CALIFORNIA ARCHITECTS BOARD

OCCUPATIONAL ANALYSIS OF THE

ARCHITECT PROFESSION

OFFICE OF PROFESSIONAL EXAMINATION SERVICES

STATE OF CALIFORNIA

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DEPARTMENT OF CONSUMER AFFAIRS

CALIFORNIA ARCHITECTS BOARD

OCCUPATIONAL ANALYSIS OF THE ARCHITECT PROFESSION

This report was prepared and written by the
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PROFESSIONAL EXAMINATION SERVICES

EXECUTIVE SUMMARY

The California Architects Board (Board) requested that the Department of Consumer Affairs' Office of Professional Examination Services (OPES) conduct an occupational analysis of Architect practice in California. The purpose of the occupational analysis is to define practice for Architects in terms of actual job tasks that new licensees must be able to perform safely and competently at the time of licensure. The results of this occupational analysis serve as the basis for determining the tasks and knowledge that make up the description of practice for the Architect profession in California. The major steps of the occupational analysis were conducted between March 2014 and September 2014.

OPES test specialists began by researching the profession and conducting stakeholder and practitioner focus groups. The purpose of the stakeholder focus groups was to identify the qualities stakeholders believed an Architect should possess and the areas of Architect practice that stakeholders felt could be improved. The stakeholder focus groups included a contractors group, a group of various engineering professionals and landscape architects, and a building officials group. The focus group of Architect practitioners was held to review the results of the stakeholder focus groups and to identify changes and trends in California Architect practice anticipated over the next five to eight years.

OPES also conducted telephone interviews with 11 Architects throughout California. The purpose of the practitioner telephone interviews was to identify the tasks performed by newly licensed Architects, and the knowledge required to perform those tasks in a safe and competent manner. The interviews were also used to follow up on topics arising from the focus groups and to inform the development of a preliminary list of tasks and knowledge statements.

Following the stakeholder focus groups and practitioner interviews, two additional Architect practitioner focus groups were convened by OPES. The purpose of these sessions was to review the results of the previous focus groups and interviews, and to develop and refine the task and knowledge statements derived from the interviews, focus groups, and research. These practitioners also performed a preliminary linkage of the task and knowledge statements to ensure all tasks had a related knowledge and all knowledge statements had a related task. New task and knowledge statements were created as a result of this process, and some statements were eliminated from the final list due to overlap and reconciliation. These practitioners also developed the demographic items for inclusion in the survey.

OPES developed the three-part questionnaire that was completed by Architects statewide. Development of the questionnaire included a pilot study which was conducted using a group of 16 licensees. The participants' feedback was used to refine the questionnaire.

In the first part of the questionnaire, licensees were asked to provide demographic information relating to their work settings and practice. In the second part, the licensees were asked to rate specific job tasks in terms of frequency (i.e., how often the licensee performs the task in the licensee's current practice) and importance (i.e., how important the task is to performance of the licensee's current practice). In the third part of the questionnaire, licensees were asked to rate specific knowledge statements in terms of how important that knowledge is to performance of their current practice.

The Board provided OPES with the email addresses for 8,902 licensees. After reviewing the response rates of previous occupational analysis studies, it was decided to include all 8,902 practitioners in the current occupational analysis. The Board sent notification emails to all 8,902 Architects, inviting them to complete the questionnaire online. Eighteen percent of the invited licensees (1,603) responded by accessing the Web-based survey. The final sample size included in the data analysis was 1,511, or 17 percent of the group invited to complete the questionnaire. This response rate reflects two adjustments, the details of which are described in the Response Rate section of this report. The group of respondents is representative of the California Architect population based on the sample's demographic composition.

OPES then performed data analyses on the task and knowledge rating responses. OPES combined the task ratings to derive an overall criticality index for each task statement. The mean importance rating was used as the criticality index for each knowledge statement.

After the data was analyzed, two additional focus groups were conducted with licensed Architects. The purpose of these focus groups was to evaluate the criticality indices and determine whether any task or knowledge statements should be eliminated. The licensees in these groups also established the linkage between job tasks and knowledge statements, organized the task and knowledge statements into content areas, and defined those areas. The licensees then evaluated and confirmed the content area weights.

The resulting description of practice for California Architects is structured into six content areas. The description of practice specifies the job tasks and knowledge critical to safe and effective Architect practice in California at the time of licensure and forms the basis for the content included in the examination outline.

The new examination outline for the Architect California Specific Examination (CSE) is structured into four content areas weighted by criticality relative to the other content areas. The CSE examination outline specifies the job tasks and knowledge specific to California practice that a California-licensed Architect is expected to have mastered at the time of licensure. An overview of the final examination outline is provided below.

OVERVIEW OF THE ARCHITECT CSE EXAMINATION OUTLINE

Content Area	Content Area Description	Percent Weight
I. General Practice	This area assesses the candidate's knowledge related to core areas of practice applicable across types of projects, construction contract arrangements, and project delivery methods.	6
II. Programming / Design	This area assesses the candidate's ability to identify and evaluate site and project opportunities and constraints in developing design concepts that meet the client's, user's, and stakeholder's needs and applicable California regulations.	44
III. Development / Documentation	This area assesses the candidate's knowledge regarding developing design solutions, managing a project team, and preparing design and construction drawings and documents in conformance with the project program and applicable California regulations.	40
IV. Bidding and Construction	This area assesses the candidate's knowledge related to California regulations associated with project bidding, construction, and post-construction activities.	10
Total		100

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CHAPTER 1. INTRODUCTION

PURPOSE OF THE OCCUPATIONAL ANALYSIS

The California Architects Board (Board) requested that the Department of Consumer Affairs' Office of Professional Examination Services (OPES) conduct an occupational analysis to identify critical job activities performed by licensed Architects. This occupational analysis was part of the Board's comprehensive review of Architect practice in California. The purpose of the occupational analysis is to define practice for Architects in terms of actual job tasks that new licensees must be able to perform safely and competently at the time of licensure. The results of this occupational analysis serve as the basis for determining the tasks and knowledge that make up the description of practice for the Architect profession in California.

CONTENT VALIDATION STRATEGY

OPES used a content validation strategy to ensure that the occupational analysis reflected the actual tasks performed by Architects in independent practice. The technical expertise of California-licensed Architects was used throughout the occupational analysis process to ensure the identified task and knowledge statements directly reflect requirements for performance in current practice.

UTILIZATION OF SUBJECT MATTER EXPERTS

The Board selected licensed Architects to participate as subject matter experts (SMEs) during various phases of the occupational analysis. These Architects were selected from a broad range of practice settings, geographic locations, and experience backgrounds. The SMEs provided information regarding the different aspects of current Architect practice during the development phase of the occupational analysis, and participated in focus groups to review the content of task and knowledge statements for technical accuracy prior to administration of the occupational analysis questionnaire. Following administration of the occupational analysis questionnaire, additional focus groups of SMEs were convened at OPES to review the results, finalize the description of practice, and develop the examination plan for the Architect California Supplemental Examination (CSE).

ADHERENCE TO LEGAL STANDARDS AND GUIDELINES

Licensing, certification, and registration programs in the State of California adhere strictly to federal and State laws and regulations and professional guidelines and technical standards. For the purpose of occupational analysis, the following laws and guidelines are authoritative:

- California Business and Professions Code, Section 139.
- Uniform Guidelines on Employee Selection Procedures (1978), Code of Federal Regulations, Title 29, Section 1607.
- California Fair Employment and Housing Act, Government Code, Section 12944.
- *Principles for the Validation and Use of Personnel Selection Procedures* (2003), Society for Industrial and Organizational Psychology (SIOP).
- *Standards for Educational and Psychological Testing* (1999), American Educational Research Association, American Psychological Association, and National Council on Measurement in Education.

For a licensure program to meet these standards, it must be solidly based upon the job activities required for practice.

DESCRIPTION OF OCCUPATION

The Architect occupation is described as follows in the California Business and Professions Code, Section 5500.1:

(a) The practice of architecture within the meaning and intent of this chapter is defined as offering or performing, or being in responsible control of, professional services which require the skills of an architect in the planning of sites, and the design, in whole or in part, of buildings, or groups of buildings and structures.
(b) Architects' professional services may include any or all of the following:
(1) Investigation, evaluation, consultation, and advice.
(2) Planning, schematic and preliminary studies, designs, working drawings, and specifications.
(3) Coordination of the work of technical and special consultants.
(4) Compliance with generally applicable codes and regulations, and assistance in the governmental review process.
(5) Technical assistance in the preparation of bid documents and agreements between clients and contractors.
(6) Contract administration.
(7) Construction observation.
(c) As a condition for licensure, architects shall demonstrate a basic level of competence in the professional services listed in subdivision (b) in examinations administered under this chapter.

CHAPTER 2. OCCUPATIONAL ANALYSIS QUESTIONNAIRE

STAKEHOLDER AND PRACTITIONER FOCUS GROUPS

OPES test specialists began by researching the profession and conducting three stakeholder focus groups and one practitioner focus group. The stakeholder focus groups were held at OPES in March 2014, and included a contractor group, a group of various engineering professionals (structural engineers, civil engineers, and mechanical engineers) and landscape architects, and a group of building officials. The purpose of the stakeholder focus groups was to identify the qualities stakeholders believed an Architect should possess and the areas of Architect practice that stakeholders felt could be improved. The focus group of Architect practitioners was held at OPES in March 2014 to review the results of the stakeholder focus groups and to identify changes and trends in California Architect practice anticipated over the next five to eight years.

SUBJECT MATTER EXPERT INTERVIEWS

The Board provided OPES with a list of California-licensed Architects to contact for telephone interviews. During the semi-structured interviews, licensed Architects were asked to identify all of the activities performed that are specific to the Architect profession. The interviews confirmed major content areas of newly licensed Architect practice and the job tasks performed in each content area. The licensees were also asked to identify the knowledge necessary for newly licensed Architects to perform each job task safely and competently.

TASK AND KNOWLEDGE STATEMENTS

OPES staff integrated the information obtained from the focus groups of stakeholders and practitioners, the interviews, and from prior studies of the profession. OPES then developed a preliminary list task and knowledge statements, organizing the statements into major areas of practice.

In May 2014, OPES facilitated two focus groups of Architects to evaluate the task and knowledge statements for technical accuracy and comprehensiveness, and to assign each statement to the appropriate content area. The groups verified that the content areas were independent and non-overlapping, and performed a preliminary linkage of the task and knowledge statements to ensure that every task had a related knowledge and every knowledge statement had a related task. Additional task and knowledge statements were created as needed to complete the scope of the content areas.

The finalized lists of task and knowledge statements were developed into an online questionnaire that was eventually completed and evaluated by a sample of Architects throughout California.

QUESTIONNAIRE DEVELOPMENT

OPES developed the online occupational analysis survey, a questionnaire soliciting licensees' ratings of the job task and knowledge statements for the purpose of analysis. The surveyed Architects were instructed to rate each job task in terms of how often they performed the task (FREQUENCY), and how important the task was to the performance of their current practice (IMPORTANCE). In addition, they were instructed to rate each knowledge statement in terms of how important the specific knowledge was to the performance of their current practice (IMPORTANCE). The questionnaire also included a demographic section for purposes of developing an accurate profile of the respondents. The questionnaire can be found in Appendix F**.**

PILOT STUDY

Prior to developing the final questionnaire, OPES prepared an online pilot survey. The pilot questionnaire was reviewed by the Board and a group of 16 SMEs for feedback about the technical accuracy of the task and knowledge statements, estimated time for completion, online navigation, and ease of use. OPES used this feedback to develop the final questionnaire.

CHAPTER 3. RESPONSE RATE AND DEMOGRAPHICS

SAMPLING STRATEGY AND RESPONSE RATE

The Board sent notification emails to all Architects with active licenses in California for whom it had an email address (8,902 licensees), inviting them to complete the questionnaire online. The online format allowed for several enhancements to the survey and data collection process. As part of the survey development, configuration, and analysis process, various criteria were established to exclude invalid participants and capture data automatically, significantly reducing data input errors.

Eighteen percent of the licensed Architects in the sample (1,603) responded by accessing the Web-based survey. The final sample size included in the data analysis was 1,511, or 17 percent of the population that was invited to complete the questionnaire. This response rate (17 percent) reflects two adjustments. First, data from respondents who indicated they were not currently licensed and practicing as Architects in California were excluded from analysis. And second, the reconciliation process removed surveys containing incomplete and unresponsive data. The respondent sample was representative of the population of California Architects based on the sample's demographic composition.

DEMOGRAPHIC SUMMARY

Of the respondents included in the analysis, 24 percent had been practicing as an Architect for 5 years or less, 29 percent had been practicing between 6 and 20 years, and 46 percent had been practicing for more than 20 years.

Sixty percent of respondents earned a bachelor's degree as their highest level of education and 33 percent had earned a master's degree. Respondents reported having between 3 to 6 years (33 percent) and 7 to 10 years (28 percent) of pre-licensure experience working in architecture before obtaining their Architect's license.

The majority of respondents (61.3 percent) worked in architecture 4 to 10 years before obtaining licensure in California. Most respondents reported working 40 or more hours per week (71 percent) in an architecture firm (74.7 percent) as either the sole Architect (33 percent) or as one of 1 to 5 Architects employed by the firm (32 percent).

When describing the types of projects they considered a specialty based on expertise and experience, the majority of respondents listed residential (62.3 percent) and commercial (61 percent) projects. Following closely were education (37.7 percent), health care (27.2 percent), hospitality (25.4 percent), institutional (24.2 percent), and industrial projects (23.3 percent).

The respondents reported that, on the average, 27.4 percent of their time was spent on construction documents, followed by project management activities (17.8 percent), design (17.7 percent), management/administrative work (15.2 percent), and construction administration activities (14.2 percent).

Finally, the respondents were also asked to review their projects over the previous five years. The primary construction contract arrangements reported by the respondents were Design-Bid-Build (58.6 percent), Guaranteed Max Price (45 percent), and Fee plus Cost (36.7 percent). The most frequent project delivery methods reported were Design-Bid-Build (61.5 percent), Design-Owner Build (32.1 percent), and Design-Build (31.9 percent).

The demographic information from the respondents can be found in Tables 1 through 18.

TABLE 1 – NUMBER OF YEARS LICENSED AND PRACTICING IN CALIFORNIA AS AN ARCHITECT

YEARS	N	PERCENT
0 to 5	361	23.9
6 to 10	187	12.4
11 to 20	253	16.7
More than 20	700	46.3
Missing	10	.7
Total	1,511	100

FIGURE 1 – NUMBER OF YEARS LICENSED AND PRACTICING IN CALIFORNIA AS AN ARCHITECT

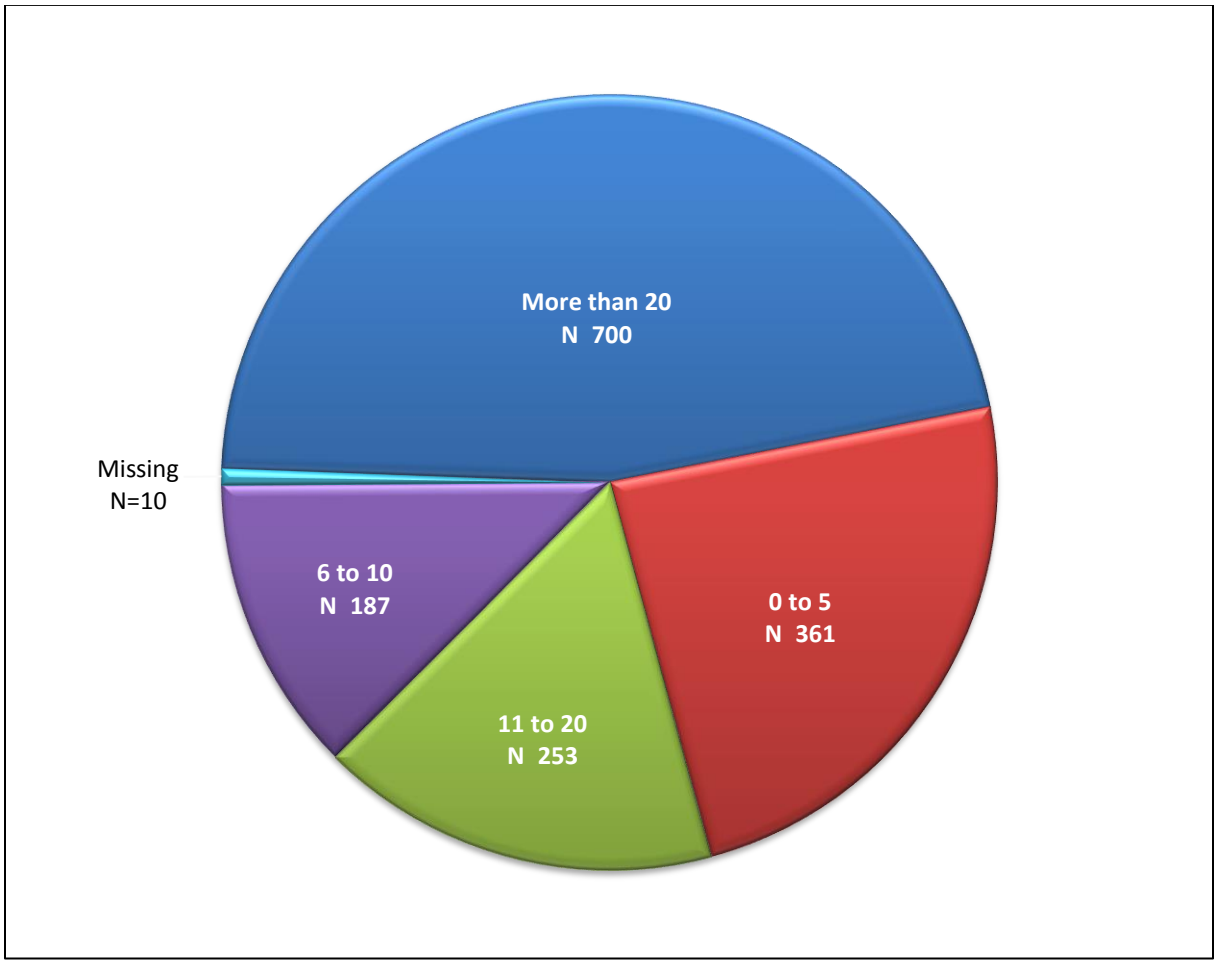

TABLE 2 – YEARS WORKED IN ARCHITECTURE BEFORE OBTAINING CALIFORNIA LICENSE

YEARS	N	PERCENT
0 to 3 years	216	14.3
4 to 6 years	502	33.2
7 to 10 years	424	28.1
11 to 15 years	210	13.9
More than 15 years	154	10.2
Subtotal	1,506	99.7
Missing	5	.3
Total	1,511	100

FIGURE 2 – YEARS WORKED IN ARCHITECTURE BEFORE OBTAINING CALIFORNIA LICENSE

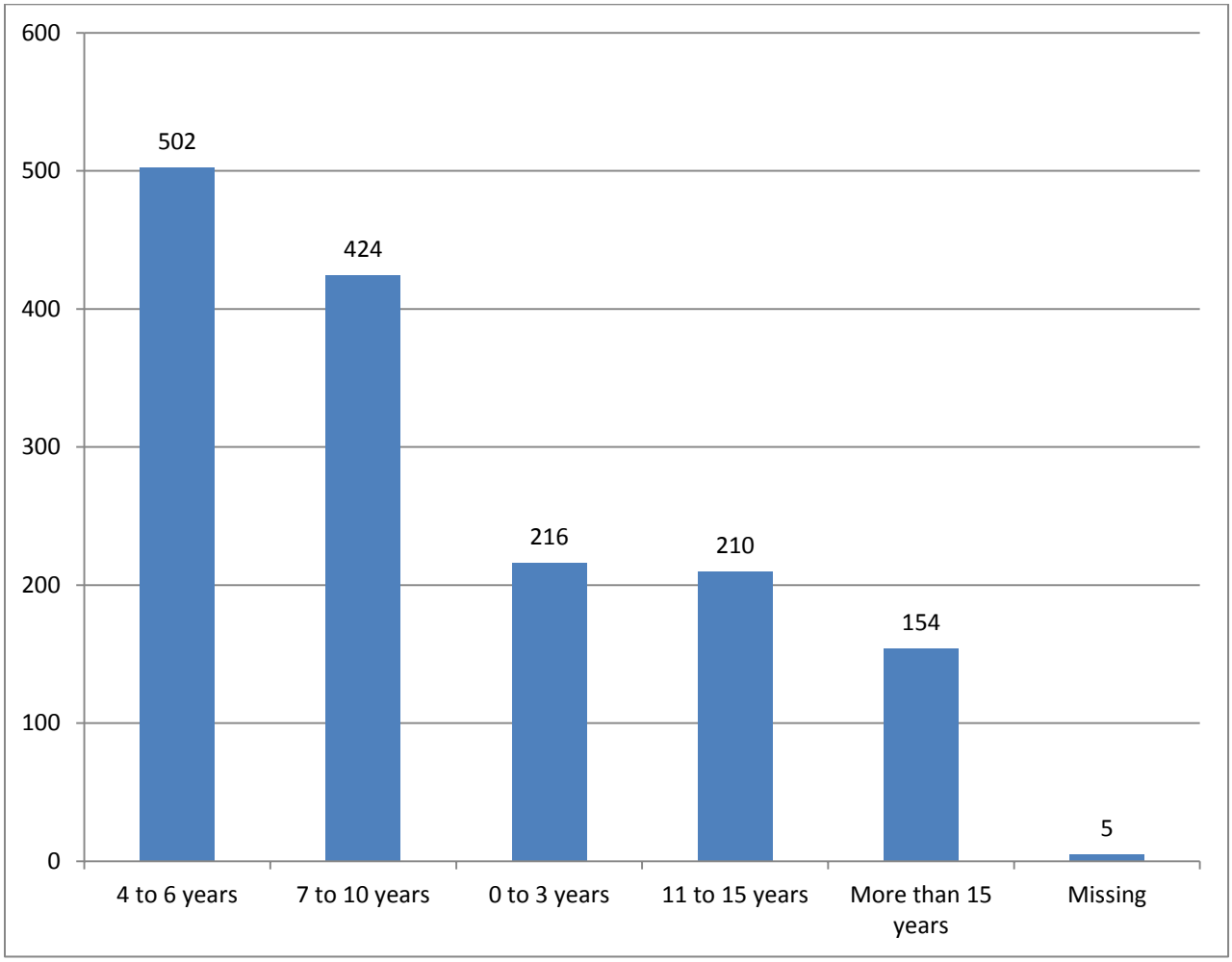

TABLE 3 – HIGHEST LEVEL OF EDUCATION

LEVEL OF EDUCATION	N	PERCENT
Bachelor's degree	900	59.6
Master's degree	494	32.7
Associate degree	55	3.6
Technical certificate	23	1.5
Ph.D. degree	8	.5
Missing	31	2.1
Total	1,511	100

FIGURE 3 – HIGHEST LEVEL OF EDUCATION

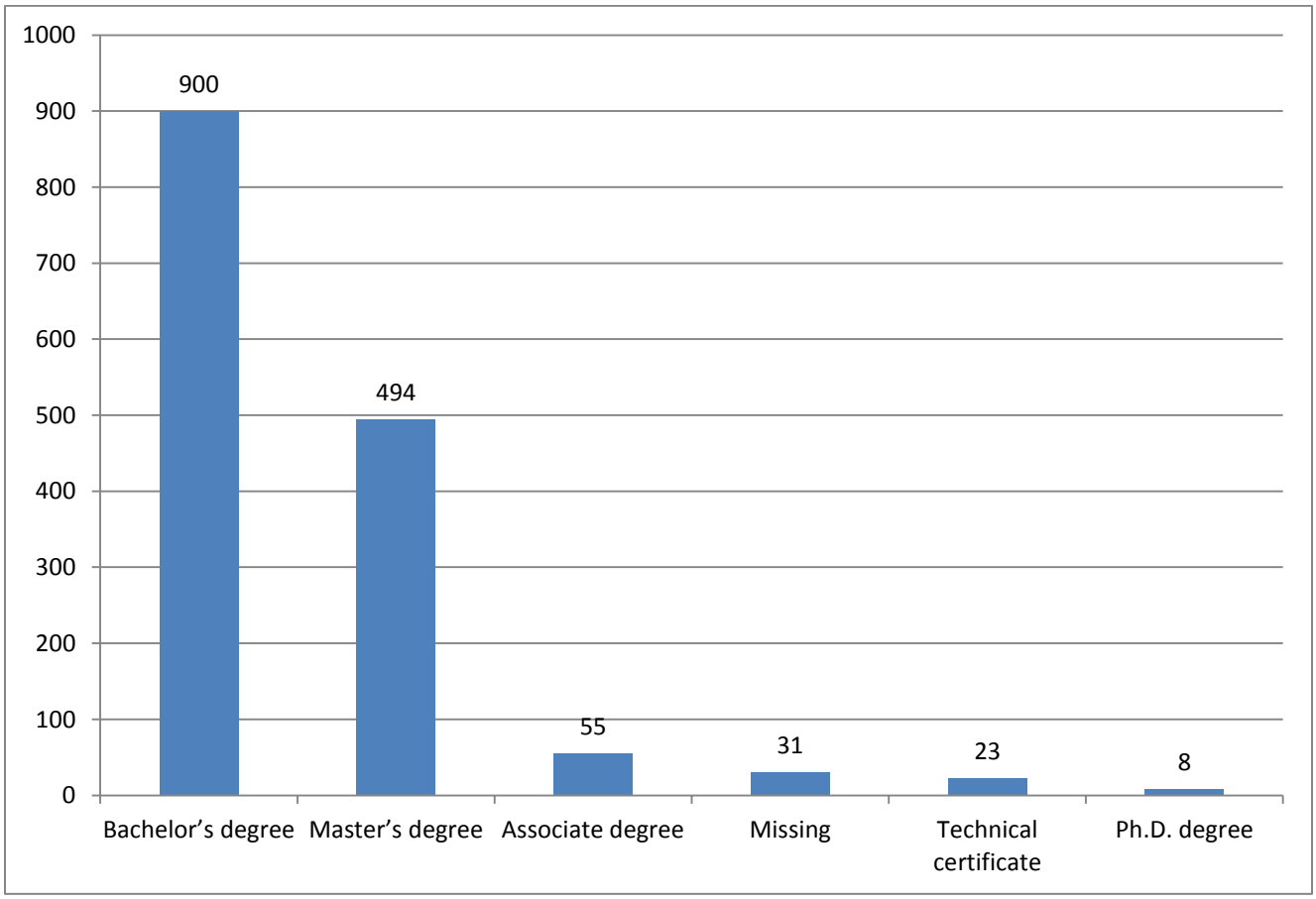

TABLE 4 – PRIMARY WORK SETTING

WORK SETTING	N	PERCENT
Architecture firm (as individual or group)	1,129	74.7
Multidisciplinary firm	160	10.6
Governmental agency	85	5.6
Other (please specify)	77	5.1
Institution (e.g., hospital, school)	25	1.7
Construction firm	19	1.3
Non-design company (e.g., hotel, utility company)	12	.8
Missing	4	.3
Total	1,511	100

FIGURE 4 – PRIMARY WORK SETTING

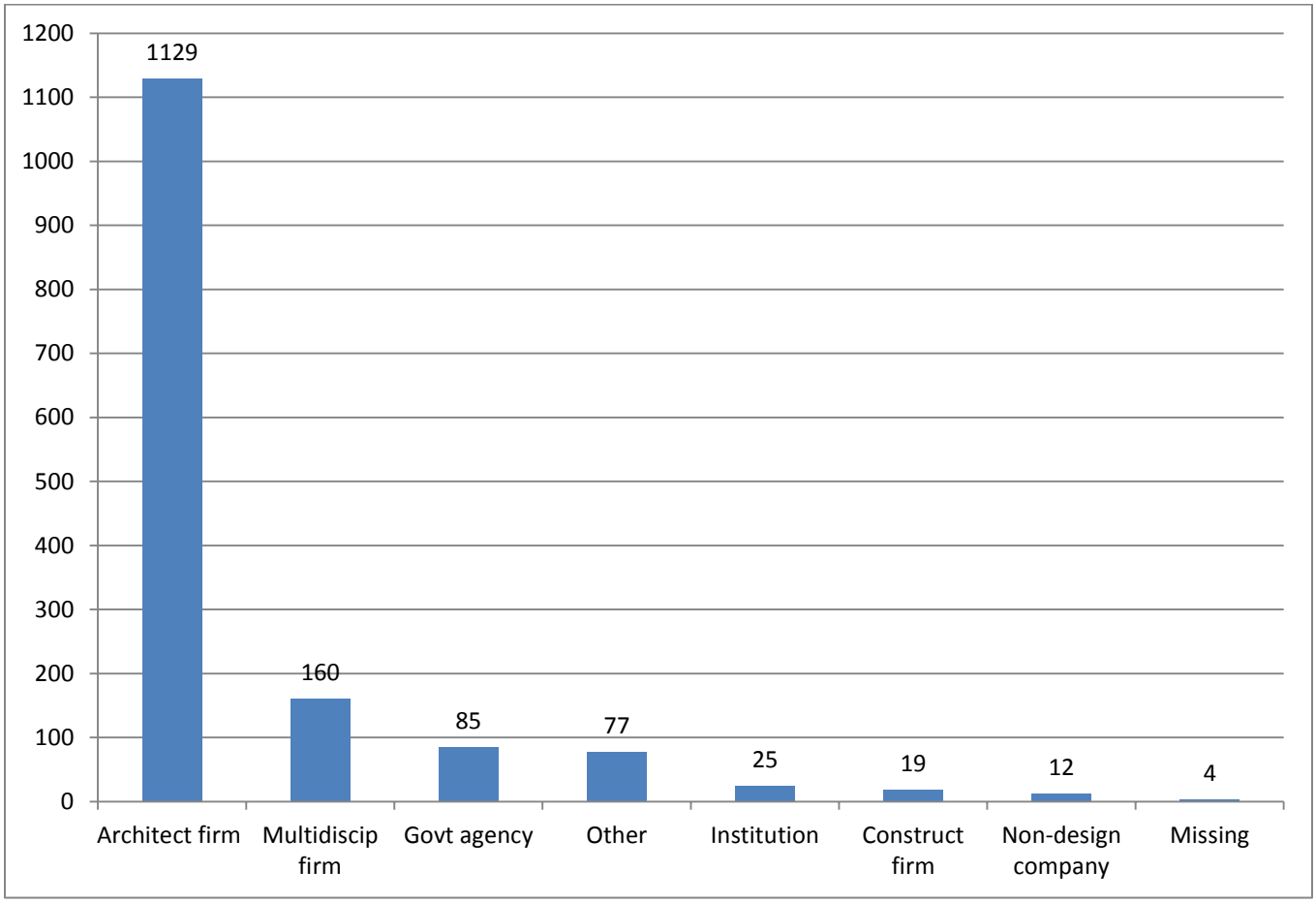

TABLE 5 – NUMBER OF HOURS WORKED PER WEEK

HOURS WORKED	N	PERCENT
0 to 10 hours	105	6.9
11 to 20 hours	89	5.9
21 to 39 hours	230	15.2
40 or more hours	1,073	71.0
Missing	14	.9
Total	1,511	100

NOTE: Total may not add to 100% due to rounding.

FIGURE 5 – NUMBER OF HOURS WORKED PER WEEK

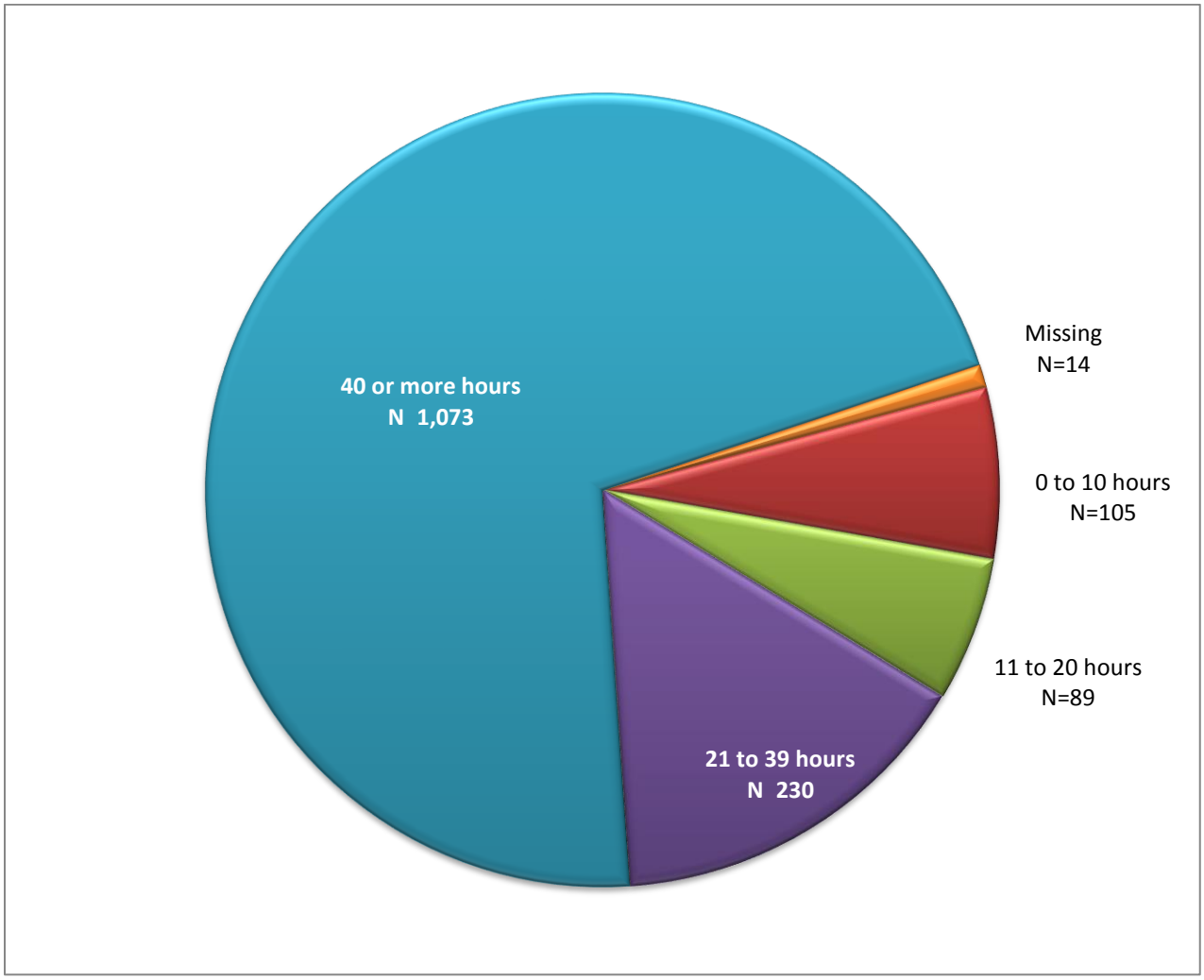

TABLE 6 – NUMBER OF EMPLOYEES OTHER THAN ARCHITECTS IN ORGANIZATION

CLIENT	N	PERCENT
None	405	26.8
1 to 10	465	30.8
11 to 20	161	10.7
21 to 30	70	4.6
More than 30	400	26.5
Missing	10	.7
Total	1,511	100

NOTE: Total may not add to 100% due to rounding.

FIGURE 6 – NUMBER OF EMPLOYEES OTHER THAN ARCHITECTS IN ORGANIZATION

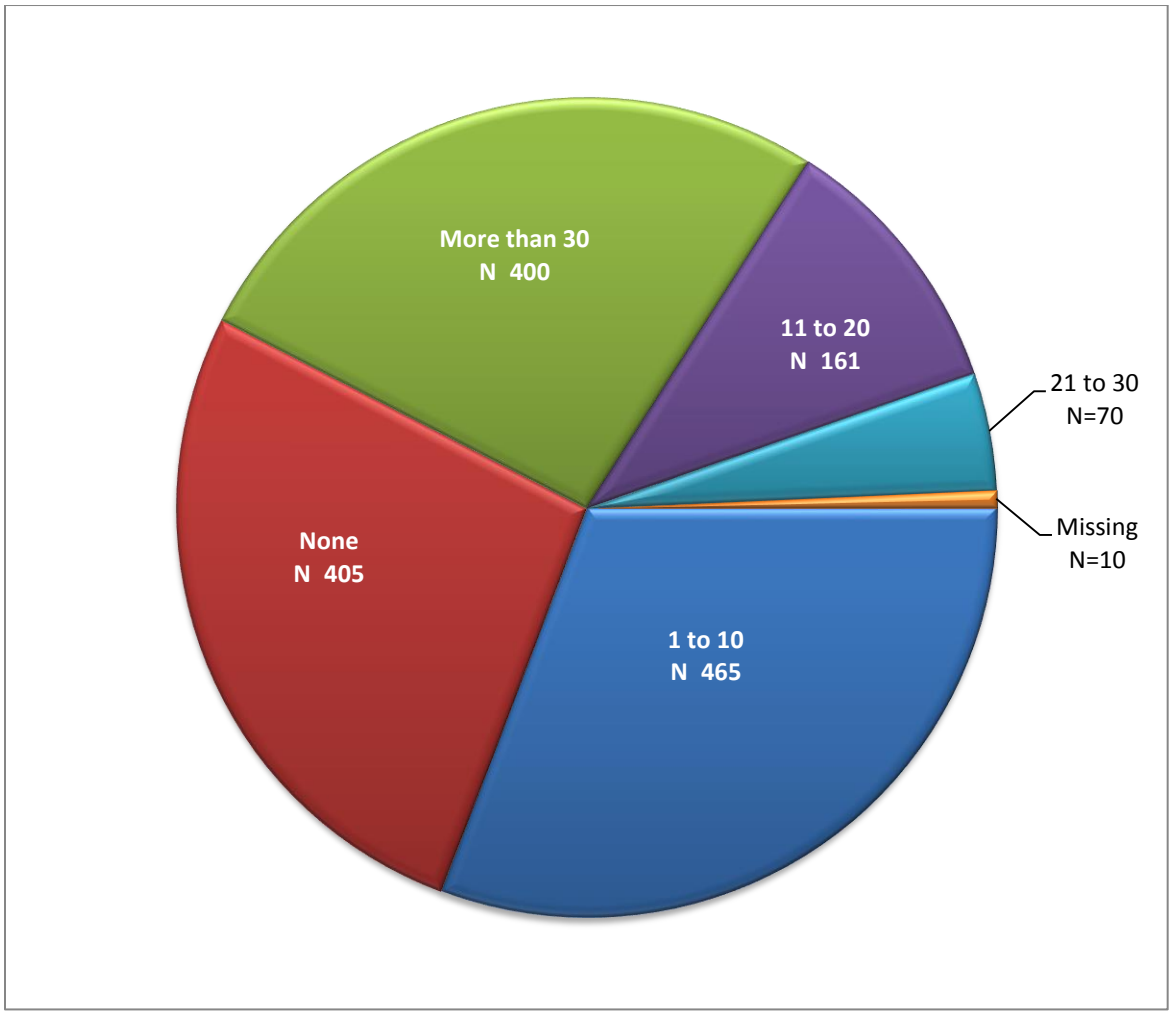

TABLE 7 – NUMBER OF OTHER LICENSED ARCHITECTS IN ORGANIZATION

NUMBER OF ARCHITECTS	N	PERCENT
None	499	33.0
1 to 5	483	32.0
6 to 10	154	10.2
More than 10	352	23.3
Missing	23	1.5
Total	1,511	100

FIGURE 7 – NUMBER OF OTHER LICENSED ARCHITECTS IN ORGANIZATION

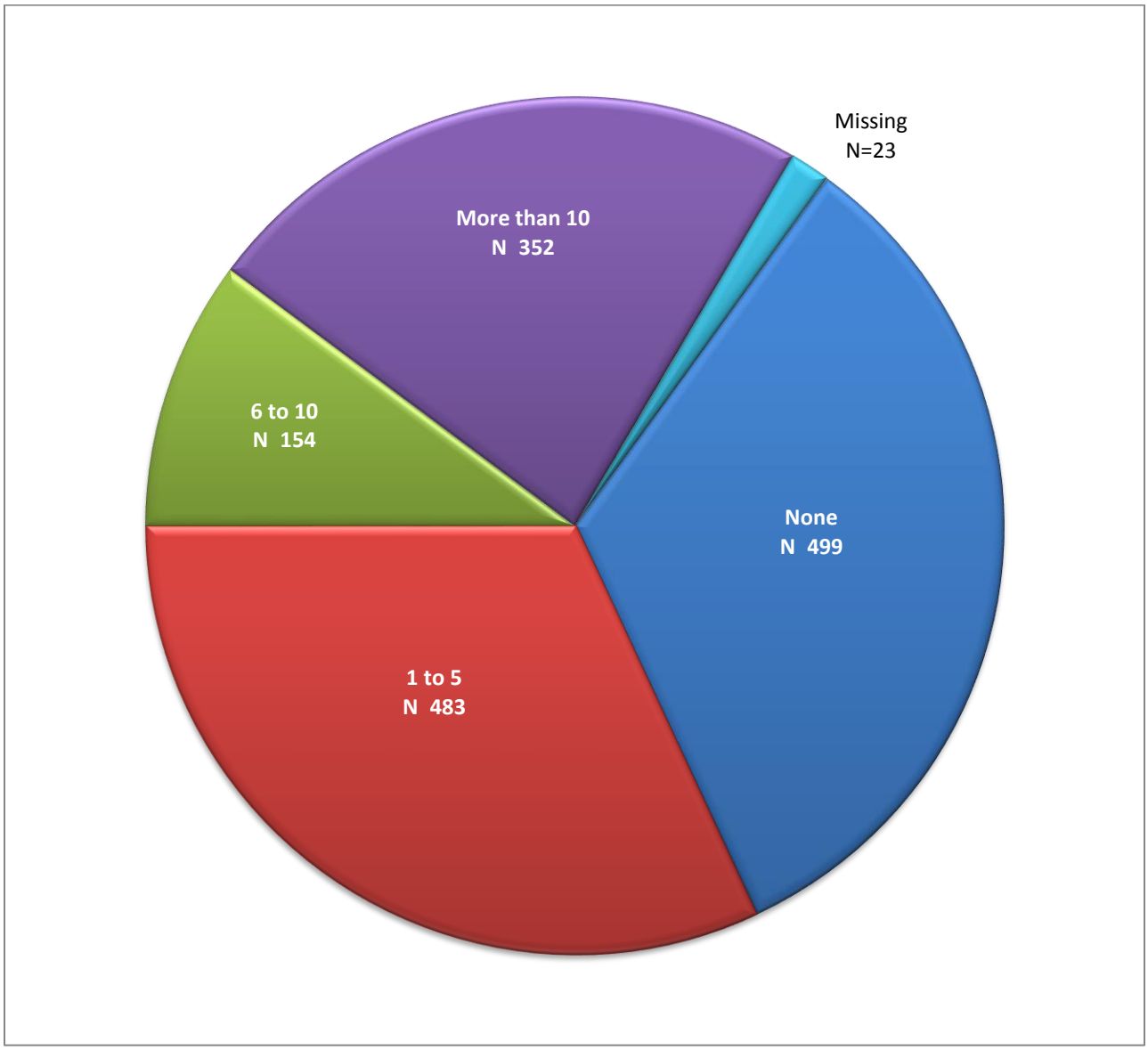

TABLE 8 – PROJECT TYPES CONSIDERED AN AREA OF SPECIALTY BY RESPONDENTS

SPECIALIZATION	N	PERCENT
Residential (single-family, multifamily)	941	62.3
Commercial (office, mixed-use)	922	61.0
Education (community colleges, universities, K-12)	570	37.7
Health care (hospitals, clinics)	411	27.2
Hospitality (hotels, restaurants)	384	25.4
Institutional (military, justice, fire/police stations)	365	24.2
Industrial (factories, warehouses, utilities)	352	23.3

NOTE: Respondents asked to check all that apply.

FIGURE 8 – PROJECT TYPES CONSIDERED AN AREA OF SPECIALTY BY RESPONDENTS

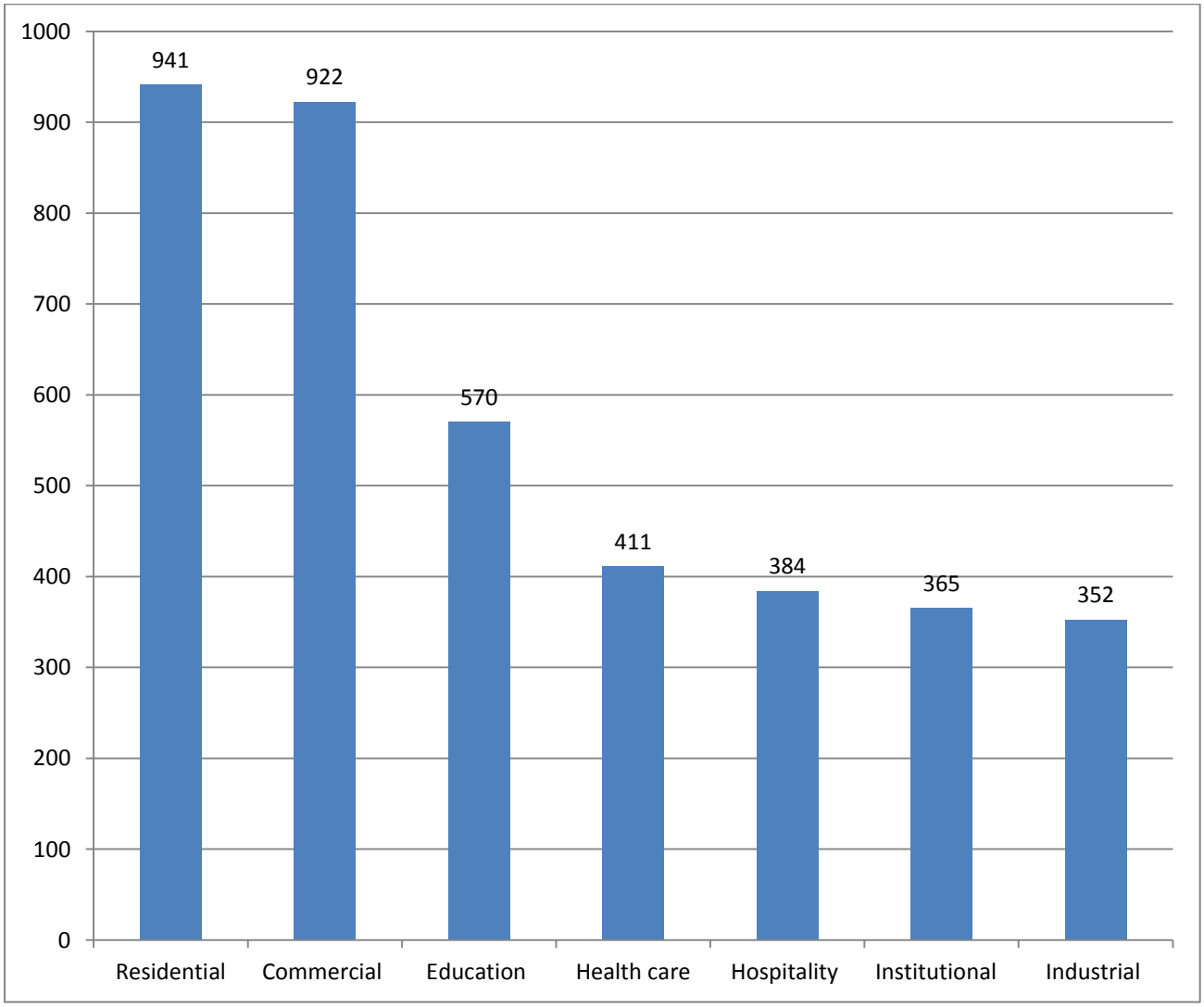

TABLE 9 – OTHER STATE LICENSES POSSESSED

LICENSE	N	PERCENT
Architect (out of state)	123	8.1
Contractor	96	6.4
Engineer	23	1.5

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FIGURE 9 – OTHER STATE LICENSES POSSESSED

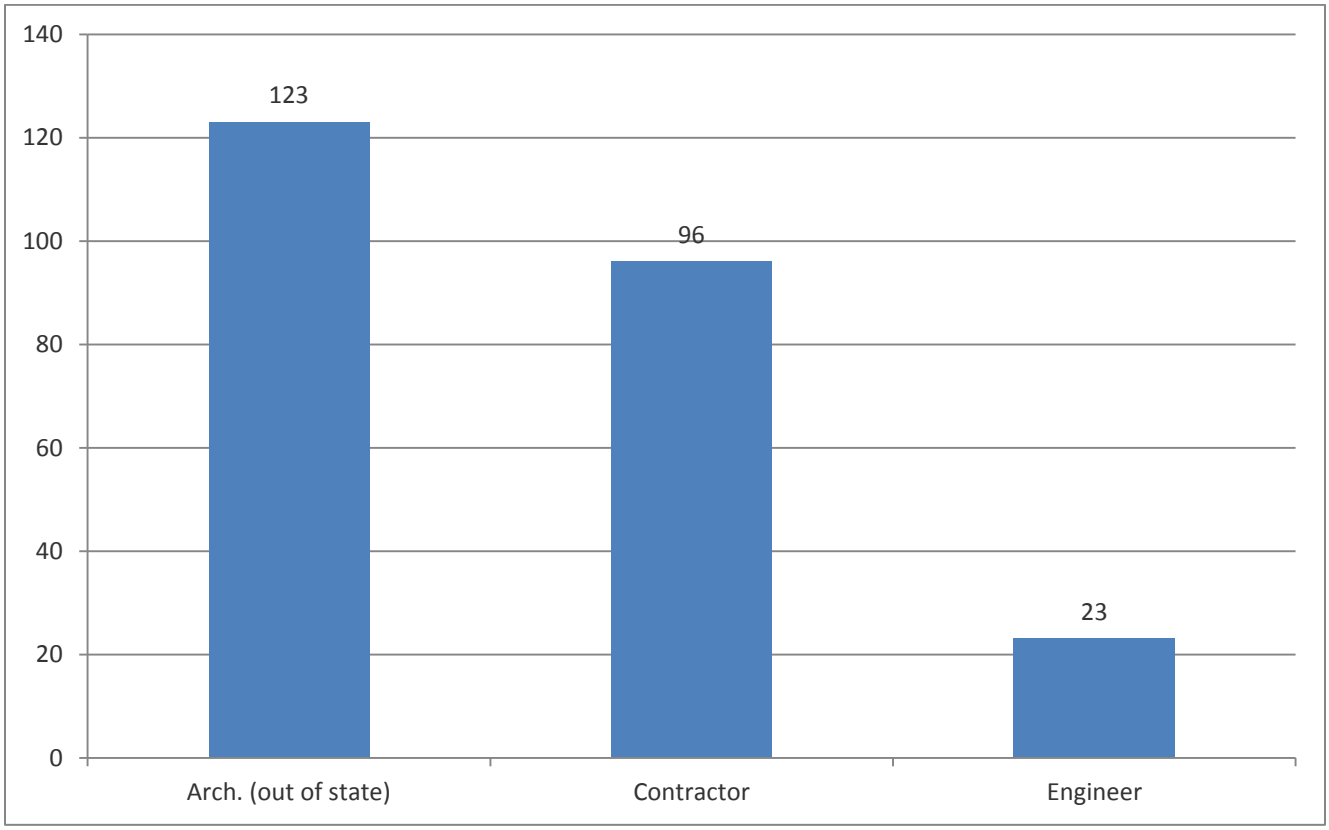


TABLE 10 – OTHER CERTIFICATES POSSESSED

CERTIFICATE	N	PERCENT
LEED	565	89.8
CDT (Certified Document Technologist)	37	5.9
California Access Specialist (CaASp)	33	5.2
CPM (Certified Project Manager)	19	3.0
CCS (Certified Construction Specifier)	17	2.7
ACHA (Health Care)	12	1.9
NCIDQ (Interior Design)	9	1.4

NOTE: Percentage reported is average across endorsing respondents.

FIGURE 10 – OTHER CERTIFICATES POSSESSED

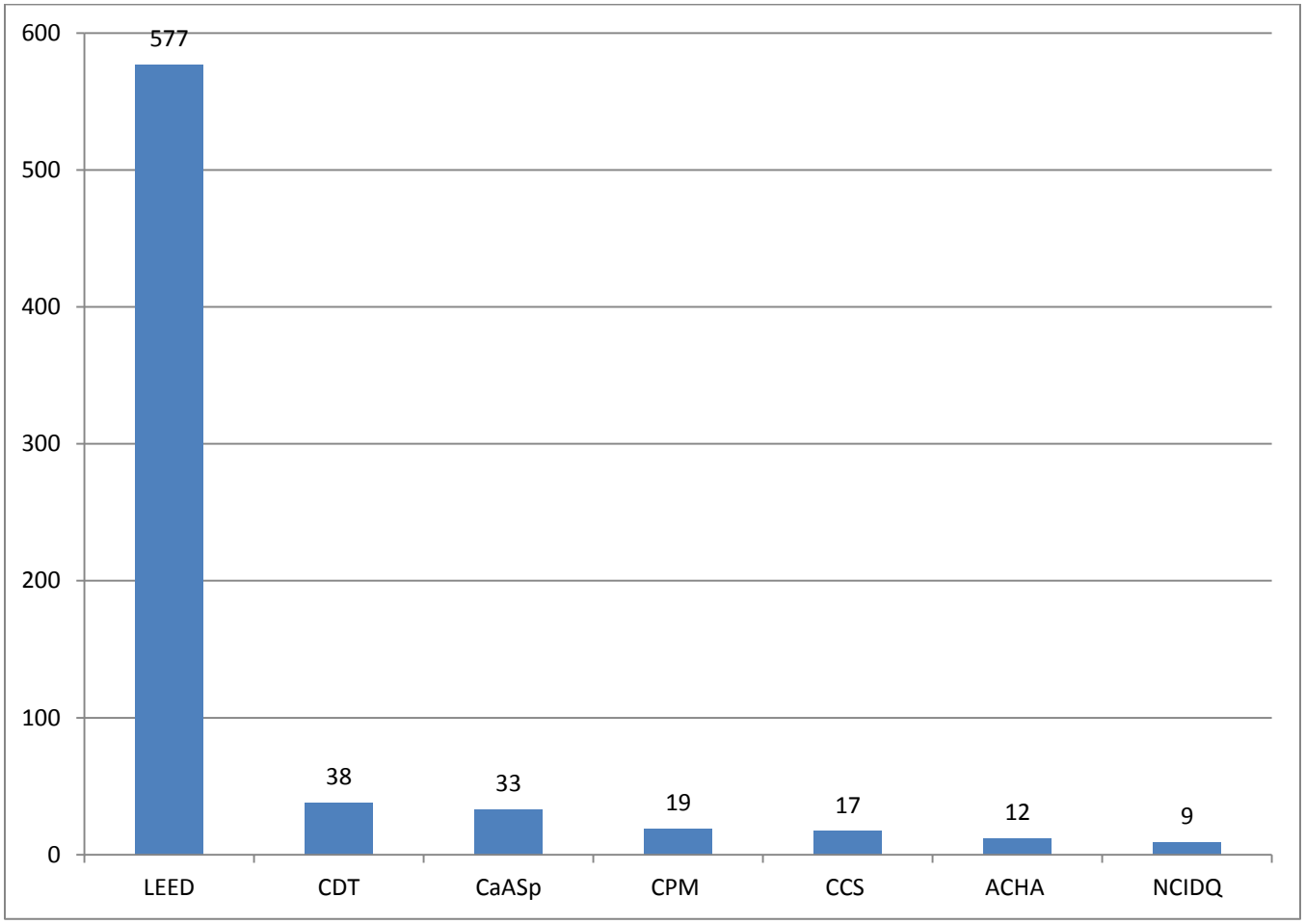


TABLE 11 – PERCENTAGE OF WORK PERFORMED IN/OUT OF STATE LAST FIVE YEARS

LOCATION OF WORK	N	PERCENT
California	1,502	89.8
Other States	650	15.1
International	497	11.7

NOTE: Percentage reported is average across endorsing respondents.

FIGURE 11 – PERCENTAGE OF WORK PERFORMED IN/OUT OF STATE LAST FIVE YEARS

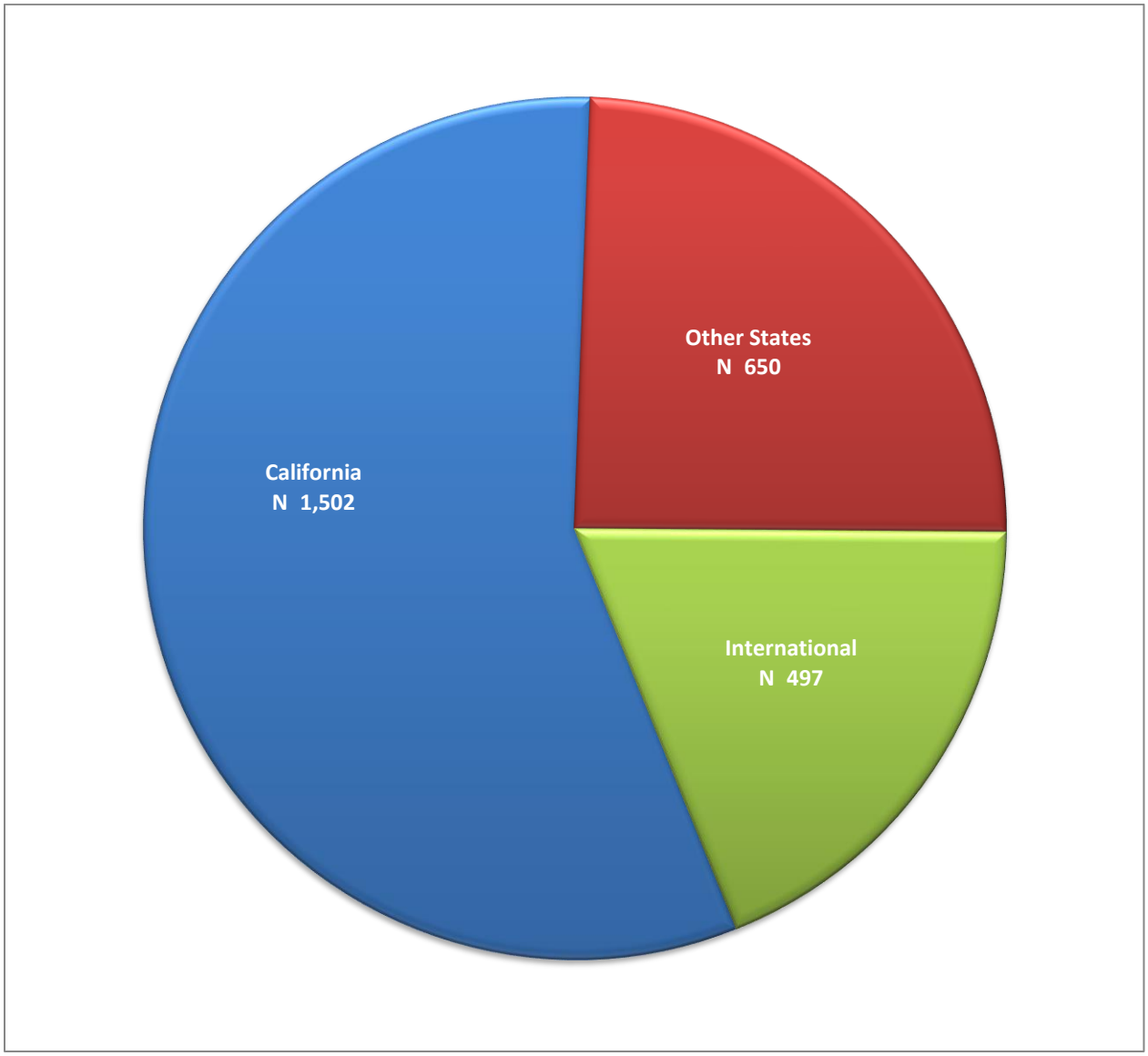


TABLE 12 – PERCENTAGE OF TIME SPENT ON PRINCIPAL WORK TASKS

WORK TASK	N	PERCENT
Construction documents	1,292	27.4
Design	1,289	17.7
Construction administration	1,282	14.2
Project management	1,200	17.8
Agency review/approval	1,178	10.3
Management/Administration	1,122	15.2
Programming/Pre-Design	1,043	8.7
QA/QC	824	6.6
Bid coordination	803	3.7
Specification writing	779	5.1
Post-occupancy services	543	2.1

NOTE: Percentage reported is average across respondents.

FIGURE 12 – PERCENTAGE OF TIME SPENT ON PRINCIPAL WORK TASKS

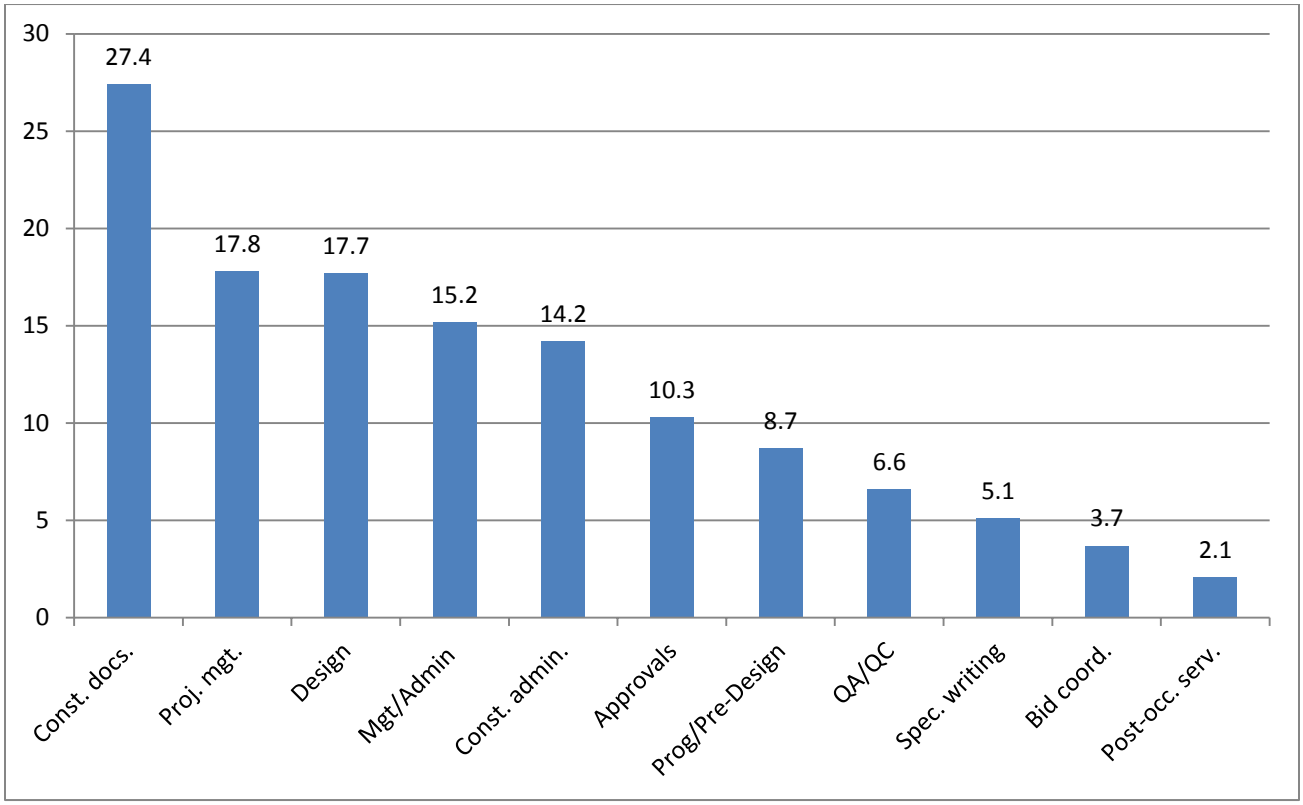


TABLE 13 – PERCENTAGE OF WORK PERFORMED USING SPECIFIC CONSTRUCTION CONTRACT ARRANGEMENTS LAST FIVE YEARS

CONTRACT ARRANGEMENT	N	PERCENT
Design–Bid–Build	1,112	58.6
Guaranteed Max Price	957	45
Fee plus Cost	751	36.7
Construction Management at Risk	427	14.8
Multi-Prime	361	7.7

NOTE: Percentage reported is average across respondents.

FIGURE 13 – PERCENTAGE OF WORK PERFORMED USING SPECIFIC CONSTRUCTION CONTRACT ARRANGEMENTS LAST FIVE YEARS

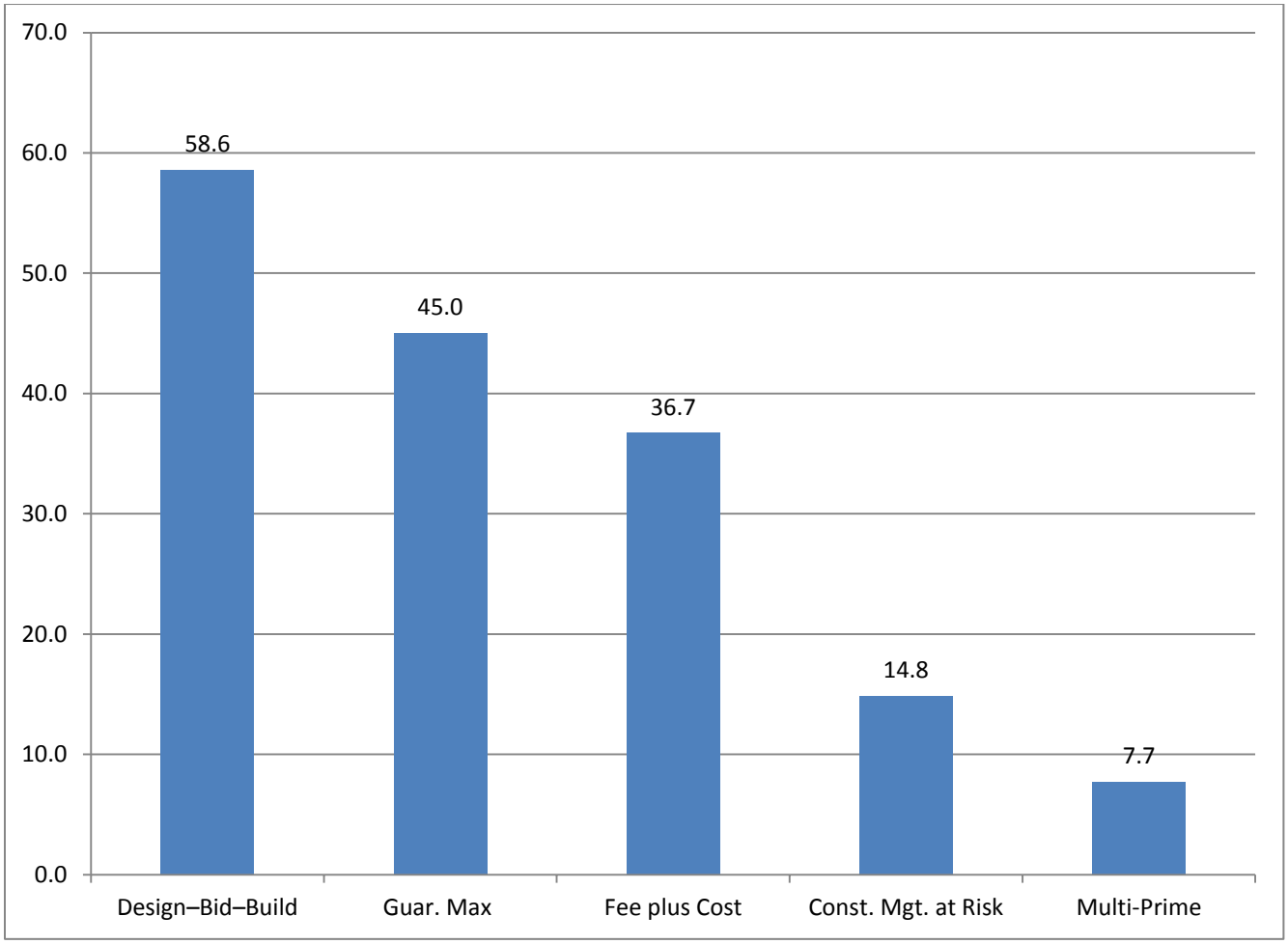


TABLE 14 – PERCENTAGE OF WORK PERFORMED USING SPECIFIC PROJECT DELIVERY METHODS LAST FIVE YEARS

DELIVERY METHOD	N	PERCENT
Design–Bid–Build	1,238	61.5
Design–Build	725	32.1
Design–Owner Build	912	32
Integrated Project Delivery	491	19.2
Other	393	17.4
Public/Private Partnership	364	8.5

NOTE: Percentage reported is average across respondents.

FIGURE 14 – PERCENTAGE OF WORK PERFORMED USING SPECIFIC PROJECT DELIVERY METHODS LAST FIVE YEARS

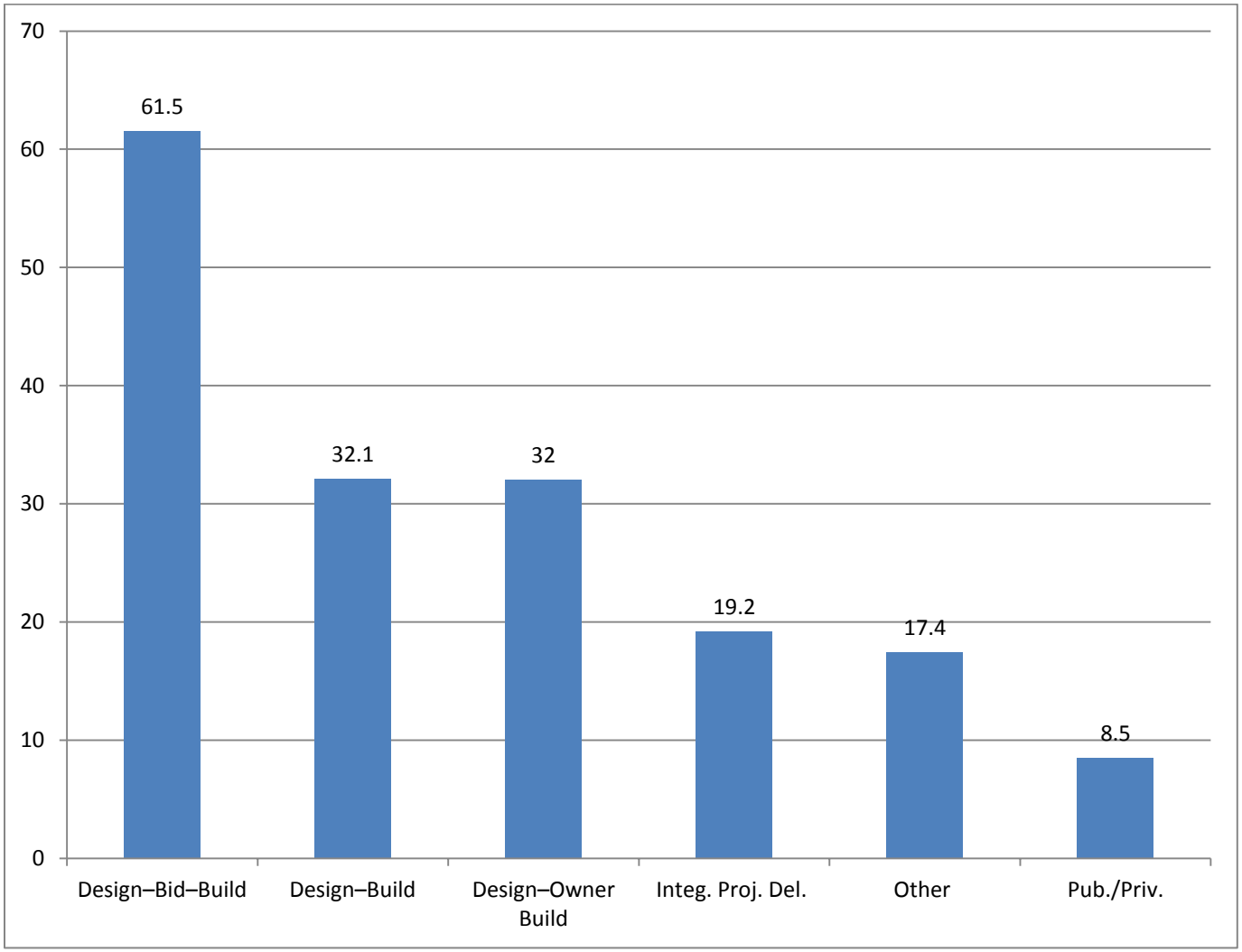


TABLE 15 – PERCENTAGE OF INFORMATION EXCHANGE USING ELECTRONIC DOCUMENTS

PARTY	N	PERCENT
Consultants	1,467	84.4
Contractors	1,437	70.5
Owners	1,418	69.2
Agency submittals	1,374	29.4

NOTE: Percentage reported is average across respondents for each Party.

FIGURE 15 – PERCENTAGE OF INFORMATION EXCHANGE USING ELECTRONIC DOCUMENTS

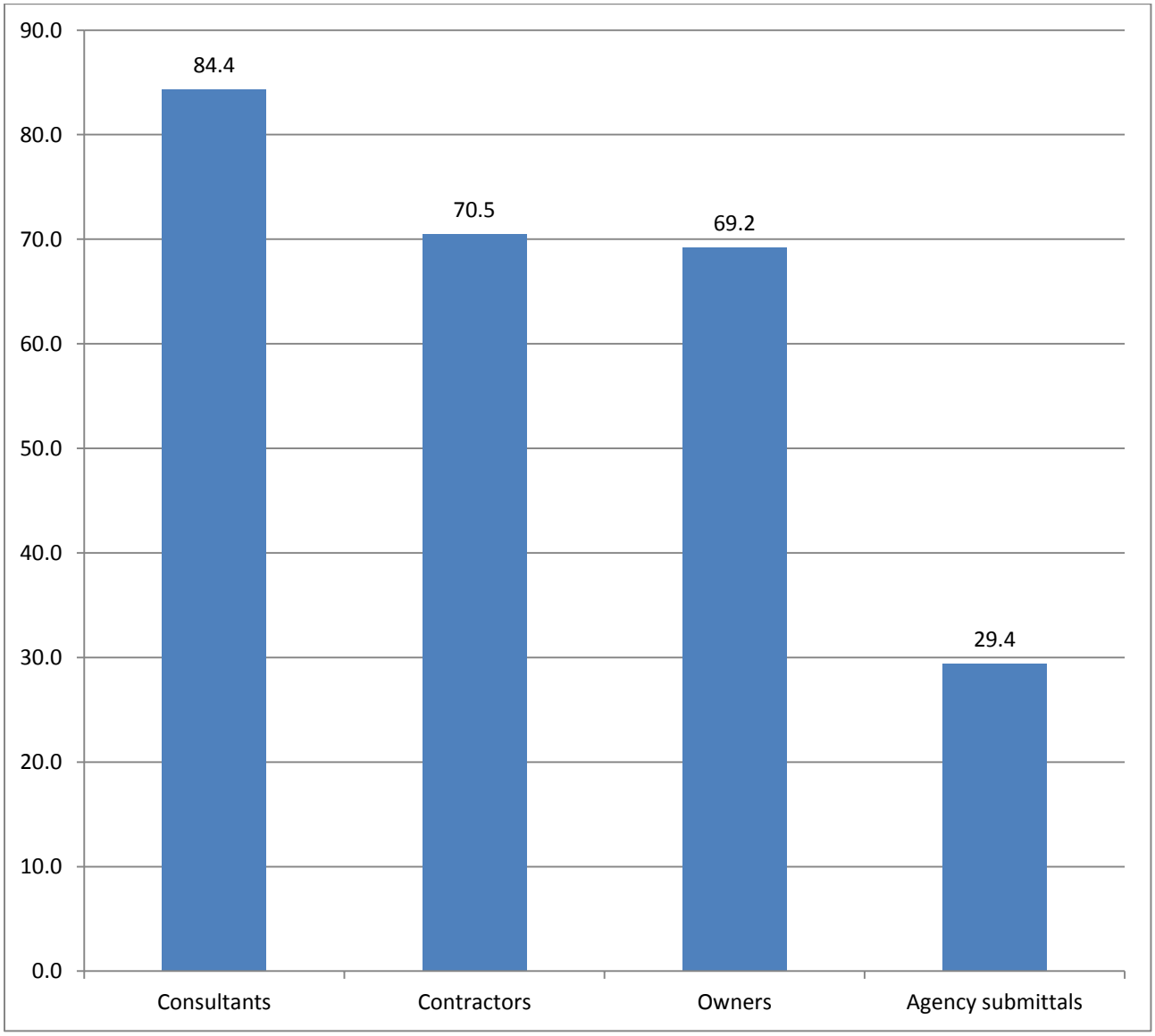
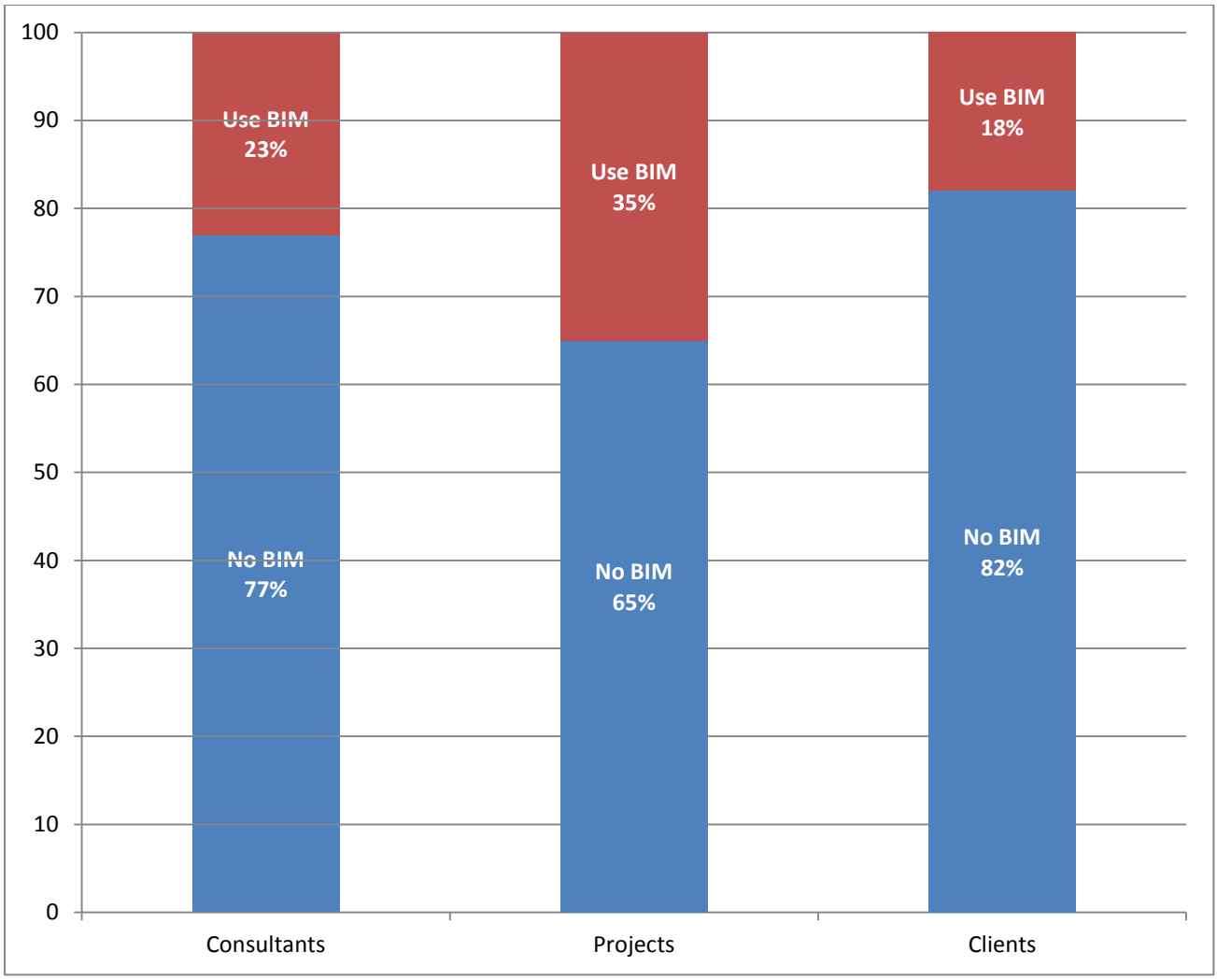


TABLE 16 – PERCENTAGE OF DESIGN TEAM CONSULTANTS, PROJECTS, AND CLIENTS USING BIM[1] LAST FIVE YEARS

	PERCENT BIM	PERCENT NO-BIM	N
Consultants	23	77	1,481
Projects	35	65	1,490
Clients	18	82	1,475

NOTE: Percentage reported is average across respondents for each category.

FIGURE 16 – PERCENTAGE OF DESIGN TEAM CONSULTANTS, PROJECTS, AND CLIENTS USING BIM LAST FIVE YEARS



[1] BIM: Building Information Modeling

TABLE 17 – CAPACITY IN WHICH ARCHITECT'S FIRM PERFORMS BIM FOR CONSULTANTS

	YES	NO	N
BIM as part of Architect's contract for project delivery?	37.2	62.8	1,446
BIM as an added services?	24.4	75.6	1,387

NOTE: Percentage reported is average across respondents for each category.

FIGURE 17 – CAPACITY IN WHICH ARCHITECT'S FIRM PERFORMS BIM FOR CONSULTANTS

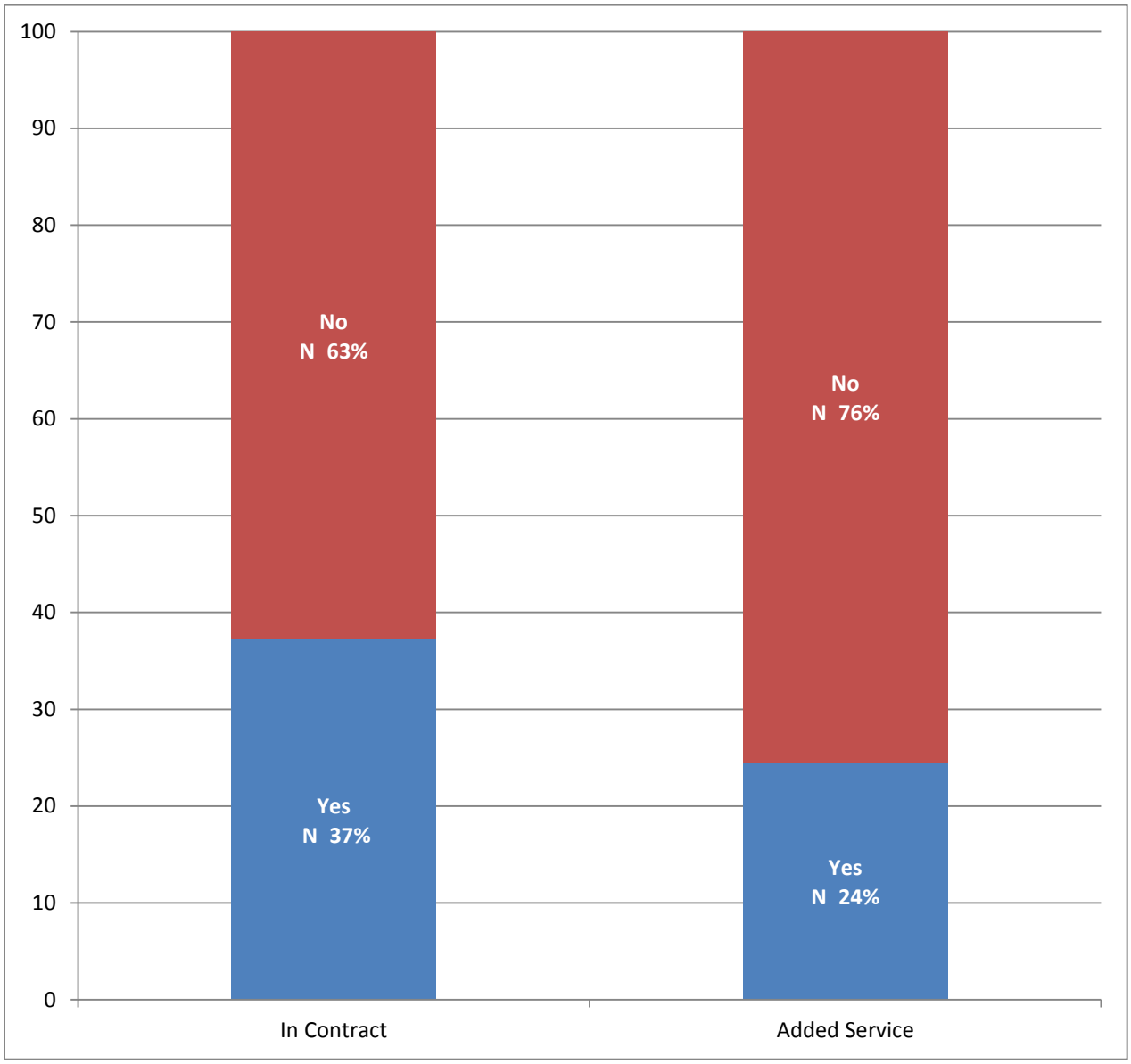


TABLE 18 – RESPONDENTS BY REGION

Region	Region Name	Frequency	Percent
1	Los Angeles and Vicinity	485	32.1
2	San Francisco Bay Area	527	34.9
3	San Joaquin Valley	59	3.9
4	Sacramento Valley	95	6.3
5	San Diego and Vicinity	128	8.5
6	Shasta/Cascade	5	0.3
7	Riverside-San Bernardino	42	2.8
8	Sierra Mountain	33	2.2
9	North Coast	46	3.0
10	South/Central Coast	84	5.6
	Missing	7	0.5
	Total	1,511	100

NOTE: Appendix A shows a more detailed breakdown of the frequencies by region.

CHAPTER 4. DATA ANALYSIS AND RESULTS

RELIABILITY OF RATINGS

The job task and knowledge ratings obtained by the questionnaire were evaluated with a standard index of reliability called coefficient alpha (α). Coefficient alpha is an estimate of the internal consistency of the respondents' ratings of job task and knowledge statements. Coefficients were calculated for all respondent ratings.

Table 19 displays the reliability coefficients for the task rating scales in each content area. The overall ratings of task frequency (α = .98) and task importance (α = .98) across content areas were highly reliable. Table 20 displays the reliability coefficients for the knowledge statements rating scale in each content area. The overall ratings of knowledge importance (α = .98) across content areas were highly reliable. These results indicate that the responding Architects rated the task and knowledge statements consistently throughout the questionnaire.

TABLE 19 – TASK SCALE RELIABILITY

CONTENT AREA		Number of Tasks	α Frequency	α Importance
I.	Contract Development / Project Planning	9	.891	.896
II.	Project Management	10	.914	.915
III.	Programming / Schematic Design	13	.920	.920
IV.	Design Development / Approvals	9	.906	.901
V.	Construction Documents / Permitting	7	.906	.903
VI.	Project Bidding and Construction	13	.944	.942
All Tasks		62	.979	.979

TABLE 20 – KNOWLEDGE SCALE RELIABILITY

I.	Contract Development / Project Planning	10	.873
II.	Project Management	10	.857
III.	Programming / Schematic Design	20	.930
IV.	Design Development / Approvals	14	.907
V.	Construction Documents / Permitting	10	.870
VI.	Project Bidding and Construction	18	.946
All Knowledge		82	.982

TASK CRITICAL VALUES

Two focus groups of licensed Architects were convened at OPES in September 2014 to review the average frequency and importance ratings, as well as the criticality indices of all task and knowledge statements. The purpose of these workshops was to identify the essential tasks and knowledge required for safe and effective Architect practice at the time of licensure. The licensees reviewed the frequency, importance, and criticality indices for all task statements.

In order to determine the critical values (criticality) of the task statements, the frequency rating (TFreqi) and the importance rating (TImpi) for each task were multiplied for each respondent, and the products averaged across respondents.

*Critical task index = mean [(*TFreqi*) X (*TImpi*)]*

The task statements were then ranked according to the task critical values. The task statements and their mean ratings and associated critical values are presented in Appendix B.

The first September 2014 focus group of SMEs evaluated the tasks' critical values based on the questionnaire results. OPES staff instructed the SMEs to identify a cutoff value of criticality in order to determine if any tasks did not have a high enough critical value to be retained. The SMEs determined that no cutoff value should be set, based on their view of the relative importance of all tasks to California Architect practice. The second September 2014 focus group of SMEs performed an independent review of the same data, and arrived at the same conclusion that no cutoff value should be set and that all tasks should be retained as part of the California Architect description of practice.

KNOWLEDGE IMPORTANCE RATINGS

In order to determine the importance of each knowledge, the mean importance rating for each knowledge statement (KImp) was calculated. The knowledge statements were then ranked according to mean importance. The knowledge statements and their importance ratings are presented in Appendix C.

The first September focus group of SMEs that evaluated the task critical values also reviewed the knowledge statement importance ratings and the relative importance of each knowledge to California Architect practice, Based on this review, the SMEs determined that no cutoff value should be established and that all knowledge statements should be retained. The second September focus group of SMEs independently reviewed the same data and arrived at the same conclusion, that no cutoff value should be set and that all knowledge statements should be retained as part of the California Architect description of practice. The California Architect description of practice is presented in Appendix D.

CHAPTER 5. EXAMINATION PLAN

CALIFORNIA-SPECIFIC PRACTICE

The first September 2014 focus group of SMEs reviewed the preliminary assignment of task and knowledge statements to content areas as developed for the OA questionnaire. They verified that the content areas were non-overlapping and described major areas of practice. The second September focus group of SMEs independently reviewed the preliminary assignment of task and knowledge statements to content areas and agreed with the first group that the content areas were non-overlapping and described major areas of practice. Both groups also determined that these content areas and their related tasks and knowledge were representative of the California Architect description of practice.

In addition to determining the California Architect description of practice, the two focus groups of SMEs were also charged with identifying the tasks and knowledge that best described California-specific practice. As part of this process, both groups of SMEs were provided information about the general content of the national examination for architects (the Architect Registration Examination, or ARE), which the Board requires all candidates for California licensure to have successfully passed before taking the State's licensure examination. The objective was to develop a stronger focus on California-specific practice while minimizing the content overlap between the national and California examinations.

The two groups of SMEs independently reviewed the tasks in each content area and identified those tasks that were descriptive of general Architect practice. These tasks were marked for possible deletion from the test plan. Each group of SMEs then identified the knowledge related to the tasks marked for removal. Those tasks that were linked to knowledge related to California-specific practice were retained. The tasks and their related knowledge that were not descriptive of California-specific practice were removed. Both groups of SMEs continued in this manner until all of the content areas had been reviewed. Once the second group of SMEs had completed this work, they were asked to review the results from the first group of SMES and to reconcile any differences through discussion. This reconciliation process resulted in the 32 tasks and 35 knowledge statements that the SMEs felt best reflected California-specific practice. The assignment of these tasks and their related knowledge to content areas was reviewed by the SMEs. The linkage between the tasks and knowledge was also reviewed and verified by the SMEs. The resulting content areas with their respective task and knowledge linkage form the content outline for the Architect California Supplemental Examination, and are presented in Table 22.

CONTENT AREAS AND WEIGHTS

In order for the second September 2014 group of SMEs to determine the relative weights of the content areas, initial calculations were performed by dividing the sum of the task critical values for a content area by the overall sum of the task critical values for all tasks, as shown below. The content area weights based on the task critical values are presented in Table 21.

$$\frac{\textit{Sum of Critical Values for Tasks in Content Area}}{\textit{Sum of Critical Values for All Tasks}} = \textit{Percent Weight of Content Area}$$

In reviewing the preliminary weights based solely on the task critical values (TCV Prelim. Wts.), the SMEs determined that these weights did not reflect the relative importance of the content areas to Architect practice in California. The SMEs were then presented with values based on the knowledge importance (KImp) ratings for each content area (KImp Prelim. Wts.). These values were calculated by dividing the sum of the knowledge importance for a content area by the overall sum of the knowledge importance ratings for all knowledge, as shown below. The content area weights based on the KImp values are presented in Table 21.

$$\frac{\textit{Sum of K(Imp) for Knowledge in Content Area}}{\textit{Sum of K(Imp) for All Knowledge}} = \textit{Percent Weight of Content Area}$$

In determining the final weighting of the content areas, the second September 2014 group of SMEs looked at the group of tasks and knowledge, the linkage between the tasks and knowledge, and the relative importance of the tasks and knowledge in each content area to Architect practice in California. The results of the SMEs evaluation are depicted in Table 21, below. The content outline for the Architect California Supplemental Examination is presented in Table 22.

TABLE 21 – CONTENT AREA WEIGHTS

Content Area		TCV Prelim. Wts.	KImp Prelim. Wts.	Final Weights
I.	General Practice	26.8	15.9	6
II.	Programming / Design	29.5	36.4	44
III.	Development / Documentation	20	35.6	40
IV.	Bidding and Construction	23.7	12.1	10
Total		100%	100%	100%

TABLE 22 – CONTENT OUTLINE: ARCHITECT CALIFORNIA SUPPLEMENTAL EXAMINATION

I. General Practice (6%): This area assesses the candidate's knowledge related to core areas of practice applicable across types of projects, construction contract arrangements, and project delivery methods.

Task Statement	Linked Knowledge
1 Advertise and solicit services in compliance with professional and legal requirements.	1 Knowledge of the provisions of the Architect's Practice Act and CA Code of Regulations related to architect's business and professional requirements (e.g., contracts, architectural corporations, responsible control, architect's stamp).
3 Assess preliminary project requirements including budget and schedule relative to own firm's/organization's business goals, resources, and expertise.	5 Knowledge of methods for limiting professional liability (e.g., contractual allocation of risk, standard of care, client and project selection).
4 Evaluate potential contractual risks and determine strategies to manage them.	1 Knowledge of the provisions of the Architect's Practice Act and CA Code of Regulations related to architect's business and professional requirements (e.g., contracts, architectural corporations, responsible control, architect's stamp). 5 Knowledge of methods for limiting professional liability (e.g., contractual allocation of risk, standard of care, client and project selection). 9 Knowledge of methods and procedures for identifying the regulatory agencies having jurisdiction over the project and their specific requirements.
5 Collaborate with client to determine scope of work, project delivery method, deliverables, and compensation, etc., to prepare owner-architect agreement.	1 Knowledge of the provisions of the Architect's Practice Act and CA Code of Regulations related to architect's business and professional requirements (e.g., contracts, architectural corporations, responsible control, architect's stamp). 5 Knowledge of methods for limiting professional liability (e.g., contractual allocation of risk, standard of care, client and project selection). 9 Knowledge of methods and procedures for identifying the regulatory agencies having jurisdiction over the project and their specific requirements.
6 Identify the local, State, and federal regulatory jurisdictions impacting project.	9 Knowledge of methods and procedures for identifying the regulatory agencies having jurisdiction over the project and their specific requirements.

I. **General Practice** (continued)

Task Statement	Linked Knowledge
11 Implement strategies for managing and documenting communication (e.g., point of contact, reporting methods) between the architect, client, and team and between the design team and external parties (e.g., agencies, stakeholders).	13 Knowledge of architect's role and responsibilities for managing project and contractual risk for the architect and client. 16 Knowledge of the architect's professional and contractual responsibilities related to the client.
13 Manage client expectations related to the contracted scope of work (e.g., milestones, decision points).	16 Knowledge of the architect's professional and contractual responsibilities related to the client.
16 Establish standards for addressing conflicts that arise during the design and construction process.	16 Knowledge of the architect's professional and contractual responsibilities related to the client.

II. Programming / Design (44%): This area assesses the candidate's ability to identify and evaluate site and project opportunities and constraints in developing design concepts that meet the client's, user's, and stakeholder's needs and applicable California regulations.

Task Statement	Linked Knowledge
20 Perform or evaluate site feasibility studies (e.g., size, gradient, infrastructure, environmental conditions) to clarify and address project requirements.	25 Knowledge of procedures for obtaining and interpreting data about the existing built environment to determine impacts on project. 26 Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction. 27 Knowledge of the impacts to project from environmental conditions (e.g., seismic activity, fire, winds, flood zone, hazardous materials) and their potential mitigations.
21 Assist client in evaluating design concepts based on budget, aesthetics, etc., to determine design direction.	25 Knowledge of procedures for obtaining and interpreting data about the existing built environment to determine impacts on project. 26 Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction. 27 Knowledge of the impacts to project from environmental conditions (e.g., seismic activity, fire, winds, flood zone, hazardous materials) and their potential mitigations. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction. 32 Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust). 33 Knowledge of methods and procedures for complying with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to the design and construction of hospitals, schools, fire/police stations, etc. 34 Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes. 35 Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction.

II. **Programming / Design** (continued)

Task Statement	Linked Knowledge
23 Provide consultants with program and background information to collaboratively develop the design concept.	26 Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction. 27 Knowledge of the impacts to project from environmental conditions (e.g., seismic activity, fire, winds, flood zone, hazardous materials) and their potential mitigations. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction. 32 Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust). 33 Knowledge of methods and procedures for complying with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to the design and construction of hospitals, schools, fire/police stations, etc. 34 Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes. 35 Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction.
25 Present project to community groups and other stakeholders for their input and feedback.	28 Knowledge of processes and procedures for obtaining discretionary approvals. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction.

II. **Programming / Design** (continued)

Task Statement	Linked Knowledge
28 Integrate sustainable design strategies and technologies into design.	25 Knowledge of procedures for obtaining and interpreting data about the existing built environment to determine impacts on project. 26 Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 34 Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes. 35 Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction.
29 Identify the specific requirements of regulatory agencies and discuss their incorporation into the design/program with client and design team.	26 Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction. 28 Knowledge of processes and procedures for obtaining discretionary approvals. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction. 32 Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust). 33 Knowledge of methods and procedures for complying with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to the design and construction of hospitals, schools, fire/police stations, etc. 34 Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes. 35 Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction.

II. **Programming / Design** (continued)

Task Statement	Linked Knowledge
29 Identify the specific requirements of regulatory agencies and discuss their incorporation into the design/program with client and design team.	36 Knowledge of methods and procedures for complying with the California Health and Safety Code related to design and construction. 37 Knowledge of methods and procedures for complying with the California water quality regulations related to design and construction.
30 Prepare and submit exhibits and application forms to governing agencies (e.g., Planning Department, Coastal Commission, Design Review Board) for discretionary approvals.	28 Knowledge of processes and procedures for obtaining discretionary approvals. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction. 37 Knowledge of methods and procedures for complying with the California water quality regulations related to design and construction.
31 Work with agency staff to incorporate proposed conditions of discretionary approval into project documents.	28 Knowledge of processes and procedures for obtaining discretionary approvals. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction. 32 Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust).

II. **Programming / Design** (continued)

Task Statement	Linked Knowledge
32 Develop design concepts based on program requirements and constraints placed by applicable laws, local codes, ordinances, etc.	27 Knowledge of the impacts to project from environmental conditions (e.g., seismic activity, fire, winds, flood zone, hazardous materials) and their potential mitigations. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction. 32 Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust). 33 Knowledge of methods and procedures for complying with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to the design and construction of hospitals, schools, fire/police stations, etc. 34 Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes. 35 Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction. 36 Knowledge of methods and procedures for complying with the California Health and Safety Code related to design and construction.

III. Development / Documentation (40%): This area assesses the candidate's knowledge regarding developing design solutions, managing a project team, and preparing design and construction drawings and documents in conformance with the project program and applicable California regulations.

Task Statement	Linked Knowledge
34 Analyze and coordinate the selection and design of building systems (e.g., structural, mechanical, electrical, fire safety, security) with consultants.	41 Knowledge of methods and procedures for evaluating and integrating building systems (e.g., structural, mechanical, electrical, plumbing, life safety, conveying, building systems controls) into the project design. 42 Knowledge of methods and procedures for evaluating building materials (e.g., material characteristics, performance, testing standards) for selection into the project design. 50 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc. 51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC). 59 Knowledge of contents of contract documents (e.g., construction drawings, specifications, project manual) required for agency approval, bidding, and construction.
35 Lead the project team in the integration of the regulatory requirements into the design development documents.	49 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc. 50 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc. 51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC). 52 Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc. 57 Knowledge of methods and procedures for managing the distribution and review of documents during the construction document and permit phases.

III. Development / Documentation (continued)

Task Statement	Linked Knowledge
36 Coordinate design with input from client and the overall project team (e.g., general contractor, building official), and evaluate/incorporate their inputs based on project requirements.	51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC). 52 Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc. 63 Knowledge of interrelationships between regulatory agencies and their impact on the approval process (e.g., sequence of approvals, hierarchy of jurisdictions). 64 Knowledge of the architect's role in resolving conflicts between agencies regarding conflicting codes, regulations, and standards.
39 Analyze and integrate the selection of sustainable design strategies and technologies into the design.	41 Knowledge of methods and procedures for evaluating and integrating building systems (e.g., structural, mechanical, electrical, plumbing, life safety, conveying, building systems controls) into the project design. 42 Knowledge of methods and procedures for evaluating building materials (e.g., material characteristics, performance, testing standards) for selection into the project design. 49 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc. 51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC).
46 Prepare construction documents and verify conformance with the conditions of prior agency approvals and applicable codes and regulations.	49 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc. 50 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc. 51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC). 52 Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc. 59 Knowledge of contents of contract documents (e.g., construction drawings, specifications, project manual) required for agency approval, bidding, and construction.

III. Development / Documentation (continued)

Task Statement	Linked Knowledge
46 Prepare construction documents and verify conformance with the conditions of prior agency approvals and applicable codes and regulations.	61 Knowledge of methods for documenting the anchoring of nonstructural elements as defined by the California Building Code (e.g., fixtures and equipment items, nonbearing partitions, suspended ceilings). 62 Knowledge of processes and procedures for working with regulatory agencies having jurisdiction over the project to obtain final approvals (local, regional, State, federal). 64 Knowledge of the architect's role in resolving conflicts between agencies regarding conflicting codes, regulations, and standards.
48 Manage the submittal of construction documents to regulatory agencies through initial submittal, coordinating responses, and obtaining approvals.	49 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc. 50 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc. 51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC). 52 Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc. 57 Knowledge of methods and procedures for managing the distribution and review of documents during the construction document and permit phases. 59 Knowledge of contents of contract documents (e.g., construction drawings, specifications, project manual) required for agency approval, bidding, and construction. 61 Knowledge of methods for documenting the anchoring of nonstructural elements as defined by the California Building Code (e.g., fixtures and equipment items, nonbearing partitions, suspended ceilings). 62 Knowledge of processes and procedures for working with regulatory agencies having jurisdiction over the project to obtain final approvals (local, regional, State, federal). 63 Knowledge of interrelationships between regulatory agencies and their impact on the approval process (e.g., sequence of approvals, hierarchy of jurisdictions). 64 Knowledge of the architect's role in resolving conflicts between agencies regarding conflicting codes, regulations, and standards.

III. Development / Documentation (continued)

Task Statement	Linked Knowledge
42 Coordinate the preparation of the construction documents (e.g., architectural, structural, mechanical, civil, electrical, specs) and resolve potential conflicts or errors.	49 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc. 50 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc. 51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC). 52 Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc. 57 Knowledge of methods and procedures for managing the distribution and review of documents during the construction document and permit phases. 59 Knowledge of contents of contract documents (e.g., construction drawings, specifications, project manual) required for agency approval, bidding, and construction. 61 Knowledge of methods for documenting the anchoring of nonstructural elements as defined by the California Building Code (e.g., fixtures and equipment items, nonbearing partitions, suspended ceilings). 62 Knowledge of processes and procedures for working with regulatory agencies having jurisdiction over the project to obtain final approvals (local, regional, State, federal). 63 Knowledge of interrelationships between regulatory agencies and their impact on the approval process (e.g., sequence of approvals, hierarchy of jurisdictions). 64 Knowledge of the architect's role in resolving conflicts between agencies regarding conflicting codes, regulations, and standards.

IV. Bidding / Construction (10%): This area assesses the candidate's knowledge related to California regulations associated with project bidding, construction, and post-construction activities.

Task Statement	Linked Knowledge
49 Assist client in the bidding process (e.g., distribute documents, conduct pre-bid meetings, prepare addenda).	67 Knowledge of the provisions of the California Public Contract Code related to the bidding and contracting requirements for publicly funded projects.
50 Assist client in selecting contractors and negotiating construction contracts.	67 Knowledge of the provisions of the California Public Contract Code related to the bidding and contracting requirements for publicly funded projects.
51 Prepare bid documents appropriate to the selected delivery method.	67 Knowledge of the provisions of the California Public Contract Code related to the bidding and contracting requirements for publicly funded projects
54 Monitor project construction costs and schedule (e.g., review and certify contractor applications for payment, verify lien releases).	68 Knowledge of California laws related to design professional and contractor liens and their implications for the architect's and client's responsibilities.
55 Review test, inspection, observation schedules, programs and reports for conformance with construction documents.	78 Knowledge of code-required special inspections and testing (e.g., field welding, high-strength concrete). 79 Knowledge of State inspection, testing, reporting, and documentation requirements for construction of hospitals, public schools, and essential services buildings.
56 Review shop drawings and submittals during construction for conformance with design intent.	79 Knowledge of State inspection, testing, reporting, and documentation requirements for construction of hospitals, public schools, and essential services buildings.
60 Manage project close-out procedures (e.g., Certificate of Substantial Completion, Notice of Completion, verification of final lien releases, verification of public agency approvals) per contract.	68 Knowledge of California laws related to design professional and contractor liens and their implications for the architect's and client's responsibilities. 77 Knowledge of the California construction laws related to minimum warranty periods.
62 Assist owner with resolving post-occupancy issues (e.g., evaluation of building performance, warranty issues).	77 Knowledge of the California construction laws related to minimum warranty periods.

CHAPTER 6. CONCLUSION

The occupational analysis of the Architect profession described in this report provides a comprehensive description of current practice in California. The procedures employed to perform the occupational analysis were based upon a content validation strategy to ensure that the results accurately represent the practice of Architects. Results of this occupational analysis provide information regarding current practice that can be used to make job-related decisions regarding professional licensure.

By adopting the Architect Content Outline contained in this report, the Board ensures that its examination program reflects current practice.

This report provides all documentation necessary to verify that the analysis has been implemented in accordance with legal, professional, and technical standards.

APPENDIX A. RESPONDENTS BY REGION

LOS ANGELES AND VICINITY

County of Practice	Frequency
Los Angeles	350
Orange	135
TOTAL	485

SAN FRANCISCO BAY AREA

County of Practice	Frequency
Alameda	106
Contra Costa	32
Marin	33
Napa	5
San Francisco	221
San Mateo	34
Santa Clara	81
Santa Cruz	9
Solano	6
TOTAL	527

SAN JOAQUIN VALLEY

County of Practice	Frequency
Calaveras	2
Fresno	21
Kern	10
Mariposa	1
Madera	4
Merced	2
San Joaquin	10
Stanislaus	6
Tulare	3
TOTAL	59

SACRAMENTO VALLEY

County of Practice	Frequency
Butte	3
Lake	1
Sacramento	81
Sutter	1
Yolo	9
TOTAL	95

SAN DIEGO AND VICINITY

County of Practice	Frequency
San Diego	127
Inyo	1
TOTAL	128

SHASTA/CASCADE

County of Practice	Frequency
Shasta	5
TOTAL	5

RIVERSIDE – SAN BERNARDINO

County of Practice	Frequency
Riverside	24
San Bernardino	18
TOTAL	42

SIERRA MOUNTAIN

County of Practice	Frequency
Nevada	7
Placer	17
El Dorado	9
TOTAL	33

NORTH COAST

County of Practice	Frequency
Del Norte	1
Humboldt	4
Mendocino	6
Sonoma	35
TOTAL	46

SOUTH/CENTRAL COAST

County of Practice	Frequency
Monterey	14
San Luis Obispo	25
Santa Barbara	21
San Benito	1
Ventura	23
TOTAL	84

APPENDIX B. CRITICALITY INDICES FOR ALL TASKS

Task Num	Task Statement	Average Task Freq.	Average Task Impt.	Task Crit. Value
1	Advertise and solicit services in compliance with professional and legal requirements.	1.61	2.76	5.49
2	Evaluate the project's opportunities and constraints for alignment with client goals and requirements.	3.51	4.00	10.06
3	Assess preliminary project requirements including budget and schedule relative to own firm's/organization's business goals, resources, and expertise.	3.09	3.69	14.89
4	Evaluate potential contractual risks and determine strategies to manage them.	2.78	3.68	12.93
5	Collaborate with client to determine scope of work, project delivery method, deliverables, and compensation, etc., to prepare owner-architect agreement.	3.13	3.89	12.35
6	Identify the local, State, and federal regulatory jurisdictions impacting project.	3.76	4.11	10.99
7	Identify the project team members (e.g., architects, engineers, specialty consultants) and who is responsible for the contracting, management, and coordination of each member.	3.19	3.60	11.24
8	Collaborate with client to determine the specific roles and responsibilities of project participants (e.g., owner's representative, architect, contractor, construction manager).	2.67	3.23	11.99
9	Solicit the consultants to be contracted under the architect and evaluate their qualifications and scope of services based on project requirements.	2.72	3.38	13.06
10	Implement strategies for managing contractual risk (QA/QC, peer review).	2.34	3.35	15.19
11	Implement strategies for managing and documenting communication (e.g., point of contact, reporting methods) between the architect, client, and team and between the design team and external parties (e.g., agencies, stakeholders).	2.79	3.36	16.23
12	Implement strategies to control risk and manage liability for the client (e.g., due diligence, accessibility).	2.88	3.53	13.54
13	Manage client expectations related to the contracted scope of work (e.g., milestones, decision points**)**.	3.26	3.71	12.26
14	Manage the distribution and review of documents for project coordination.	3.38	3.66	10.21
15	Establish documentation standards for the design team to support consistency and coordination.	2.70	3.34	9.54
16	Establish standards for addressing conflicts that arise during the design and construction process.	2.41	3.20	9.36
17	Conduct periodic progress meetings with design and project team to identify potential issues in work processes or team communication and develop plans to address the issues.	2.92	3.47	10.10
18	Review and update construction cost estimates as required by contract.	2.01	3.23	8.36

Task Num	Task Statement	Average Task Freq.	Average Task Impt.	Task Crit. Value
19	Manage the design team's fees, deliverables, and schedules to conform to contract.	2.71	3.57	8.82
20	Perform or evaluate site feasibility studies (e.g., size, gradient, infrastructure, environmental conditions) to clarify and address project requirements.	2.46	3.42	10.11
21	Assist client in evaluating design concepts based on budget, aesthetics, etc., to determine design direction.	3.25	3.76	10.34
22	Review program with client to validate project requirements and gain approval to proceed.	3.25	3.90	10.36
23	Provide consultants with program and background information to collaboratively develop the design concept.	3.01	3.52	11.17
24	Develop the project program using multiple approaches (e.g., surveys, interviews) to identify and evaluate user needs.	1.93	2.97	12.10
25	Present project to community groups and other stakeholders for their input and feedback.	1.88	3.03	12.79
26	Prepare models, renderings, sketches, etc., to help communicate project designs.	2.94	3.52	12.86
27	Present schematic design documents that meet program requirements to client to obtain client's input and approval.	3.39	3.95	13.06
28	Integrate sustainable design strategies and technologies into design.	2.83	3.14	10.40
29	Identify the specific requirements of regulatory agencies and discuss their incorporation into the design/program with client and design team.	3.57	3.98	9.82
30	Prepare and submit exhibits and application forms to governing agencies (e.g., Planning Department, Coastal Commission, Design Review Board) for discretionary approvals.	2.96	3.76	8.66
31	Work with agency staff to incorporate proposed conditions of discretionary approval into project documents.	2.71	3.56	8.53
32	Develop design concepts based on program requirements and constraints placed by applicable laws, local codes, ordinances, etc.	3.53	4.08	10.02
33	Lead the preparation of design development documents that integrate the architectural design and engineered building systems.	3.29	3.91	11.01
34	Analyze and coordinate the selection and design of building systems (e.g., structural, mechanical, electrical, fire safety, security) with consultants.	3.14	3.77	7.42
35	Lead the project team in the integration of the regulatory requirements into the design development documents.	3.13	3.82	7.16
36	Coordinate design with input from client and the overall project team (e.g., general contractor, building official), and evaluate/incorporate their inputs based on project requirements.	3.30	3.72	8.97

Task Num	Task Statement	Average Task Freq.	Average Task Impt.	Task Crit. Value
37	Perform value engineering and life-cycle cost analyses to advise owner about approaches for managing project costs.	2.02	2.88	10.43
38	Review design development documents with client for compliance with project requirements and to gain approval to proceed.	3.19	3.78	9.10
39	Analyze and integrate the selection of sustainable design strategies and technologies into the design.	2.45	2.95	9.29
40	Incorporate final conditions of discretionary approval into project documents.	2.87	3.69	11.68
41	Conduct constructability review of Design Development documents.	2.47	3.39	12.93
42	Coordinate the preparation of the construction documents (e.g., architectural, structural, mechanical, civil, electrical, specs) and resolve potential conflicts or errors.	3.51	4.19	12.83
43	Modify construction documents based on changes in cost estimates including developing bidding alternates for client to consider.	2.51	3.29	13.32
44	Manage distribution and review of documents during the construction document and permit phases.	3.06	3.39	12.13
45	Prepare construction documents that meet program requirements and project goals, and present to client for approval.	3.31	3.99	11.33
46	Prepare construction documents and verify conformance with the conditions of prior agency approvals and applicable codes and regulations.	3.34	4.06	7.21
47	Perform a detailed review of construction documents for constructability and incorporate changes into final documents.	2.94	3.73	6.59
48	Manage the submittal of construction documents to regulatory agencies through initial submittal, coordinating responses, and obtaining approvals.	3.30	3.88	6.03
49	Assist client in the bidding process (e.g., distribute documents, conduct pre-bid meetings, prepare addenda).	2.47	3.13	6.32
50	Assist client in selecting contractors and negotiating construction contracts.	2.20	3.06	9.05
51	Prepare bid documents appropriate to the selected delivery method.	2.54	3.45	11.36
52	Manage the initiation/processing of documents to record construction changes (e.g., Construction Change Directives, Architect's Supplemental Instructions, Change Orders).	2.61	3.41	12.62
53	Participate in pre-construction and pre-installation meetings with contractor as required by the contract documents.	2.61	3.20	14.12
54	Monitor project construction costs and schedule (e.g., review and certify contractor applications for payment, verify lien releases).	2.17	3.10	11.51

Task Num	Task Statement	Average Task Freq.	Average Task Impt.	Task Crit. Value
55	Review test, inspection, observation schedules, programs and reports for conformance with construction documents.	2.22	3.07	9.71
56	Review shop drawings and submittals during construction for conformance with design intent.	3.00	3.72	11.57
57	Conduct periodic site observations/field reports to confirm that construction is in general conformance with contract documents.	3.07	3.69	14.90
58	Respond to contractor Requests for Information.	3.34	3.91	12.23
59	Assist client with evaluating possible changes to the project during construction (e.g., cost, scope, schedule, quality).	2.81	3.42	11.86
60	Manage project close-out procedures (e.g., Certificate of Substantial Completion, Notice of Completion, verification of final lien releases, verification of public agency approvals) per contract	2.18	3.15	10.85
61	Conduct post-construction services (e.g., post-occupancy evaluations, extended commissioning, record drawings) per contract.	1.38	2.45	10.48
62	Assist owner with resolving post-occupancy issues, (e.g., evaluation of building performance, warranty issues).	1.41	3.01	13.16

APPENDIX C. KNOWLEDGE IMPORTANCE RATINGS

K Num	Knowledge Statement	Mean KImp
1	Knowledge of the provisions of the Architect's Practice Act and CA Code of Regulations related to architect's business and professional requirements (e.g., contracts, architectural corporations, responsible control, architect's stamp).	3.48
2	Knowledge of different project delivery methods and the architect's and project team's corresponding roles and responsibilities (e.g., to client, as part of team).	3.19
3	Knowledge of options for tailoring architectural services to meet the client and project needs.	3.37
4	Knowledge of types of contracts and their application to the scope of work and the project's service requirements (client, consultant, etc.).	3.23
5	Knowledge of methods for limiting professional liability (e.g., contractual allocation of risk, standard of care, client and project selection).	3.70
6	Knowledge of consultants (e.g., civil, structural, MEP, geotechnical), the services they provide, and their applications to meeting project requirements.	3.82
7	Knowledge of methods for evaluating own/firm's capabilities and capacities in relation to project requirements.	3.57
8	Knowledge of approaches for increasing the capability and/or capacity of the architect/firm to meet project requirements.	3.20
9	Knowledge of methods and procedures for identifying the regulatory agencies having jurisdiction over the project and their specific requirements.	3.84
10	Knowledge of methods for evaluating client goals and resources in order to identify/define the preliminary project requirements, budget, and schedule.	3.66
11	Knowledge of procedures and standard practices for documenting contractual milestones (e.g., decisions, changes, approvals).	3.37
12	Knowledge of methods and techniques for communicating with client, project team, contractors, agencies, and stakeholders (e.g., meetings, emails, letters, minutes, transmittals, phone logs, visual aids).	3.68
13	Knowledge of architect's role and responsibilities for managing project and contractual risk for the architect and client.	3.79
14	Knowledge of methods and techniques for using technological resources (e.g., BIM/CAD, imaging software, web-based applications) to support communication with client and team.	3.22
15	Knowledge of the architect's role and responsibilities in orchestrating the architect's consultants and the entire project team.	3.84
16	Knowledge of the architect's professional and contractual responsibilities related to the client.	4.05
17	Knowledge of methods for controlling project costs (e.g., value engineering, life-cycle costing, cost estimating).	3.21

K Num	Knowledge Statement	Mean KImp
18	Knowledge of procedures for preparing and monitoring the project budget including hard and soft costs.	3.05
19	Knowledge of methods and procedures for allocating resources and managing in-house and consultant costs throughout all phases of architectural services.	3.24
20	Knowledge of methods and techniques for resolving conflicts that occur during design and construction.	3.74
21	Knowledge of methods, techniques, and procedures for conducting predesign services (e.g., programming, feasibility studies, site analysis).	3.28
22	Knowledge of methods for evaluating and finalizing the program to determine feasibility and conformance to client's project requirements.	3.36
23	Knowledge of methods for developing design solutions with the involvement of client, users, consultants, and stakeholders.	3.61
24	Knowledge of methods and procedures for developing the schematic design deliverables.	3.46
25	Knowledge of procedures for obtaining and interpreting data about the existing built environment to determine impacts on project.	3.47
26	Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction.	3.28
27	Knowledge of the impacts to project from environmental conditions (e.g., seismic activity, fire, winds, flood zone, hazardous materials) and their potential mitigations.	3.61
28	Knowledge of processes and procedures for obtaining discretionary approvals.	3.49
29	Knowledge of processes and procedures for compliance with local codes and ordinances related to design.	4.12
30	Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction.	3.13
31	Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction.	2.76
32	Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust).	2.56
33	Knowledge of methods and procedures for complying with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to the design and construction of hospitals, schools, fire/police stations, etc.	3.19
34	Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes.	3.74

K Num	Knowledge Statement	Mean KImp
35	Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction.	3.98
36	Knowledge of methods and procedures for complying with the California Health and Safety Code related to design and construction.	3.14
37	Knowledge of methods and procedures for complying with the California water quality regulations related to design and construction.	2.70
38	Knowledge of the Americans with Disabilities Act (ADA) with regard to how it impacts architectural practice (e.g., client and architect responsibilities, design, construction).	4.19
39	Knowledge of national standards (e.g., UL, ANSI, ASTM, Factory Mutual) relevant to design and construction.	2.77
40	Knowledge of methods and procedures for incorporating sustainable design strategies and technologies into design and construction.	3.04
41	Knowledge of methods and procedures for evaluating and integrating building systems (e.g., structural, mechanical, electrical, plumbing, life safety, conveying, building systems controls) into the project design.	3.79
42	Knowledge of methods and procedures for evaluating building materials (e.g., material characteristics, performance, testing standards) for selection into the project design.	3.42
43	Knowledge of methods for incorporating sustainable design (e.g., energy conservation, resource management, indoor air quality) into project design and construction.	3.15
44	Knowledge of methods for identifying and evaluating the implications of special conditions (e.g., based on loading, soils, uses) on design and construction.	3.22
45	Knowledge of contents of design drawings and related documents required for agency approvals**.**	3.98
46	Knowledge of architect's role and responsibilities in leading project team in order to obtain necessary agency approvals at the appropriate time.	3.88
47	Knowledge of methods for analyzing initial and life-cycle costs to select materials and systems for project.	2.52
48	Knowledge of methods for performing a QA/QC review of Design Development documents including constructability.	3.21
49	Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc.	2.82
50	Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc.	3.17

K Num	Knowledge Statement	Mean KImp
51	Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC).	3.81
52	Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc.	3.85
53	Knowledge of methods and procedures for demonstrating design compliance with federal laws and authorities: ADA, Army Corps of Engineers, FAA, etc.	3.51
54	Knowledge of methods and procedures for demonstrating design compliance with National Standards: NFPA, ASTM, etc.	2.77
55	Knowledge of methods for performing a QA/QC review of construction docs including constructability, code compliance, etc.	3.38
56	Knowledge of the architect's role in reconciling client's budget with probable construction costs.	3.28
57	Knowledge of methods and procedures for managing the distribution and review of documents during the construction document and permit phases.	3.34
58	Knowledge of methods and procedures for presenting contract documents to client for approval.	3.45
59	Knowledge of contents of contract documents (e.g., construction drawings, specifications, project manual) required for agency approval, bidding, and construction.	4.06
60	Knowledge of methods for the detailed integration of building systems (e.g., clash detection, interdisciplinary overlays).	3.35
61	Knowledge of methods for documenting the anchoring of nonstructural elements as defined by the California Building Code (e.g., fixtures and equipment items, nonbearing partitions, suspended ceilings).	3.24
62	Knowledge of processes and procedures for working with regulatory agencies having jurisdiction over the project to obtain final approvals (local, regional, State, federal).	3.85
63	Knowledge of interrelationships between regulatory agencies and their impact on the approval process (e.g., sequence of approvals, hierarchy of jurisdictions).	3.49
64	Knowledge of the architect's role in resolving conflicts between agencies regarding conflicting codes, regulations, and standards.	3.39
65	Knowledge of methods and procedures for preparing bidding documents based on project funding source (private/public) and delivery method.	3.06
66	Knowledge of architect's role and responsibilities related to construction bidding and negotiation processes.	3.11

K Num	Knowledge Statement	Mean KImp
67	Knowledge of the provisions of the California Public Contract Code related to the bidding and contracting requirements for publicly funded projects.	2.83
68	Knowledge of California laws related to design professional and contractor liens and their implications for the architect's and client's responsibilities.	2.85
69	Knowledge of the limits of the architect's role and responsibilities during construction (e.g., directing subcontractors, means and methods).	3.65
70	Knowledge of the interrelationships and responsibilities between the owner, architect, and contractor during construction.	3.85
71	Knowledge of methods for resolving conflicts that occur during construction (e.g., mediation, arbitration, litigation).	3.15
72	Knowledge of methods and procedures for developing and reviewing the contract documents package.	3.60
73	Knowledge of procedures for determining general conformance of construction with contract documents (e.g., observation, submittal reviews, RFIs).	3.69
74	Knowledge of methods and procedures for implementing changes during construction (e.g., Architect's Supplemental Instructions, Change Orders).	3.57
75	Knowledge of procedures for monitoring construction costs and schedules (e.g., reviewing and certifying payments to contractor, reviewing lien releases).	3.06
76	Knowledge of procedures for performing project close-out (e.g., Certificate of Substantial Completion, Notice of Completion, final lien releases).	3.05
77	Knowledge of the California construction laws related to minimum warranty periods.	2.56
78	Knowledge of code-required special inspections and testing (e.g., field welding, high-strength concrete).	2.85
79	Knowledge of State inspection, testing, reporting, and documentation requirements for construction of hospitals, public schools, and essential services buildings.	3.17
80	Knowledge of the architect's role and responsibilities in providing contract administration services based on the client-architect agreement.	3.46
81	Knowledge of post-construction services (e.g., extended building commissioning, record document preparation, operational and maintenance programming, facilities management, post-occupancy evaluation).	2.53
82	Knowledge of the architect's role and responsibilities to client regarding changes to project during construction (e.g., cost, scope, schedule, quality).	3.53

APPENDIX D. ARCHITECT DESCRIPTION OF PRACTICE

CALIFORNIA ARCHITECT DESCRIPTION OF PRACTICE

I. Contract Development / Project Planning

Task Statements	Knowledge Statements
1 Advertise and solicit services in compliance with professional and legal requirements. 2 Evaluate the project's opportunities and constraints for alignment with client goals and requirements. 3 Assess preliminary project requirements including budget and schedule relative to own firm's/organization's business goals, resources, and expertise. 4 Evaluate potential contractual risks and determine strategies to manage them. 5 Collaborate with client to determine scope of work, project delivery method, deliverables, and compensation, etc., to prepare owner-architect agreement. 6 Identify the local, State, and federal regulatory jurisdictions impacting project. 7 Identify the project team members (e.g., architects, engineers, specialty consultants) and who is responsible for the contracting, management, and coordination of each member. 8 Collaborate with client to determine the specific roles and responsibilities of project participants (e.g., owner's representative, architect, contractor, construction manager). 9 Solicit the consultants to be contracted under the architect and evaluate their qualifications and scope of services based on project requirements.	1 Knowledge of the provisions of the Architect's Practice Act and CA Code of Regulations related to architect's business and professional requirements (e.g., contracts, architectural corporations, responsible control, architect's stamp). 2 Knowledge of different project delivery methods and the architect's and project team's corresponding roles and responsibilities (e.g., to client, as part of team). 3 Knowledge of options for tailoring architectural services to meet the client and project needs. 4 Knowledge of types of contracts and their application to the scope of work and the project's service requirements (client, consultant, etc.). 5 Knowledge of methods for limiting professional liability (e.g., contractual allocation of risk, standard of care, client and project selection). 6 Knowledge of consultants (e.g., civil, structural, MEP, geotechnical), the services they provide, and their applications to meeting project requirements. 7 Knowledge of methods for evaluating own/firm's capabilities and capacities in relation to project requirements. 8 Knowledge of approaches for increasing the capability and/or capacity of the architect/firm to meet project requirements. 9 Knowledge of methods and procedures for identifying the regulatory agencies having jurisdiction over the project and their specific requirements. 10 Knowledge of methods for evaluating client goals and resources in order to identify/define the preliminary project requirements, budget, and schedule.

II. Project Management

Task Statements	Knowledge Statements
10 Implement strategies for managing contractual risk (QA/QC, peer review). 11 Implement strategies for managing and documenting communication (e.g., point of contact, reporting methods) between the architect, client, and team and between the design team and external parties (e.g., agencies, stakeholders). 12 Implement strategies to control risk and manage liability for the client (e.g., due diligence, accessibility). 13 Manage client expectations related to the contracted scope of work (e.g., milestones, decision points**)**. 14 Manage the distribution and review of documents for project coordination. 15 Establish documentation standards for the design team to support consistency and coordination. 16 Establish standards for addressing conflicts that arise during the design and construction process. 17 Conduct periodic progress meetings with design and project team to identify potential issues in work processes or team communication and develop plans to address the issues. 18 Review and update construction cost estimates as required by contract. 19 Manage the design team's fees, deliverables, and schedules to conform to contract.	11 Knowledge of procedures and standard practices for documenting contractual milestones (e.g., decisions, changes, approvals). 12 Knowledge of methods and techniques for communicating with client, project team, contractors, agencies, and stakeholders (e.g., meetings, emails, letters, minutes, transmittals, phone logs, visual aids). 13 Knowledge of architect's role and responsibilities for managing project and contractual risk for the architect and client. 14 Knowledge of methods and techniques for using technological resources (e.g., BIM/CAD, imaging software, web-based applications) to support communication with client and team. 15 Knowledge of the architect's role and responsibilities in orchestrating the architect's consultants and the entire project team. 16 Knowledge of the architect's professional and contractual responsibilities related to the client. 17 Knowledge of methods for controlling project costs (e.g., value engineering, life-cycle costing, cost estimating). 18 Knowledge of procedures for preparing and monitoring the project budget including hard and soft costs. 19 Knowledge of methods and procedures for allocating resources and managing in-house and consultant costs throughout all phases of architectural services. 20 Knowledge of methods and techniques for resolving conflicts that occur during design and construction.

III. Programming / Schematic Design

Task Statements	Knowledge Statements
20 Perform or evaluate site feasibility studies (e.g., size, gradient, infrastructure, environmental conditions) to clarify and address project requirements. 21 Assist client in evaluating design concepts based on budget, aesthetics, etc., to determine design direction. 22 Review program with client to validate project requirements and gain approval to proceed. 23 Provide consultants with program and background information to collaboratively develop the design concept. 24 Develop the project program using multiple approaches (e.g., surveys, interviews) to identify and evaluate user needs. 25 Present project to community groups and other stakeholders for their input and feedback. 26 Prepare models, renderings, sketches, etc., to help communicate project designs. 27 Present schematic design documents that meet program requirements to client to obtain client's input and approval. 28 Integrate sustainable design strategies and technologies into design. 29 Identify the specific requirements of regulatory agencies and discuss their incorporation into the design/program with client and design team. 30 Prepare and submit exhibits and application forms to governing agencies (e.g., Planning Department, Coastal Commission, Design Review Board) for discretionary approvals. 31 Work with agency staff to incorporate proposed conditions of discretionary approval into project documents.	21 Knowledge of methods, techniques, and procedures for conducting predesign services (e.g., programming, feasibility studies, site analysis). 22 Knowledge of methods for evaluating and finalizing the program to determine feasibility and conformance to client's project requirements. 23 Knowledge of methods for developing design solutions with the involvement of client, users, consultants, and stakeholders. 24 Knowledge of methods and procedures for developing the schematic design deliverables. 25 Knowledge of procedures for obtaining and interpreting data about the existing built environment to determine impacts on project. 26 Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction. 27 Knowledge of the impacts to project from environmental conditions (e.g., seismic activity, fire, winds, flood zone, hazardous materials) and their potential mitigations. 28 Knowledge of processes and procedures for obtaining discretionary approvals. 29 Knowledge of processes and procedures for compliance with local codes and ordinances related to design. 30 Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction. 31 Knowledge of methods and procedures for complying with California Coastal Act as it relates to design and construction.

III. Programming / Schematic Design (continued)

Task Statements	Knowledge Statements
32 Develop design concepts based on program requirements and constraints placed by applicable laws, local codes, ordinances, etc.	32 Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust). 33 Knowledge of methods and procedures for complying with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to the design and construction of hospitals, schools, fire/police stations, etc. 34 Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes. 35 Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction. 36 Knowledge of methods and procedures for complying with the California Health and Safety Code related to design and construction. 37 Knowledge of methods and procedures for complying with the California water quality regulations related to design and construction. 38 Knowledge of the Americans with Disabilities Act (ADA) with regard to how it impacts architectural practice (e.g., client and architect responsibilities, design, construction). 39 Knowledge of national standards (e.g., UL, ANSI, ASTM, Factory Mutual) relevant to design and construction. 40 Knowledge of methods and procedures for incorporating sustainable design strategies and technologies into design and construction.

IV. Design Development / Approvals

Task Statements	Knowledge Statements
33 Lead the preparation of design development documents that integrate the architectural design and engineered building systems. 34 Analyze and coordinate the selection and design of building systems (e.g., structural, mechanical, electrical, fire safety, security) with consultants. 35 Lead the project team in the integration of the regulatory requirements into the design development documents. 36 Coordinate design with input from client and the overall project team (e.g., general contractor, building official), and evaluate/incorporate their inputs based on project requirements. 37 Perform value engineering and life-cycle cost analyses to advise owner about approaches for managing project costs. 38 Review design development documents with client for compliance with project requirements and to gain approval to proceed. 39 Analyze and integrate the selection of sustainable design strategies and technologies into the design. 40 Incorporate final conditions of discretionary approval into project documents. 41 Conduct constructability review of Design Development documents.	41 Knowledge of methods and procedures for evaluating and integrating building systems (e.g., structural, mechanical, electrical, plumbing, life safety, conveying, building systems controls) into the project design. 42 Knowledge of methods and procedures for evaluating building materials (e.g., material characteristics, performance, testing standards) for selection into the project design. 43 Knowledge of methods for incorporating sustainable design (e.g., energy conservation, resource management, indoor air quality) into project design and construction. 44 Knowledge of methods for identifying and evaluating the implications of special conditions (e.g., based on loading, soils, uses) on design and construction. 45 Knowledge of contents of design drawings and related documents required for agency approvals. 46 Knowledge of architect's role and responsibilities in leading project team in order to obtain necessary agency approvals at the appropriate time. 47 Knowledge of methods for analyzing initial and life-cycle costs to select materials and systems for project. 48 Knowledge of methods for performing a QA/QC review of Design Development documents including constructability. 49 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc.

IV. Design Development / Approvals (continued)

Task Statements	Knowledge Statements
	50 Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc. 51 Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC). 52 Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc. 53 Knowledge of methods and procedures for demonstrating design compliance with federal laws and authorities: ADA, Army Corps of Engineers, FAA, etc. 54 Knowledge of methods and procedures for demonstrating design compliance with National Standards: NFPA, ASTM, etc.

V. Construction Documents / Permitting

Task Statements	Knowledge Statements
42 Coordinate the preparation of the construction documents (e.g., architectural, structural, mechanical, civil, electrical, specs) and resolve potential conflicts or errors. 43 Modify construction documents based on changes in cost estimates including developing bidding alternates for client to consider. 44 Manage distribution and review of documents during the construction document and permit phases. 45 Prepare construction documents that meet program requirements and project goals, and present to client for approval. 46 Prepare construction documents and verify conformance with the conditions of prior agency approvals and applicable codes and regulations. 47 Perform a detailed review of construction documents for constructability and incorporate changes into final documents. 48 Manage the submittal of construction documents to regulatory agencies through initial submittal, coordinating responses, and obtaining approvals.	55 Knowledge of methods for performing a QA/QC review of construction documents including constructability, code compliance, etc. 56 Knowledge of the architect's role in reconciling client's budget with probable construction costs. 57 Knowledge of methods and procedures for managing the distribution and review of documents during the construction document and permit phases. 58 Knowledge of methods and procedures for presenting contract documents to client for approval. 59 Knowledge of contents of contract documents (e.g., construction drawings, specifications, project manual) required for agency approval, bidding, and construction. 60 Knowledge of methods for the detailed integration of building systems (e.g., clash detection, interdisciplinary overlays). 61 Knowledge of methods for documenting the anchoring of nonstructural elements as defined by the California Building Code (e.g., fixtures and equipment items, nonbearing partitions, suspended ceilings). 62 Knowledge of processes and procedures for working with regulatory agencies having jurisdiction over the project to obtain final approvals (local, regional, State, federal). 63 Knowledge of interrelationships between regulatory agencies and their impact on the approval process (e.g., sequence of approvals, hierarchy of jurisdictions). 64 Knowledge of the architect's role in resolving conflicts between agencies regarding conflicting codes, regulations, and standards.

VI. Project Bidding and Construction

Task Statements	Knowledge Statements
49 Assist client in the bidding process (e.g., distribute documents, conduct pre-bid meetings, prepare addenda). 50 Assist client in selecting contractors and negotiating construction contracts. 51 Prepare bid documents appropriate to the selected delivery method. 52 Manage the initiation/processing of documents to record construction changes (e.g., Construction Change Directives, Architect's Supplemental Instructions, Change Orders). 53 Participate in pre-construction and pre-installation meetings with contractor as required by the contract documents. 54 Monitor project construction costs and schedule (e.g., review and certify contractor applications for payment, verify lien releases). 55 Review test, inspection, observation schedules, programs and reports for conformance with construction documents. 56 Review shop drawings and submittals during construction for conformance with design intent. 57 Conduct periodic site observations/field reports to confirm that construction is in general conformance with contract documents. 58 Respond to contractor Requests for Information. 59 Assist client with evaluating possible changes to the project during construction (e.g., cost, scope, schedule, quality). 60 Manage project close-out procedures (e.g., Certificate of Substantial Completion, Notice of Completion, verification of final lien releases, verification of public agency approvals) per contract 61 Conduct post-construction services (e.g., post-occupancy evaluations, extended commissioning, record drawings) per contract.	65 Knowledge of methods and procedures for preparing bidding documents based on project funding source (private/public) and delivery method. 66 Knowledge of architect's role and responsibilities related to construction bidding and negotiation processes. 67 Knowledge of the provisions of the California Public Contract Code related to the bidding and contracting requirements for publicly funded projects. 68 Knowledge of California laws related to design professional and contractor liens and their implications for the architect's and client's responsibilities. 69 Knowledge of the limits of the architect's role and responsibilities during construction (e.g., directing subcontractors, means and methods). 70 Knowledge of the interrelationships and responsibilities between the owner, architect, and contractor during construction. 71 Knowledge of methods for resolving conflicts that occur during construction (e.g., mediation, arbitration, litigation). 72 Knowledge of methods and procedures for developing and reviewing the contract documents package. 73 Knowledge of procedures for determining general conformance of construction with contract documents (e.g., observation, submittal reviews, RFIs). 74 Knowledge of methods and procedures for implementing changes during construction (e.g., Architect's Supplemental Instructions, Change Orders). 75 Knowledge of procedures for monitoring construction costs and schedules (e.g., reviewing and certifying payments to contractor, reviewing lien releases).

VI. Project Bidding and Construction (continued)

Task Statements	Knowledge Statements
62 Assist owner with resolving post-occupancy issues, (e.g., evaluation of building performance, warranty issues).	76 Knowledge of procedures for performing project close-out (e.g., Certificate of Substantial Completion, Notice of Completion, final lien releases). 77 Knowledge of the California construction laws related to minimum warranty periods. 78 Knowledge of code-required special inspections and testing (e.g., field welding, high-strength concrete). 79 Knowledge of State inspection, testing, reporting, and documentation requirements for construction of hospitals, public schools, and essential services buildings. 80 Knowledge of the architect's role and responsibilities in providing contract administration services based on the client-architect agreement. 81 Knowledge of post-construction services (e.g., extended building commissioning, record document preparation, operational and maintenance programming, facilities management, post-occupancy evaluation). 82 Knowledge of the architect's role and responsibilities to client regarding changes to project during construction (e.g., cost, scope, schedule, quality).

APPENDIX E. EMAIL TO PRACTITIONERS

Dear Licensee:

You have been selected by the California Architects Board to participate in the 2014 Architect Occupational Survey. The purpose of the survey is to gather data on the job tasks performed by Architects as well as the knowledge and abilities required to perform those tasks. Your participation is essential to the success of this project.

You may complete the survey all at one sitting or return to it multiple times. Your individual response will be confidential. The Survey may be found at:

https://www.surveymonkey.com/s.aspx?sm=KkNx_2fSW_2bKTUWNWj0Zpsn6Q_3d_3d

Please complete the survey by July 18, 2014.

Any questions, please contact Justin Sotelo at Justin.sotelo@dca.ca.gov or 916 575-7216.

Your participation is essential to the success of this project.

CALIFORNIA ARCHITECTS BOARD

APPENDIX F. QUESTIONNAIRE

Architect Occupational Analysis

1. COVER LETTER

Dear Licensee:

The California Architects Board (Board) is conducting an occupational analysis of the Architect profession. The purpose of the occupational analysis is to identify the important tasks performed by Architects in current practice and the knowledge required to perform those tasks. Results of the occupational analysis will be used to update and improve the Architect California Supplemental Examination.

The Board requests your assistance in this process. Please take the time to complete the survey questionnaire as it relates to your current practice. Your participation ensures that all aspects of the profession are covered and is essential to the success of this project.

Your individual responses will be kept confidential. Your responses will be combined with responses of other Architects and only group trends will be reported. Your personal information will not be tied to your responses.

In order to progress through this survey, please use the following navigation buttons:

- • Click the **Next** button to continue to the next page.
  • Click the **Prev** button to return to the previous page.
  • Click the **Exit this survey** button to exit the survey and return to it at a later time.
  • Click the **Done/Submit** button to submit your survey as completed.

Any questions marked with an asterisk (*) require an answer in order to progress through the survey questionnaire.

Please Note: The survey automatically saves fully-completed pages, but will **not** save responses to questions on pages that were partially completed when the survey was exited. Once you have started the survey, you can exit at any time and return to it later without losing your responses as long as you fully completed the page before logging out and are accessing the survey from the same computer. For your convenience, the weblink is available 24 hours a day 7 days a week.

Please submit the completed survey questionnaire by July 18, 2014.

If you have any questions about completing this survey, please contact Justin Sotelo of CAB, Justin.Sotelo@dca.ca.gov; (916) 575-7216. The Board welcomes your participation in this project and thanks you for your time.

INSTRUCTIONS FOR COMPLETING THE DEMOGRAPHIC ITEMS

This part of the questionnaire contains an assortment of demographic items, the responses to which will be used to describe Architect practice as represented by the respondents to the questionnaire. Please note the instructions for each item before marking your response as several permit multiple responses.

INSTRUCTIONS FOR RATING TASK AND KNOWLEDGE STATEMENTS

This part of the questionnaire contains a list of tasks and knowledge descriptive of Architect practice in a variety of settings. Please note that some of the tasks or knowledge may not apply to your setting.

For each task, you will be asked to answer two questions: how often you perform the task **(frequency)** and how important the task is in the performance of your current practice **(importance)**. For each knowledge, you will be asked to answer one question: how important the knowledge is in the performance of your current practice **(importance)**.

Please rate each task and knowledge as it relates to your current practice as a licensed Architect. **Do not respond based on what you believe all Architects should be expected to know or be able to do.**

2. ARCHITECT OCCUPATIONAL ANALYSIS

The California Architects Board recognizes that every Architect practitioner may not perform all of the tasks and use all of the knowledge contained in this questionnaire. However, your participation is essential to the success of this project, and your contributions will help establish standards for safe and effective Architect practice in the state of California.

Complete this questionnaire only if you are currently licensed and practicing as an Architect in California.

3. PART I PERSONAL DATA

The information you provide here is voluntary and confidential. It will be treated as personal information subject to the Information Practices Act (Civil Code, Section 1798 et seq.) and it will be used only for the purpose of analyzing the ratings from this questionnaire.

4.

***1. Are you currently licensed and practicing in California as an Architect?**

- ◯ Yes
- ◯ No

5.

1. How many years have you been licensed and practicing in California?

- ◯ 0 to 5 years
- ◯ 6 to 10 years
- ◯ 11 to 20 years
- ◯ More than 20 years

2. How many years did you work in architecture before obtaining licensure in California?

- ◯ 0 to 3 years
- ◯ 4 to 6 years
- ◯ 7 to 10 years
- ◯ 11 to 15 years
- ◯ More than 15 years

3. How would describe your primary work setting?

- ◯ Architecture firm (as individual or group)
- ◯ Multidisciplinary firm
- ◯ Governmental agency
- ◯ Institution (e.g., hospital, school)
- ◯ Non-design Company (hotel, utility company, etc.)
- ◯ Construction firm
- ◯ Other (please specify)

4. How many other licensed Architects work in your organization?

- ◯ None
- ◯ 1 to 5
- ◯ 6 to 10
- ◯ More than 10

5. How many employees other than Architects work in your organization?

- ◯ None
- ◯ 1 to 10
- ◯ 11 to 20
- ◯ 21 to 30
- ◯ More than 30

6. How many hours per week do you work as an Architect?

- ◯ 0 to 10 hours
- ◯ 11 to 20 hours
- ◯ 21 to 39 hours
- ◯ 40 or more hours

7. What is the highest level of education you have completed?

- ◯ Technical certificate
- ◯ Associate's degree
- ◯ Bachelor’s degree
- ◯ Master’s degree
- ◯ Doctorate degree

8. In what major field of study did you receive your certificate or degree in?

Certificate program	
AA Degree	
BA/BS	
MA/MS	
Ph.D.	

9. Which of the following project types would you consider to be a specialty based on your expertise and experience? (Mark all that apply)

- ☐ Education (Community college, universities, K-12)
- ☐ Health care (Hospitals, clinics)
- ☐ Commercial (Office, mixed-use)
- ☐ Industrial (Factories, warehouse, utilities)
- ☐ Hospitality (Hotel, restaurant)
- ☐ Residential (Single-family, multifamily)
- ☐ Institutional (Military, justice, fire/police stations)

10. Over the past 5 years, what percentage of your work was performed in each of the following three areas? (use whole numbers; numbers should add to 100)

CA	
Other States	
International	

11. Over the past 5 years, what percentage of your work was performed for each of the following project clients? (use whole numbers; numbers should add to 100)

Government Agencies	
Private companies	
Non-profits	
Individual homeowners	

12. Which of the following licenses do you possess in addition to CA Architect? (Mark all that apply)

- ☐ Contractor
- ☐ Architect
- ☐ Engineer
- ☐ Architect (out of State)

13. Which of the following certificates do you possess? (mark all that apply)

- ☐ CA Access Specialist (CaASp)
- ☐ ACHA (health care)
- ☐ LEED
- ☐ CPM (project management)
- ☐ CCS (Certified Construction Specifier)
- ☐ CDT
- ☐ NCIDQ

14. On the average what percentage of your time is spent performing each of the following tasks in the course of your work? (use whole numbers; numbers should add to 100)

Construction documents	
Construction administration	
Agency review/approval	
Management/Administration	
Project Management	
Design	
Programming / Pre-Design	
Post-occupancy services	
Specification Writing	
QA/QC	
Bid Coordination	

15. Over the past 5 years, what percentage of your work was performed using each of the project delivery methods? (use whole numbers; numbers should add to 100)

Design – build	
Design – bid – build	
Integrated project delivery	
Public/private partnership	
Design – Owner Build	
Other (percentage)	

16. Over the past 5 years, what percentage of your work was performed using each of the following construction contract arrangements below? (use whole numbers; numbers should add to 100)

Guaranteed Max Price

Design – bid – build

Construction Management at Risk

Fee plus Cost

Multi-Prime

17. What percentage of the information exchange with each of the following parties is being done using electronic documents (e.g., texts/email, PDFs, Word docs)? (enter a percent between 0-100; use whole numbers)

Consultants

Contractors

Agency submittals

Owners

18. What percentage of your projects use BIM (Building Information Modeling)? (enter a percent between 0-100, use whole numbers,)

Percent of projects:

19. What percentage of your clients require BIM (Building Information Modeling) as part of their requested services? (enter a percent between 0-100, use whole numbers)

Percent of clients:

20. Over the past 5 years, what percentage of the design team consultants you worked with used BIM to generate their drawings? (enter a percent between 0 and 100; use whole numbers)

Percent of consultants

21. In what capacity do you or your firm perform BIM for your consultants:

	Yes	No
As part of your contract for project delivery?	◯	◯
As an added service?	◯	◯

22. Which type of setting best describes your primary work location?

☐ Urban (greater than 50,000 people)

☐ Rural (less than 50,000 people)

23. In what California county is your primary practice located?

- ◯ Alameda
- ◯ Alpine
- ◯ Amador
- ◯ Butte
- ◯ Calaveras
- ◯ Colusa
- ◯ Contra Costa
- ◯ Del Norte
- ◯ El Dorado
- ◯ Fresno
- ◯ Glenn
- ◯ Humboldt
- ◯ Imperial
- ◯ Inyo
- ◯ Kern
- ◯ Kings
- ◯ Lake
- ◯ Lassen
- ◯ Los Angeles
- ◯ Madera
- ◯ Marin
- ◯ Mariposa
- ◯ Mendocino
- ◯ Merced
- ◯ Modoc
- ◯ Mono
- ◯ Monterey
- ◯ Napa
- ◯ Nevada
- ◯ Orange
- ◯ Placer
- ◯ Plumas
- ◯ Riverside
- ◯ Sacramento
- ◯ San Benito
- ◯ San Bernardino
- ◯ San Diego
- ◯ San Francisco
- ◯ San Joaquin
- ◯ San Luis Obispo
- ◯ San Mateo
- ◯ Santa Barbara
- ◯ Santa Clara
- ◯ Santa Cruz
- ◯ Shasta
- ◯ Sierra
- ◯ Siskiyou
- ◯ Solano
- ◯ Sonoma
- ◯ Stanislaus
- ◯ Sutter
- ◯ Tehama
- ◯ Trinity
- ◯ Tulare
- ◯ Tuolumne
- ◯ Ventura
- ◯ Yolo
- ◯ Yuba

6. PART II RATING JOB TASKS

In this part of the questionnaire, please rate each task as it relates to your current practice as an Architect. Your Frequency and Importance ratings should be separate and independent ratings. Therefore, the ratings that you assign from one rating scale should not influence the ratings that you assign from the other rating scale.

If the task is NOT part of your current practice, rate the task “0“ (zero) Frequency and “0” (zero) Importance.

The boxes for rating the Frequency and Importance of each task have drop-down lists. Click on the "down" arrow for each list to see the ratings and then select the option based on your current job.

FREQUENCY RATING

How often are these tasks performed in your current job?
Use the following scale to make your rating.

0 - DOES NOT APPLY TO MY PRACTICE. I do not perform this task in my job.

1 - RARELY. This task is one of the tasks I perform least often in my practice relative to other tasks I perform.

2 - SELDOM. This task is performed less often relative to other tasks I perform in my practice.

3 - REGULARLY. This task is performed as often as other tasks I perform in my practice.

4 - OFTEN. This task is performed more often than most other tasks I perform in my practice.

5 - VERY OFTEN. This task is one of the tasks I perform most often in my practice.

IMPORTANCE RATING

HOW IMPORTANT are these tasks in the performance of your current practice?
Use the following scale to make your ratings.

0 - NOT IMPORTANT; DOES NOT APPLY TO MY PRACTICE. I do not perform this task in my practice.

1 - OF MINOR IMPORTANCE. This task is of minor importance for effective performance relative to other tasks; it has the lowest priority of all the tasks I perform in my current practice.

2 - FAIRLY IMPORTANT. This task is fairly important for effective performance relative to other tasks; however, it does not have the priority of most other tasks I perform in my current practice.

3 - MODERATELY IMPORTANT. This task is moderately important for effective performance relative to other tasks; it has average priority of all the tasks I perform in my current job.

4 - VERY IMPORTANT. This task is very important for performance in my practice; it has a higher degree of priority than most other tasks I perform in my current practice.

5 - CRITICALLY IMPORTANT. This task is one of the most critical tasks I perform in practice; it has the highest degree of priority of all the tasks I perform in my current practice.

1. TASK STATEMENTS

	Frequency	Importance
1. Advertise and solicit services in compliance with professional and legal requirements.		
2. Evaluate the project's opportunities and constraints for alignment with client goals and requirements.		
3. Assess preliminary project requirements including budget and schedule relative to own firm's/organization's business goals, resources, and expertise.		
4. Evaluate potential contractual risks and determine strategies to manage them.		
5. Collaborate with client to determine scope of work, project delivery method, deliverables, and compensation, etc., to prepare owner-architect agreement.		
6. Identify the local, state, and federal regulatory jurisdictions impacting project.		
7. Identify the project team members (e.g., architects, engineers, specialty consultants) and who is responsible for the contracting, management, and coordination of each member.		
8. Collaborate with client to determine the specific roles and responsibilities of project participants (e.g., owner's representative, architect, contractor, construction manager).		
9. Solicit the consultants to be contracted under the architect and evaluate their qualifications and scope of services based on project requirements.		
10. Implement strategies for managing contractual risk (QA/QC, peer review).		
11. Implement strategies for managing and documenting communication (e.g., point of contact, reporting methods) between the architect, client, and team and between the design team and external parties (e.g., agencies, stakeholders).		

12. Implement strategies to control risk and manage liability for the client (e.g., due diligence, accessibility).		
13. Manage client expectations related to the contracted scope of work (e.g., milestones, decision points).		
14. Manage the distribution and review of documents for project coordination.		
15. Establish documentation standards for the design team to support consistency and coordination.		
16. Establish standards for addressing conflicts that arise during the design and construction process.		
17. Conduct periodic progress meetings with design and project team to identify potential issues in work processes or team communication and develop plans to address the issues.		
18. Review and update construction cost estimates as required by contract.		
19. Manage the design team's fees, deliverables, and schedules to conform to contract.		
20. Perform or evaluate site feasibility studies (e.g., size, gradient, infrastructure, environmental conditions) to clarify and address project requirements.		
21. Assist client in evaluating design concepts based on budget, aesthetics, etc., to determine design direction.		
22. Review program with client to validate project requirements and gain approval to proceed.		
23. Provide consultants with program and background information to collaboratively develop the design concept.		
24. Develop the project program using multiple approaches (e.g., surveys, interviews) to identify and evaluate user needs.		
25. Present project to community groups and other stakeholders for their input and feedback.		

2. TASK STATEMENTS

	Frequency	Importance
26. Prepare models, renderings, sketches, etc., to help communicate project designs.		
27. Present schematic design documents that meet program requirements to client to obtain client's input and approval.		
28. Integrate sustainable design strategies and technologies into design.		
29. Identify the specific requirements of regulatory agencies and discuss their incorporation into the design/program with client and design team.		
30. Prepare and submit exhibits and application forms to governing agencies (e.g., Planning Department, Coastal Commission, Design Review Board) for discretionary approvals.		
31. Work with agency staff to incorporate proposed conditions of discretionary approval into project documents.		
32. Develop design concepts based on program requirements and constraints placed by applicable laws, local codes, ordinances, etc.		
33. Lead the preparation of design development documents that integrate the architectural design and engineered building systems.		
34. Analyze and coordinate the selection and design of building systems (e.g., structural, mechanical, electrical, fire safety, security) with consultants.		
35. Lead the project team in the integration of the regulatory requirements into the design development documents.		
36. Coordinate design with input from client and the overall project team (e.g., general contractor, building official), and evaluate/incorporate their inputs based on project requirements.		
37. Perform value engineering and life-cycle cost analyses to advise owner about approaches for managing project costs.		
38. Review design development documents with client for compliance with project requirements and to gain approval		

to proceed.		
39. Analyze and integrate the selection of sustainable design strategies and technologies into the design.		
40. Incorporate final conditions of discretionary approval into project documents.		
41. Conduct constructability review of Design Development documents.		
42. Coordinate the preparation of the construction documents (e.g., architectural, structural, mechanical, civil, electrical, specs) and resolve potential conflicts or errors.		
43. Modify construction documents based on changes in cost estimates including developing bidding alternates for client to consider.		
44. Manage distribution and review of documents during the construction document and permit phases.		
45. Prepare construction documents that meet program requirements and project goals, and present to client for approval.		
46. Prepare construction documents and verify conformance with the conditions of prior agency approvals and applicable codes and regulations.		
47. Perform a detailed review of construction documents for constructability and incorporate changes into final documents.		
48. Manage the submittal of construction documents to regulatory agencies through initial submittal, coordinating responses, and obtaining approvals.		
49. Assist client in the bidding process (e.g., distribute documents, conduct pre-bid meetings, prepare addenda).		
50. Assist client in selecting contractors and negotiating construction contracts.		

3. TASK STATEMENTS

	Frequency	Importance
51. Prepare bid documents appropriate to the selected delivery method.		
52. Manage the initiation/processing of documents to record construction changes (e.g., Construction Change Directives, Architect's Supplemental Instructions, Change Orders).		
53. Participate in pre-construction and pre-installation meetings with contractor as required by the contract documents.		
54. Monitor project construction costs and schedule (e.g., review and certify contractor applications for payment, verify lien releases).		
55. Review test, inspection, observation schedules, programs and reports for conformance with construction documents.		
56. Review shop drawings and submittals during construction for conformance with design intent.		
57. Conduct periodic site observations/field reports to confirm that construction is in general conformance with contract documents.		
58. Respond to contractor Requests for Information.		
59. Assist client with evaluating possible changes to the project during construction (e.g., cost, scope, schedule, quality).		
60. Manage project close-out procedures (e.g., Certificate of Substantial Completion, Notice of Completion, verification of final lien releases, verification of public agency approvals) per contract		
61. Conduct post-construction services (e.g., post-occupancy evaluations, extended commissioning, record drawings) per contract.		
62. Assist owner with resolving post-occupancy issues, (e.g., evaluation of building performance, warranty issues).		

7. PART III. RATING JOB KNOWLEDGE

In this part of the questionnaire, rate each of the knowledge statements based on how important the knowledge is to successful performance in your practice. If a knowledge statement is NOT part of your job, then rate it “0” (zero) for Importance.

The boxes for rating the Importance of each knowledge statement have a drop-down list. Click on the “down” arrow for each list to see the ratings. Then select the rating based on your current practice.

IMPORTANCE RATING

HOW IMPORTANT is this knowledge in the performance of your current practice?
Use the following scale to make your ratings.

0 DOES NOT APPLY TO MY PRACTICE; NOT REQUIRED; this knowledge is not required to perform in my practice.

1 OF MINOR IMPORTANCE; this knowledge is of minor importance for performance of my practice relative to all other knowledge.

2 FAIRLY IMPORTANT; this knowledge is fairly important for performance of my practice relative to all other knowledge.

3 MODERATELY IMPORTANT; this knowledge is moderately important for performance of my practice relative to all other knowledge.

4 VERY IMPORTANT; this knowledge is very important for performance of my practice relative to all other knowledge.

5 CRITICALLY IMPORTANT; this knowledge is essential for performance of my practice relative to all other knowledge.

Architect Occupational Analysis

1. Knowledge Statements

	Importance
1. Knowledge of the provisions of the Architect's Practice Act and CA Code of Regulations related to architect's business and professional requirements (e.g., contracts, architectural corporations, responsible control, architect's stamp).	
2. Knowledge of different project delivery methods and the architect's and project team's corresponding roles and responsibilities (e.g., to client, as part of team).	
3. Knowledge of options for tailoring architectural services to meet the client and project needs.	
4. Knowledge of types of contracts and their application to the scope of work and the project's service requirements (client, consultant, etc.).	
5. Knowledge of methods for limiting professional liability (e.g., contractual allocation of risk, standard of care, client and project selection).	
6. Knowledge of consultants (e.g., civil, structural, MEP, geotechnical), the services they provide, and their applications to meeting project requirements.	
7. Knowledge of methods for evaluating own/firm's capabilities and capacities in relation to project requirements.	
8. Knowledge of approaches for increasing the capability and/or capacity of the architect/firm to meet project requirements.	
9. Knowledge of methods and procedures for identifying the regulatory agencies having jurisdiction over the project and their specific requirements.	
10. Knowledge of methods for evaluating client goals and resources in order to identify/define the preliminary project requirements, budget, and schedule.	
11. Knowledge of procedures and standard practices for documenting contractual milestones (e.g., decisions, changes, approvals).	
12. Knowledge of methods and techniques for communicating with client, project team, contractors, agencies, and stakeholders (e.g., meetings, emails, letters, minutes, transmittals, phone logs, visual aids).	
13. Knowledge of architect's role and responsibilities for managing project and contractual risk for the architect and client.	
14. Knowledge of methods and techniques for using technological resources (e.g., BIM/CAD, imaging software, web-based applications) to support communication with client and team.	
15. Knowledge of the architect's role and responsibilities in orchestrating the architect's consultants and the entire project team.	
16. Knowledge of the architect's professional and contractual responsibilities related to the client.	
17. Knowledge of methods for controlling project costs (e.g., value engineering, life-cycle costing, cost estimating).	

18. Knowledge of procedures for preparing and monitoring the project budget including hard and soft costs.	
19. Knowledge of methods and procedures for allocating resources and managing in-house and consultant costs throughout all phases of architectural services.	
20. Knowledge of methods and techniques for resolving conflicts that occur during design and construction.	
21. Knowledge of methods, techniques, and procedures for conducting predesign services (e.g., programming, feasibility studies, site analysis).	
22. Knowledge of methods for evaluating and finalizing the program to determine feasibility and conformance to client's project requirements.	
23. Knowledge of methods for developing design solutions with the involvement of client, users, consultants, and stakeholders.	
24. Knowledge of methods and procedures for developing the schematic design deliverables.	
25. Knowledge of procedures for obtaining and interpreting data about the existing built environment to determine impacts on project.	
26. Knowledge of environmental conditions regulated in California (e.g., wetlands, coastal regions, habitats of endangered species) related to design and construction.	
27. Knowledge of the impacts to project from environmental conditions (e.g., seismic activity, fire, winds, flood zone, hazardous materials) and their potential mitigations.	
28. Knowledge of processes and procedures for obtaining discretionary approvals.	
29. Knowledge of processes and procedures for compliance with local codes and ordinances related to design.	
30. Knowledge of methods and procedures for complying with the California Environmental Quality Act (CEQA) related to design and construction.	

2. Knowledge Statements

	Importance
31. Knowledge of methods and procedures for complying with California Coastal Act as it related to design and construction.	
32. Knowledge of methods and procedures for complying with California Clean Air Act related to design and construction (e.g., air quality requirements for dust mitigation, limitations on generator exhaust).	
33. Knowledge of methods and procedures for complying with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to the design and construction of hospitals, schools, fire/police stations, etc.	
34. Knowledge of what is encompassed by the California Building Standards Code (e.g., building, electrical, mechanical, plumbing, energy) and how the CBSC is distinct from the model codes.	
35. Knowledge of methods and procedures for complying with provisions of the California Building Standards Code related to design and construction.	
36. Knowledge of methods and procedures for complying with the California Health and Safety Code related to design and construction.	
37. Knowledge of methods and procedures for complying with the California water quality regulations related to design and construction.	
38. Knowledge of the Americans with Disabilities Act (ADA) with regard to how it impacts architectural practice (e.g., client and architect responsibilities, design, construction).	
39. Knowledge of national standards (e.g., UL, ANSI, ASTM, Factory Mutual) relevant to design and construction.	
40. Knowledge of methods and procedures for incorporating sustainable design strategies and technologies into design and construction.	
41. Knowledge of methods and procedures for evaluating and integrating building systems (e.g., structural, mechanical, electrical, plumbing, life safety, conveying, building systems controls) into the project design.	
42. Knowledge of methods and procedures for evaluating building materials (e.g., material characteristics, performance, testing standards) for selection into the project design.	
43. Knowledge of methods for incorporating sustainable design (e.g., energy conservation, resource management, indoor air quality) into project design and construction.	
44. Knowledge of methods for identifying and evaluating the implications of special conditions (e.g., based on loading, soils, uses) on design and construction.	
45. Knowledge of contents of design drawings and related documents required for agency approvals.	

46. Knowledge of architect's role and responsibilities in leading project team in order to obtain necessary agency approvals at the appropriate time.	
47. Knowledge of methods for analyzing initial and life-cycle costs to select materials and systems for project.	
48. Knowledge of methods for performing a QA/QC review of Design Development documents including constructability.	
49. Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements for environmental quality: CEQA, Coastal Act, Clean Air Act, water quality regulations, etc.	
50. Knowledge of methods and procedures for demonstrating design compliance with State regulatory requirements (e.g., Essential Services Building Seismic Safety Act, Field Act, Hospital Facilities Seismic Safety Act) related to design and construction of hospitals, schools, fire/police stations, etc.	
51. Knowledge of methods and procedures for demonstrating design compliance with California Building Standards Code (CBSC).	
52. Knowledge of methods and procedures for demonstrating design compliance with local regulations: zoning, planning, general plan, CBSC modifications, etc.	
53. Knowledge of methods and procedures for demonstrating design compliance with federal laws and authorities: ADA, Army Corps of Engineers, FAA, etc.	
54. Knowledge of methods and procedures for demonstrating design compliance with National Standards: NFPA, ASTM, etc.	
55. Knowledge of methods for performing a QA/QC review of construction docs including constructability, code compliance, etc.	
56. Knowledge of the architect’s role in reconciling client’s budget with probable construction costs.	
57. Knowledge of methods and procedures for managing the distribution and review of documents during the construction document and permit phases.	
58. Knowledge of methods and procedures for presenting contract documents to client for approval.	
59. Knowledge of contents of contract documents (e.g., construction drawings, specifications, project manual) required for agency approval, bidding, and construction.	
60. Knowledge of methods for the detailed integration of building systems (e.g., clash detection, interdisciplinary overlays).	

3. Knowledge Statements

	Importance
61. Knowledge of methods for documenting the anchoring of nonstructural elements as defined by the California Building Code (e.g., fixtures and equipment items, nonbearing partitions, suspended ceilings).	
62. Knowledge of processes and procedures for working with regulatory agencies having jurisdiction over the project to obtain final approvals (local, regional, State, federal).	
63. Knowledge of interrelationships between regulatory agencies and their impact on the approval process (e.g., sequence of approvals, hierarchy of jurisdictions).	
64. Knowledge of the architect's role in resolving conflicts between agencies regarding conflicting codes, regulations, and standards.	
65. Knowledge of methods and procedures for preparing bidding documents based on project funding source (private/public) and delivery method.	
66. Knowledge of architect's role and responsibilities related to construction bidding and negotiation processes.	
67. Knowledge of the provisions of the California Public Contract Code related to the bidding and contracting requirements for publicly funded projects.	
68. Knowledge of California laws related to design professional and contractor liens and their implications for the architect's and client's responsibilities.	
69. Knowledge of the limits of the architect's role and responsibilities during construction (e.g., directing subcontractors, means and methods).	
70. Knowledge of the interrelationships and responsibilities between the owner, architect, and contractor during construction.	
71. Knowledge of methods for resolving conflicts that occur during construction (e.g., mediation, arbitration, litigation).	
72. Knowledge of methods and procedures for developing and reviewing the contract documents package.	
73. Knowledge of procedures for determining general conformance of construction with contract documents (e.g., observation, submittal reviews, RFIs).	
74. Knowledge of methods and procedures for implementing changes during construction (e.g., Architect's Supplemental Instructions, Change Orders).	
75. Knowledge of procedures for monitoring construction costs and schedules (e.g., reviewing and certifying payments to contractor, reviewing lien releases).	
76. Knowledge of procedures for performing project close-out (e.g., Certificate of Substantial Completion, Notice of Completion, final lien releases).	
77. Knowledge of the California construction laws related to minimum warranty periods.	
78. Knowledge of code-required special inspections and testing (e.g., field	

welding, high-strength concrete).

79. Knowledge of State inspection, testing, reporting, and documentation requirements for construction of hospitals, public schools, and essential services buildings.	
80. Knowledge of the architect's role and responsibilities in providing contract administration services based on the client-architect agreement.	
81. Knowledge of post-construction services (e.g., extended building commissioning, record document preparation, operational and maintenance programming, facilities management, post-occupancy evaluation).	
82. Knowledge of the architect's role and responsibilities to client regarding changes to project during construction (e.g., cost, scope, schedule, quality).	

8. FINISHED

THANK YOU FOR COMPLETING THIS SURVEY QUESTIONNAIRE.