a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture." (77% of those 18-34 old versus 48% of those 50+).

  - "Creating an equitable built environment requires prioritizing diversity within the field of architecture." (87% of those 25-29 years old versus 58% of those 50+).

  - "Race and ethnicity play a role (positive or negative) in the assignment of project roles and responsibilities within the field of architecture." (71% of those 25-34 years old versus 45% of those 50+).

11. Diversity, Equity, and Inclusion

Comparison to Phase II results: Phase II results were partially confirmed. Not all statements were assessed in Phase II. There were inconsistencies across questions; results for Phase III were similar for some questions and higher/lower for others:

	% Agree/Strongly Agree	
	Phase II Mini-engagement survey	Phase III
The profession of architecture has some inherent challenges that make it more difficult to address equity, diversity, and inclusion than in other professions.	51%	30%
The licensure process is fair, and neither advantages nor disadvantages any specific groups based on gender, ethnicity, socioeconomic status, etc.	41%	61%
A diverse, inclusive profession is better able to protect the health, safety, and welfare of the public.	84%	79%

11. Diversity, Equity, and Inclusion

Question: Indicate if you have witnessed or experienced discrimination in any of these categories.

General Findings

- Table 11.1 shows the percent of respondents who witnessed or experienced different types of discrimination either in the field of architecture, generally, or at their place of work.

Table 11.1. Indicate if you have witnessed or experienced discrimination in any of these categories.

Role/Assigment	Field	Work
Gender discrimination	48%	22%
Age discrimination	44%	19%
Discrimination against non-native English speakers	39%	13%
Cultural discrimination	38%	14%
Racial discrimination	38%	12%
Disability discrimination	19%	5%
Other	13%	6%

- More respondents reported witnessing/experiencing discrimination in the field of architecture than at their own place of work.
- Respondents most commonly witnessed/experienced gender and age discrimination.

Full results for all professional development areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Licensure Status

- Respondents pursuing a license were uniformly more likely than those with a license to have witnessed/experienced discrimination of all types, both at their workplace and in the field of architecture.

Experience

- 28% of respondents with 1-10 years of experience experienced any type of discrimination at their workplace, compared to 15% of those with 20+ years of experience. Gender discrimination had the greatest difference in responses (28% of respondents with 1-10 years of experience versus 15% with 20+ years of experience). Disability discrimination had the smallest difference (7% of respondents with 1-10 years of experience versus 4% with 20+ years of experience).

11. Diversity, Equity, and Inclusion

Workplace

- Respondents at workplaces with more than 100 employees were uniformly more likely than those from workplaces with 2-9 employees to have witnessed/experienced discrimination of any type at their workplace. Age discrimination saw the greatest disparity in responses (28% of respondents experienced age discrimination at larger firms versus 13% at smaller firms). Disability discrimination had the smallest disparity in responses (6% of respondents experienced disability discrimination at larger firms versus 4% at smaller firms).

- Respondents working in urban communities were uniformly more likely than those from suburban/rural to have witnessed/experienced discrimination of any type at their workplace.

Gender

- Women were uniformly more likely than men to witness/experience discrimination of all types, both at their workplace and in the field of architecture in general.

- Women were nearly three times as likely as men to witness/experience gender discrimination at their workplace (41% versus 14%).

Race

- Black or African American and Asian respondents were uniformly more likely than white respondents to witness/experience discrimination of any type their workplace.

- Black or African American respondents were nearly five times more likely than white respondents to witness/experience racial discrimination at their workplace (42% versus 9%).

- Non-white respondents were more likely than white respondents to witness/experience racial discrimination in the field of architecture (53% versus 35%).

Age

- Respondents aged 30-34 were uniformly more likely than respondents aged 50+ to witness/experience discrimination of any type at their workplace.

Comparison to Phase II results: This question was not asked in Phase II. However, some Phase II participants did mention discrimination:

“Honestly, at my firm being a white male will get you better roles and more responsibilities … I'm a Black woman, it doesn't matter that I've been doing this over 15 years because they will ask a white person with two years of experience their opinion on a design before they ask for mine, it's happened plenty of times.” - Ethnography participant

11. Diversity, Equity, and Inclusion

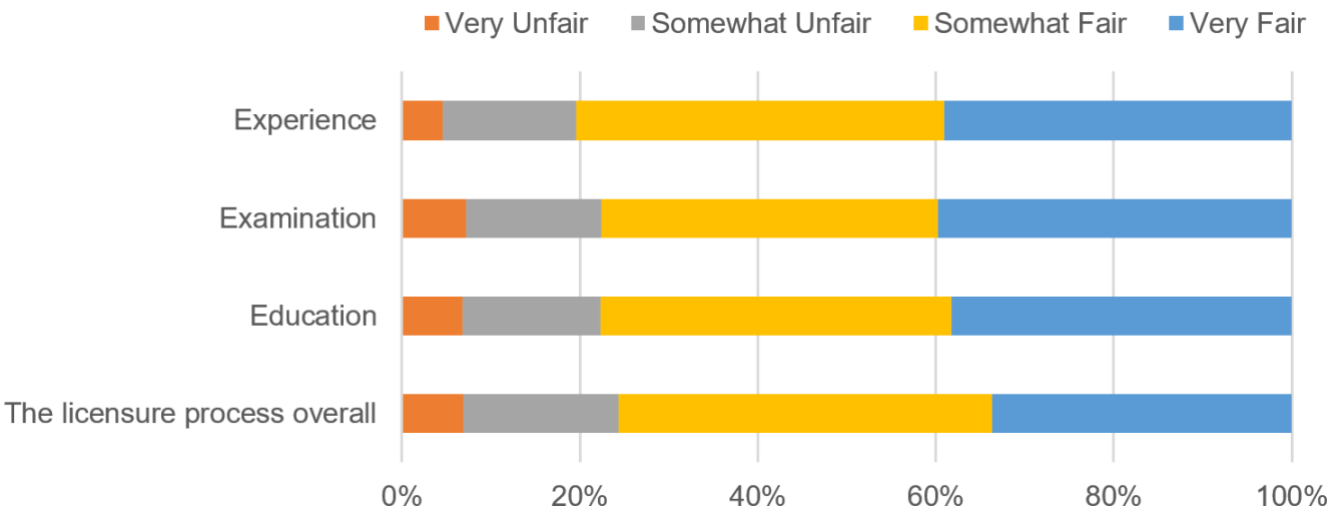
11. Diversity, Equity, and Inclusion

Question: Indicate how fair each component is of the current licensure process.

General Findings

- Figure 11.3 displays respondents' views about the fairness of each part of the licensure process.
- More than 75% of respondents described each part (i.e., experience, examination, education, overall licensure process) as somewhat/very fair and 34%-40% described each part as very fair.

Figure 11.3. Indicate the fairness of each component of the current licensure process.



Full results for all professional development areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Licensure Status

- Respondents with a license were more likely than those pursuing a license to describe examination and the licensure process overall as somewhat/very fair and more likely to describe them as very fair.
    - Somewhat/very fair
        - Examination: 85% versus 55%
        - Licensure process overall: 83% versus 53%

- Very fair (only)
  - Examination: 47% versus 19%
  - Licensure process overall: 40% versus 15%

Years of Experience in Architecture

- 57% of respondents with 1-5 years of experience described the examination as somewhat/very fair, compared to 86% of respondents with 20+ years of experience.

Age

- 57% of respondents aged 25-34 described the examination as somewhat/very fair, compared to 88% of respondents age 50+.

- 57% of respondents aged 30-34 years of age described the licensure process overall as somewhat/very fair, compared to 87% of respondents age 50+.

Comparison to Phase II results: These results partially confirm those from Phase II. In Phase II, mini-engagement survey respondents rated the statement, "The licensure process is fair, and neither advantages nor disadvantages any specific groups based on gender, ethnicity, socioeconomic status, etc." Forty-seven percent (47%) of respondents agreed/strongly agreed (compared with the 76% who responded somewhat/very fair when asked about the fairness of the overall licensure process in Phase III). In both cases, younger respondents, those pursuing a license, and those with less experience were all less likely to characterize the process as fair.

11. Diversity, Equity, and Inclusion

Question: Indicate if the listed DEI-related issues exist within the field of architecture, and, if so, if they are being adequately addressed.

General Findings

- Table 11.2 shows respondents' views on 16 DEI-related issues. Specifically, the table shows if these DEI-related issues exist within the field and if they are being adequately addressed.

Table 11.2. Indicate if the listed DEI-related issues exist within the field of architecture, and, if so, if they are being adequately addressed.

	Exist			
Issue	Not Addr.	Addr.	Not Issue	Trend
Lack of outreach to underrepresented communities/schools	**60%**	19%	20%	*Issues Not Adequately Addressed*
Socioeconomic barriers	**60%**	17%	23%	
Lack of exposure to the architecture profession	**59%**	19%	22%	
Lack of equal compensation	**56%**	20%	23%	
Lack of career options for caregivers/families	**56%**	16%	28%	
Lack of diversity in managers/supervisors/mentors	**54%**	19%	27%	
Lack of access to education	**53%**	18%	28%	
Unequal access to promotions and professional growth opportunities	**53%**	18%	29%	
Lack of diversity within the applicant pool for architect positions	**51%**	20%	29%	
Lack of demographic representation in the architectural field	**50%**	22%	28%	
Cultural and racial barriers	**48%**	26%	27%	
Language barriers	**46%**	19%	35%	
Managers/supervisors/mentors not addressing diversity needs	**46%**	20%	34%	
Gender barriers	**42%**	29%	29%	
Length of time to obtain credentials for the profession	39%	18%	**42%**	*Addressed/ Not Issues*
Lack of accessibility (ADA)	19%	36%	**45%**	

- For 14 of the 16 issues, the most common response was that the issue existed in the field of architecture and was not being addressed adequately.
- The most frequently identified DEI-related issues that are not being adequately addressed within the field of architecture include:
    - Lack of outreach to underrepresented communities/schools (60%)
    - Socioeconomic barriers (60%)
    - Lack of exposure to the architecture profession (59%)
    - Lack of equal compensation (56%)
    - Lack of career options for caregivers/families (56%)

- Length of time to obtain credentials for the profession and lack of accessibility (ADA) were most likely to be described as a non-issue in the field of architecture.

Full results for all professional development areas and groups are included in Appendix A-5. Notable group differences in responses are detailed in the following section.

Group Differences/Trends

Experience

- Respondents with 1-5 years of experience in the field of architecture were more likely than those with 20+ years of experience to believe that the following issues are not adequately addressed within the field of architecture:
    - Gender barriers (51% versus 35%)
    - Socioeconomic barriers (72% versus 53%)
    - Unequal access to promotions and professional growth opportunities (64% versus 45%)
    - Lack of access to education (63% versus 47%)
    - Lack of equal compensation (67% versus 49%)

Gender

- Women were more likely than men respondents to believe the following issues are not adequately addressed within the field of architecture:
    - Lack of equal compensation (78% versus 48%)
    - Gender barriers (65% versus 33%)
    - Cultural and racial barriers (65% versus 41%)
    - Unequal access to promotions and professional growth opportunities (73% versus 45%)

Race

- Black or African American respondents were more likely than white respondents to believe the following issues are not adequately addressed within the field of architecture:
    - Lack of equal compensation (81% versus 54%)
    - Cultural and racial barriers (74% versus 46%)
    - Unequal access to promotions and professional growth opportunities (75% versus 50%)
    - Socioeconomic barriers (77% versus 59%)
    - Lack of access to education (71% versus 52%)

11. Diversity, Equity, and Inclusion

Age

- Respondents aged 30-34 were more likely than respondents age 50+ to believe the following issues are not adequately addressed within the field of architecture:
    - Lack of equal compensation (74% versus 48%)
    - Gender barriers (55% versus 35%)
    - Socioeconomic barriers (78% versus 51%)
    - Unequal access to promotions and professional growth opportunities (69% versus 45%)

Comparison to Phase II results: This question was not asked directly in Phase II. However, lack of outreach in diverse communities/schools was one of the Phase II mini-engagement survey respondents' top five inherent challenges within architecture that make it more difficult to address DEI.

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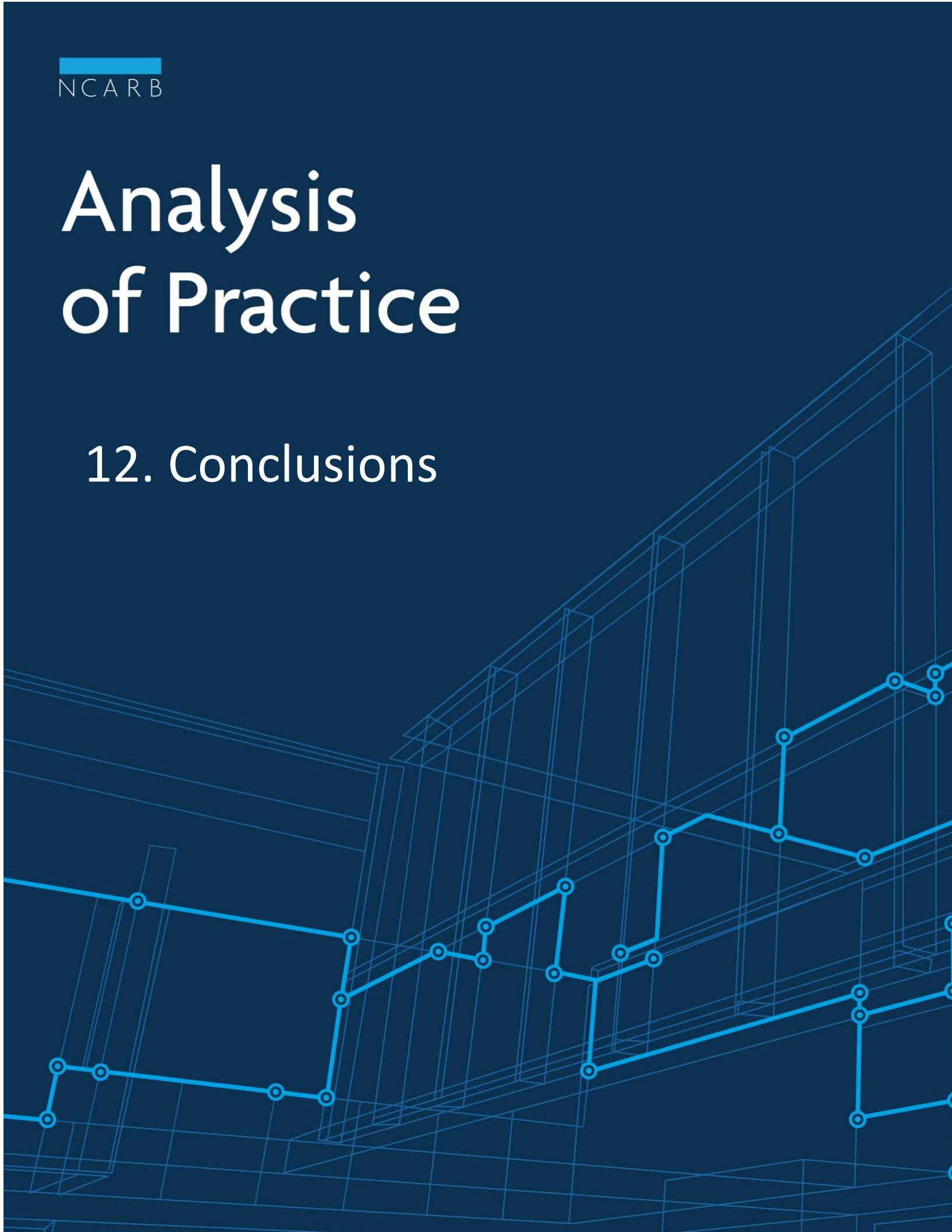
12. Conclusions



12. Conclusions

The purpose of this report is to provide detailed descriptions of the results of the AOP Phase III validation survey in the context of the nine broad areas represented by the survey sections. This report is intended to be used as a resource for those who want to explore respondents' views on a variety of topics.

For a high-level overview of the Analysis of Practice results, check out NCARB's series of blogs and infographics for each section of the study. You'll find visualizations of the statistics outlined in the full report, along with a written summary.

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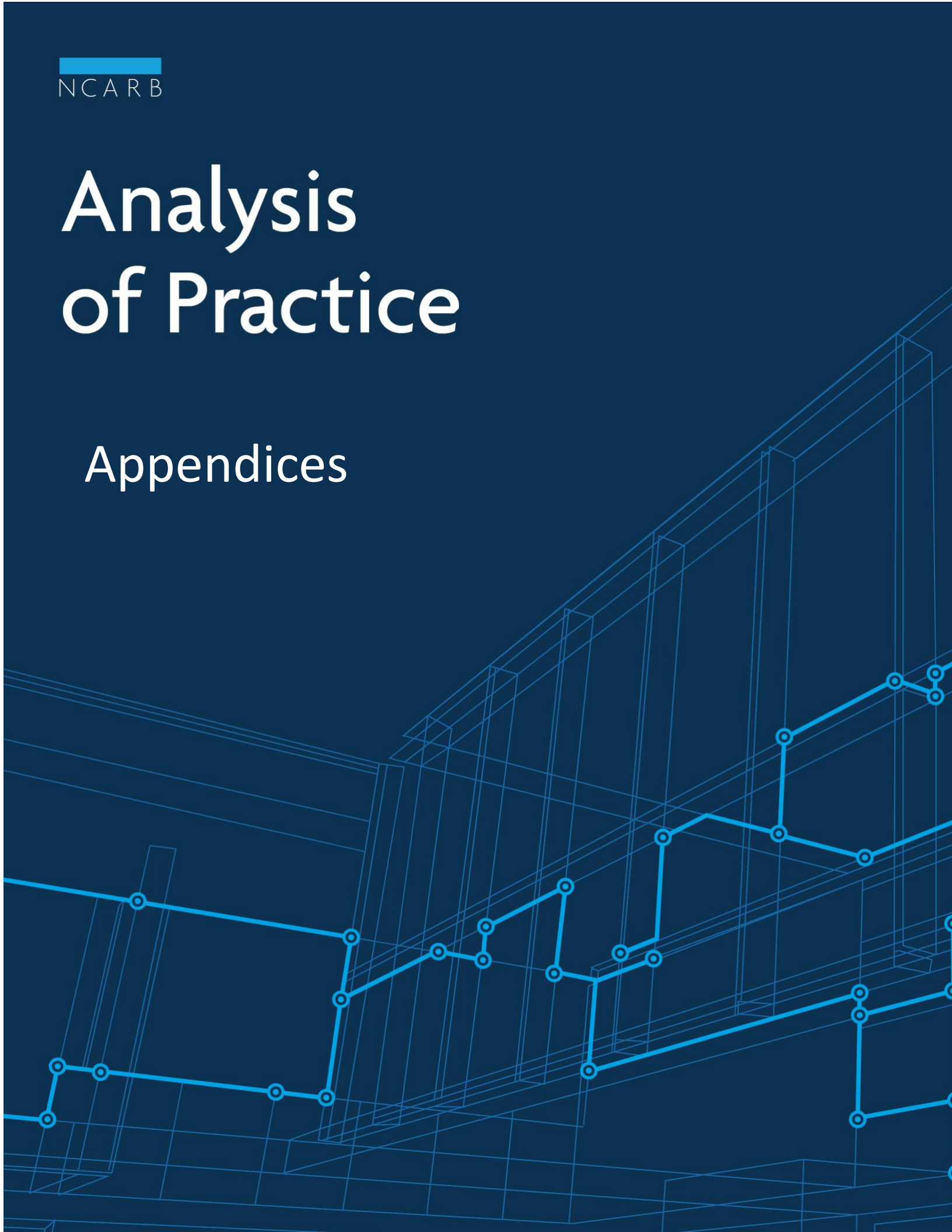
Analysis of Practice

Appendices



Appendices

Appendix A—List of Attached Files

To access any appendix not included in the document below, please reach out to communications@ncarb.org.

A-1. AOP Full Survey 20220413

Provides a copy of the questions presented on the survey.

A-2. Editorial Review Committee Bios 20220818.pdf

Biographical information provided by Editorial Review Committee members.

A-3. AOP Phase III Demographic Analysis Plan 20220413.xlsx

NCARB and Alpine agreed upon demographic analysis plan of the AOP Phase III survey data.

A-4. AOP Phase III Survey - Demographic Analysis 20220524.pdf

Results from the demographic questions on the AOP Phase III survey.

A-5. Analysis of each section of the AOP Phase III survey

- AOP Value of Licensure Analysis.xlsx
- AOP Path to Licensure Analysis.xlsx
- AOP Hiring Decisions Analysis.xlsx
- AOP Roles and Responsibilities Analysis.xlsx
- AOP Specializations Analysis.xlsx
- AOP Professional Dev and Mentorship Analysis.xlsx
- AOP Health, Safety, and Welfare Analysis.xlsx
- AOP Ethics Analysis.xlsx
- AOP Diversity, Equity, and Inclusion Analysis.xlsx

Appendices

Appendix B—Demographics of Editorial Review Committee

Name	Status[3]	Gen-der	Race[4]	Ethnicity	Firm Size	Highest Degree[5]	Age	Hiring respon-siblity?	Spe ciali ze?	Workplace Community	State
GROUP 1											
Shirley Bucknor[1, 2]	Cand	F	–	–	Lg	M	–	N	Y	Urban	AZ
Nia Furr	Cand	F	Non-W	–	Med	B	–	N	Y	Urban	DC
Kalina Vander Poel	Cand	F	W	Not Hisp	Sm	M	30-34	N	Y	Rural/Sub	MT
Larry Schweitzer[2]	Cand	M	W	Not Hisp	Lg	B	40-50	N	N	Rural/Sub	GA
Robert Benson[2]	Recent lic	M	W	–	Sole	M	–	Y	Y	Urban	IL
Salvador Sanchez	Recent lic	M	–	–	Lg	M	–	N	Y	Urban	TX
Marissa Yee[2]	Recent lic	F	Non-W	Not Hisp	Lg	B	25-29	N	Y	Urban	CA
Allison Pride	Recent lic	F	Non-W	–	Lg	B	–	Y	Y	Urban	WA
Jian Huang[2]	Recent lic	M	Non-W	Not Hisp	Sm	M	25-29	–	–	Rural/Sub	SC
Joe Richmond[1]	Other	M	Non-W	Not Hisp	Sole	M	40-50	Y	Y	Urban	IL
GROUP 2											
Mary McClenaghan[2]	11+ yrs lic	F	W	–	Sm	B	–	Y	Y	Rural/Sub	PA
Shannon Christensen	11+ yrs lic	F	W	–	Lg	M	–	Y	Y	Urban	MT
Tomas Mendez[2]	11+ yrs lic	M	Non-W	–	Sm	B	>50	N	Y	Rural/Sub	NM
Susan Mcclymonds	11+ yrs lic	F	W	–	Sole	B	–	N	Y	Rural/Sub	NY
Natalie Clemens[2]	6+ yrs lic	F	–	–	Sm	M	–	Y	Y	Rural/Sub	IL
Jason Demarco[2]	6+ yrs lic	M	W	–	Sm	M	–	Y	Y	Urban	HI
Greg Overkamp[1, 2]	6+ yrs lic	M	W	–	Lg	B	–	Y	Y	Urban	DC
Michael Tomaso[2]	6+ yrs lic	M	W	Not Hisp	Lg	M	30-34	N	Y	Urban	TX
Christopher Gipson[1]	Other	M	Non-W	Not Hisp	Sm	B	40-50	N	–	Urban	WA
GROUP 3											
Alex Oetzel[2]	Cand	F	W	–	Sm	M	–	N	N	Urban	OH
Patricia Joseph	Cand	F	Non-W	–	Lg	M	–	N	Y	Urban	CO
Kerry Bartini	Recent lic	F	W	–	Sm	B	–	Y	Y	Rural/Sub	MA
Tom Klaber	Recent lic	M	W	–	Sm	M	–	–	–	Urban	NY
Gedeon Trias[1]	Recent lic	M	Non-W	–	Sm	M	–	Y	N	Rural/Sub	IL
Gabriella Bermea[2]	Recent lic	F	Non-W	Hisp	Lg	B	25-29	Y	Y	Urban	TX
Brian Kelly	Other	M	W	–	Sm	M	–	N	–	Urban	NE
Bonnie (B) Sanborn	Other	O		–	Lg	M	–	–	–	Urban	IL
Vidania Pena[2]	Other	F	Non-W	–	Lg	B	–	N	–	Urban	NY
GROUP 4											
Naaman Landers III[2]	11+ yrs lic	M	Non-W	–	Sm	M	–	Y	Y	Urban	IL

Appendices

Name	Status[3]	Gen -der	Race[4]	Ethnicity	Firm Size	Highest Degree[5]	Age	Hiring respon- siblity?	Spe ciali ze?	Workplace Community	State
Marjorie Eliason Brown[1]	11+ yrs lic	F	W	Not Hisp	Sole	M	>50	Y	Y	Rural/Sub	OR
Dorothy Gerring[2]	11+ yrs lic	F	W	–	Sole	M	–	N	Y	Rural/Sub	PA
Larry Paul	11+ yrs lic	M	W	Not Hisp	Sm	B	>50	Y	Y	Rural/Sub	CA
Jill Smith[1]	11+ yrs lic	F	Non-W	–	Sm	M	—	Y	Y	Rural/Sub	KY
Maxim Nasab	6+ yrs lic	M	Non-W	Not Hisp	Sole	M	30-34	Y	Y	Urban	FL
Jina Zavala[2]	6+ yrs lic	F	W	Hisp	Med	M	40-50	N	Y	Rural/Sub	NV
Brianna Grimm	Other	F	W	Not Hisp	Lg	M	25-29	N	–	Urban	CO
Lindsey Cohen[2]	Other	F	W	Not Hisp	Lg	M	40-50	N	–	Urban	NY

[1]Group 5 participant
[2]Virtual participant
[3]Other = Other within the built environment
[4]Non-W = Non-White, W = White
[5]B = Bachelor, M = Master

Appendix C – Results from Editorial Review Committee Meeting

The Editorial Review Committee (ERC) met on March 8-11, 2022, in Charlotte, North Carolina, to review the draft AOP survey. On March 8-9, 2022, the survey was divided among the four groups so that each section of the survey would be reviewed by at least two of the four groups. Due to some longer discussions in Group 1 on the Value of Licensure and Path to Licensure questions, this group was unable to review the Roles and Responsibilities questions and some of the Hiring Decision questions. As a result, more time was added to review these questions in detail with Group 5 on March 11.

Within Groups 1-4, each assigned survey section was presented in the form of a PowerPoint in which each PowerPoint slide contained a survey question. The members reviewed and edited the questions for correctness and clarity. If there was an extensive list of options for a question, the group removed options due to redundancy, grouped options into similar topics, and proposed new wording to ensure the wording was clear and aligned with industry terminology. In the rare case that an option was missing and a majority of the members said it needed to be included as an option, the committee added an option to a question.

Overall, most of the discussion in each of the groups focused on terminology and ensuring wording was clear for all potential survey respondents. For example, both Group 1 and Group 3 expressed concern that the language regarding “newly licensed” was too vague. They said that many future architects work at an architectural firm for several years prior to earning their license, so the term “newly licensed” could describe someone with varying levels of experience. Group 1 recommended the term “junior architect”. This terminology recommendation was brought to Group 5 on March 11, discussed, and agreed upon. Thus, the terminology throughout the survey was revised to reflect this change. Other examples of terminology and clarity of wording included “responsibilities” versus “responsible control”, meaning of “specializations” since formal specializations do not currently exist in architecture, using the term “financial considerations” for questions and options related to money, changing “Accessibility or ADA” to “Accessibility/Universal Design”, etc.

All of the recommendations suggested by Groups 1-4, both general and specific, were brought to Group 5 for discussion and approval. Since Group 5 consisted of members from each of the individual groups, any clarity needed from the suggested changes were shared by the representatives from the individual groups making the recommendation. Group 5 was able to review, edit, and finalize all sections of the survey on March 11.

Evaluation

ERC members were engaged and eager to share their points of view throughout the workshop. At the end of the workshop, each participant was sent an electronic evaluation to provide feedback on the success of the workshop. As shown in Table C.1, overall, the participants rated each component of the workshop as successful/very successful. They also indicated the appropriate amount of time was allocated to the plenary presentation and focus groups. Most constructive feedback comments were

related to the hybrid structure of the issue and technology issues involved with working with the virtual participants. Comments provided by the participants are provided below the table.

Table C.1. Evaluation of ERC Meeting

	4	3	2	1	Omit
Rate the success of each component of the focus group plenary presentation[1]:					
Overview of the Analysis of Practice project	25	11	0	0	1
Discussion of the purpose of the focus group workshop	24	11	1	0	1
Overview of meeting logistics	22	14	0	0	1
How would you rate the amount of time allocated to the focus group plenary presentation?[2]		2	33	1	1
Rate the success of the review and refinement of survey questions.[1]	20	15	1	0	1
How would you rate the amount of time allocated for the focus group workshop?[2]		2	27	7	1
Indicate your level of agreement with the following statements about the facilitator(s).[3]					
Knowledgeable of the process	30	6	0	0	1
Provided useful feedback	30	6	0	0	1
Was accessible for, and responsive to, questions	31	4	1	0	1
Kept the group on task	32	4	0	0	1
Engaged both virtual and in-person participants effectively	31	5	0	0	1
How would you rate the success of the focus group process?[1]	18	18	0	0	1
Overall, how were the meeting logistics (virtual conference software, use of video, virtual session duration, break duration)?[4]	14	18	3	1	1

[1] 4 = Very Successful, 3 = Successful, 2 = Unsuccessful, 1 = Very Unsuccessful
[2] 3 = Too much time, 2 = The right amount of time, 1 = Too little time
[3] 4 = Strongly Agree, 3 = Agree, 2 = Disagree, 1 = Strongly Disagree
[4] 4 = Excellent, 3 = Good, 2 = Fair, 1 = Poor

Evaluation Comments from the Editorial Review Committee

The comments below were provided on the evaluation form from members of the Editorial Review Committee. They are provided below verbatim and unedited.

What suggestions do you have to improve this process in the future? (Optional)

- I would group in-person attendees together and virtual attendees together. It was sometimes difficult to collaborate across the location differences and Zoom.
- Focus on questions that most need feedback instead of so many.
- MURAL would be a great collaboration tool for working sessions like this
- Some virtual & in-person participants spoke at the same time.
- Have everyone meet in-person, rather than virtually.
- Hard to continue a continuous conversation between virtual and in-person group b/c we weren't able to hear the people in person.
- better audio for in room participants so virtual can hear
- More time allocated for debate of the questions and wording.

- We may have needed a little more time in day #2
- avoid hybrid, keep online online and in person with in person
- Smaller groups. Too many chiefs lol.
- Mixed In-person and Zoom is caused issues. The technology to make that work was lacking
- More time would have helped
- Check the integration of virtual and in-person ahead of time as this caused some issues in the beginning.
- Getting some of the longer lists in advance might have helped us digest pre-work to speed up the process

What suggestions do you have to improve the focus group workshop organization in the future? (Optional)

- Better IT, conversation was based around a single laptop, perhaps next time if it needs to happen over Zoom, headsets with microphones provided would work better for the entire group
- The virtual participants sometimes had a hard time hearing us. Maybe a different mic.
- Take into consideration next time virtual participants… what is lunch time? keep the ratio of race truly balanced. It was clear the moderator values answers from white persons.
- have all participants on their own zoom account to hear and see them all
- Was hard to hear the participants in the room itself unless they had their own microphones on
- Separating the groups into in-person and virtual might have been more effective than hybrid
- Better microphones/sound quality
- As a virtual participant, it was hard to hear the in-person people. Suggest working on the audio, or have the in-person people as their own group.
- Have individual mics for every in-person participant so everyone could hear each other. We, on Zoom, were unable to hear some of the in-person participants because of this.
- more mics?
- audio between virtual and in person members was a challenge
- better miking for people in the room so can be heard online more easily, second day was better than the first.
- avoid hybrid, keep online online and in person with in person
- i really appreciate being able to join virtually.
- If we are going to do mixed - we need better setups to facilitate more fluid conversations.
- the screen was not usable
- Well run. Virtual caused some rough edges.
- There were tech issues on the first day, but they were solved

Please provide any additional feedback you have on the facilitator, the workshop organization, or overall workshop.

- Thank you for the opportunity to be part of this process.

- Casey was wonderful and extremely educated on the profession.
- Facilitator did an excellent job. The workshop was well organized; seemed to be over without dragging on.
- Take into consideration next time virtual participants… what is lunch time? keep the ratio of race truly balanced. It was clear the moderator values answers from white persons. NCARB is intent on bridging the racial gap- I'm awed but not surprised by the degree of bias in this focus group
- Did not realize in advance the workshop was to help edit questions.
- It would have been nice to have the powerpoint deck for what we were doing a few days before the AOP focus groups started
- great meeting, very productive!
- During the all-group introduction, the purpose of the two day workshop was described very well. I wish this workshop description had been shared more clearly via email prior. The workshop was not what I expected (I thought we were going to have the opportunity to provide direct opinions to NCARB on things like licensure, the AREs, AXP). Regardless, I still enjoyed the workshop and had a great time.
- Brent was excellent moderator, listened attentively and typed quickly.
- great opportunity. Loved that it was a diverse group of people. Only complaint was the ability to continue the conversation between the groups. It was hard to continue the conversation at times.
- Casey was a very professional facilitator who made the experience both productive & enjoyable.
- It was good, informative, and thought provoking. I learned some things that I did not know and had a good time hearing from others in my field from other locations around the country. I think we could have completed all slide with more time.
- It was fun to participate.
- The stipend is too low for meeting days. The hotel restaurant had meals average 40$ without tip
- i was grateful to be able to participate. It was sometimes hard to hear the conversation in the room as I was a virtual attendee. It also felt sometimes hard to chime in as there were so many voices already contributing. That said, I thought the discussions were thoughtful and productive.
- The work shop went very well. I had internet issues and had to go to my office to get connection. This made for a loud environment. Overall, I felt like our group did very well and rolled with the punches and got some great work done.
- Kshawna was an excellent facilitator.
- We had a few problems with hearing as a result of the hybrid set-up, but resolved them quickly and our second day went without any issues!
- Kshawna was fantastic! Really appreciated her leadership in this effort.
- Kshawna was awesome!

- I had a good hybrid experience! Both our facilitator and the folks in our group seemed aware of including everyone, and we had a great discussion.