

Council for Interior Design Qualification (CIDQ) Interior Designer Practice Analysis Study



**Test Development
Solutions**

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We would like to thank the many individuals who provided invaluable assistance throughout the conduct of the Council for Interior Design Qualification (CIDQ) Interior Designer Practice Analysis Study.

Above all, we thank the many dedicated professionals who generously contributed their time and expertise. Over 700 individuals participated in different phases of the practice analysis; including Task Force members, pilot survey participants, survey respondents, and Test Specifications members.

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
TABLE OF CONTENTS	ii
LIST OF FIGURES.....	iii
LIST OF TABLES.....	iv
LIST OF APPENDICES.....	v
EXECUTIVE SUMMARY	vi
SURVEY RATINGS	VII
INTRODUCTION	1
PRACTICE ANALYSIS STUDY AND ADHERENCE TO PROFESSIONAL STANDARDS	1
METHOD.....	3
1. CONDUCT OF A PLANNING MEETING.....	3
2. DEVELOPMENT OF THE SURVEY	4
3. DISSEMINATION OF THE SURVEY.....	8
4. ANALYSIS OF THE SURVEY DATA.....	8
5. DEVELOPMENT OF THE TEST SPECIFICATIONS	9
RESULTS.....	10
SURVEY RESPONSES	10
DEMOGRAPHIC CHARACTERISTICS OF SURVEY RESPONDENTS	10
DEMOGRAPHIC FIGURES.....	10
TASKS	19
SUBGROUP ANALYSIS OF TASK AND KNOWLEDGE RATINGS	21
CONTENT COVERAGE RATINGS	23
TEST CONTENT RECOMMENDATIONS	24
WRITE-IN COMMENTS	25
DEVELOPMENT OF TEST SPECIFICATIONS	26
PRESENTATION OF THE PRACTICE ANALYSIS SURVEY AND RESULTS TO THE TEST SPECIFICATIONS COMMITTEE	26
IDENTIFICATION OF THE TASK AND KNOWLEDGE TO BE INCLUDED ON THE CIDQ EXAMS	26
TASKS RECOMMENDED FOR INCLUSION	26
KNOWLEDGE RECOMMENDED FOR INCLUSION	27
DIVISION OF TEST CONTENT	29
COGNITIVE LEVEL GUIDELINES	29
DEVELOPMENT OF TEST CONTENT WEIGHTS.....	30
LINKAGE OF TASK AND KNOWLEDGE STATEMENTS	31
SUMMARY AND CONCLUSIONS.....	32

LIST OF FIGURES

Figure	Page
1. Demographic Question 1a. How long have you been an NCIDQ Certificate holder?	10
2. Demographic Question 2. Are you currently working in interior design or a related field (e.g., architects, educators)?	11
3. Demographic Question 2a. How long have you been working in interior design or a related field?	11
4. Demographic Question 2b. Why are you currently not working in interior design or a related field?	12
5. Demographic Question 3. What is your current employment status?	12
6. Demographic Question 4. With what type of organization are you currently employed?	13
7. Demographic Question 5. What is your primary role in your organization?	13
8. Demographic Question 6. Do you supervise/mentor entry-level interior designers?	14
9. Demographic Question 7. How many interior designers are on staff at your primary place of employment (local office)?	14
10. Demographic Question 8. How many total employees are on staff at your primary place of employment (local office)?	15
11. Demographic Question 9. What is your primary area of Interior Design expertise?	15
12. Demographic Question 11. In what state, province, or jurisdiction is your primary employment located (local office)?	16
13. Demographic Question 12. Which of the following best describes your highest educational achievement?	17
14. Demographic Question 13. What gender do you identify with?	17
15. Demographic Question 14. What is your race/ethnicity?	18
16. Demographic Question 15. What is your age?	18

LIST OF TABLES

	Page
Table 1. <i>Tasks by Pass, Borderline, and Fail categories</i>	19
Table 2. <i>Knowledge for ID Importance by Pass, Borderline, and Fail categories</i>	200
Table 3. <i>Knowledge for H, S, W Importance by Pass, Borderline, and Fail categories</i>	231
Table 4. <i>Mean, Standard Deviation, and Frequency Distribution Percentage of Task Content Coverage</i>	23
Table 5. <i>Mean, Standard Deviation, and Frequency Distribution Percentage of Knowledge Content Coverage</i>	254
Table 6. <i>Survey Respondents' Test Content Recommendations by Mean Percentages and Standard Deviations</i>	25
Table 7. <i>Knowledge Statements Modified on the Test Specifications</i>	28
Table 8. <i>Interior Design Fundamentals Exam Test Content Cognitive Level Distribution Recommended by the Test Specifications Committee</i>	29
Table 9. <i>Interior Design Professional Exam Test Content Cognitive Level Distribution Recommended by the Test Specifications Committee</i>	30
Table 10. <i>Interior Design Fundamentals Exam Test Content Weights Recommended by the Test Specifications Committee</i>	30
Table 11. <i>Interior Design Professional Exam Test Content Weights Recommended by the Test Specifications Committee</i>	31
Table 12. <i>Interior Design Practicum Exam Test Content Weights Recommended by the Test Specifications Committee</i>	31

LIST OF APPENDICES

Appendix A. Literature Review

Appendix B. Participants and Pre-Meeting Information

Appendix C. Survey

Appendix D. Background and General Information Questions

Appendix E. Tasks

Appendix F. Knowledge

Appendix G. Index of Agreement

Appendix H. Content Coverage Comments

Appendix I. Write-In Comments

Appendix J. Test Specifications Approvals

Appendix K. Cognitive Level Coverage

Appendix L. Test Specifications

Appendix M. Linkages

EXECUTIVE SUMMARY

The Council for Interior Design Qualification (CIDQ) requested a Practice Analysis Study from Prometric for their Interior Design Examinations.

A practice analysis study obtains descriptive information about the tasks performed on a job and the knowledge needed to adequately perform those tasks. The purpose of this practice analysis study was to:

- Validate the tasks and knowledge important for interior designers; and,
- Revise the test specifications for CIDQ's Interior Design exams including:
 - Interior Design Fundamentals Exam (IDFX)
 - Interior Design Professional Exam (IDPX)
 - Interior Design Practicum Exam (PRAC)

Conduct of the Practice Analysis Study

The practice analysis study consisted of several activities: collaboration with subject-matter experts to ensure representativeness of the tasks and knowledge statements; survey development; survey dissemination; compilation of survey results; and test specifications development. The successful outcome of the practice analysis study was dependent on in-depth information provided by industry professionals.

Survey Development

Survey research is an effective way to identify the tasks and knowledge important for interior designers. During survey development, task and knowledge statements were divided into distinct domains relevant to the interior design industry. The task statements included on the survey covered eight domains of practice and the knowledge statements included on the survey covered twelve domains of practice. The survey was developed using task, knowledge, and skill statements created during the previous practice analysis study conducted in 2014 along with a literature review of current advancements in the field.

Survey Content

The final survey, disseminated in May 2019, consisted of five sections. The survey was distributed to a list of all active CIDQ members, provided by CIDQ.

Survey Sections
Section 1: Background and General Information
Section 2: Tasks
Section 3: Knowledge
Section 4: Recommendations for Test Content
Section 5: Comments

Results

Survey Response

A total of 672 CIDQ members submitted surveys with sufficient responses to consider them for data analysis. Based on the analysis of survey responses, a representative group completed the survey in sufficient numbers to meet the requirements for statistical analysis of the results. This is evidenced by review of the responses for each of the background and general information questions as well as confirmation by the Test Specifications Committee.

Survey Ratings

Participants were asked to rate the task for importance for an interior designer using a five point scale (0 = Of no importance to 4 = Very Important).

Additionally they were asked to rate all knowledge statements on four separate scales.

Importance for an interior designer (0 = Of no importance to 4 = Very Important), importance as it relates to Health, Safety, and Welfare (0 = Of no importance to 4 = Very Important), when is the knowledge primarily put into practice (0 = Not applicable to 3 = After two years of professional practice), and to what level should the knowledge be attained (0 = Unnecessary to 4 = Mastery).

Content Coverage

Evidence was provided for the comprehensiveness of the content coverage within the domains. If the task and knowledge statements within a domain are adequately defined, then it should be judged as being well covered. Respondents indicated that the content within each task and knowledge domain was well covered, thus supporting the comprehensiveness of the defined domains.

Test Specifications Development

In July 2019, a Test Specifications Committee convened to review the results of the practice analysis survey and to revise the test content outline that guides CIDQ's Interior Design Exams.

Summary

This study used a multi-method approach to identify the tasks and knowledge that are important to the competent performance as an interior designer. The practice analysis process allowed for input from a representative group of industry professionals and was conducted within the guidelines of professionally sound practice. The results of the practice analysis will be used by CIDQ as a blueprint for their Interior Design Examinations.

RESULTS AT A GLANCE

WHO COMPLETED THE SURVEY

A total of 672 responses were used for analysis. The majority of respondents work full-time in the interior design field.

TASK IMPORTANCE RATINGS

91 of the 92 task statements achieved high importance ratings from the overall group.

KNOWLEDGE: INTERIOR DESIGN IMPORTANCE RATINGS

89 of the 90 knowledge statements achieved high importance ratings from the overall group.

KNOWLEDGE: HEALTH, SAFETY, WELLFARE IMPORTANCE RATINGS

72 of the 90 knowledge statements achieved high importance ratings related to health, safety, and welfare from the overall group.

INTRODUCTION

The Council for Interior Design Qualification (CIDQ) is the premiere certifying organization for interior design professionals. CIDQ develops and administers the three-part NCIDQ Examination, which tests interior designers' knowledge of core competencies required for professional practice in the industry.

This report describes the practice analysis study including the:

- Rationale for conducting the practice analysis study;
- Methods used to define tasks and knowledge;
- Types of data analyses conducted and their results; and
- Finalization of the test specifications.

Practice Analysis Study and Adherence to Professional Standards

A practice analysis study refers to procedures designed to obtain descriptive information about the tasks performed on a job and the knowledge, skills, or abilities requisite to the performance of those tasks. The specific type of information collected during a practice analysis study is determined by the purpose for which the information will be used.

For the purpose of developing credentialing examinations, a practice analysis study should identify tasks, knowledge, skills, or abilities deemed important for interior designer.

The use of a practice analysis study (also known as job analysis, role and function study, or role delineation) to define the content domain(s) is a critical component in establishing the content validity of the certification. Content validity refers to the extent to which the content covered by an examination is representative of the task and knowledge of a job (tasks, knowledge, skills, or abilities).

A well-designed practice analysis study should include the participation of a representative group of subject-matter experts who reflect the diversity within the profession. Diversity refers to regional or job context factors and to elements such as experience, gender, and race/ethnicity. Demonstration of content validity is accomplished through the judgments of subject-matter experts. The process is enhanced by the inclusion of large numbers of experts who represent the diversity of the relevant areas of expertise.

*The Standards for Educational and Psychological Testing*¹ (1999) (*The Standards*) is a comprehensive technical guide that provides criteria for the evaluation of tests, testing practices, and the effects of test use. It was developed jointly by the American Psychological Association (APA), the American Educational Research Association (AERA), and the National Council on Measurement in Education (NCME). The guidelines presented in *The*

¹ American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (2014). *The Standards for Educational and Psychological Testing*. Washington, DC: American Psychological Association.

Standards, by professional consensus, have come to define the necessary components of quality testing. Consequently, a testing program that adheres to *The Standards* is more likely to be judged as valid and defensible than one that does not.

As stated in Standard 11.13,

“The content domain to be covered by a credentialing test should be defined clearly and justified in terms of the importance of the content for credential-worthy performance in an occupation or profession. A rationale and evidence should be provided to support the claim that the knowledge or skills being assessed are required for credential-worthy performance in that occupation and are consistent with the purpose for which the credentialing program was instituted...Typically, some form of job or practice analysis provides the primary basis for defining the content domain...” (p.181-182)

The practice analysis study for the Interior Designer Examinations was designed to follow the guidelines presented in *The Standards* and to adhere to accepted professional practice.

METHOD

The practice analysis study for the interior designers involved a multi-method approach that included a literature review, multiple meetings with subject-matter experts, and a survey distributed to professionals in the industry. This section of the report describes the activities conducted for the practice analysis study.

Prometric staff worked with experts to identify the tasks and knowledge they believed were important to practice as an interior designer. From this draft list of task and knowledge statements, a survey was developed and disseminated to all active CIDQ members. The purpose of the survey was to obtain verification (or refutation) that the tasks and knowledge identified by the initial group of experts are in fact important to the work of interior designers. Survey research functions as a “check and balance” on the judgments of the experts and reduces the likelihood that unimportant areas will be considered in the development of the test specifications. The use of a survey is also an efficient and cost-effective method of obtaining input from large numbers of experts and makes it possible for analysis of ratings by appropriate subgroups of respondents.

The survey results provide information to guide the development of test specifications and content-valid examinations. The most important aspect of this process is that it allows for a certification examination to cover the important knowledge needed to perform job activities.

The steps of the practice analysis study are described in detail below:

1. Conduct of a Planning Meeting

In October 2018, CIDQ and Prometric staff held a planning meeting at Prometric’s offices. During the planning meeting, the selection of the Task Force Committee members and Test Specifications Committee members, meeting dates, logistics, and survey delivery were topics of discussion.

STEPS OF THE PRACTICE ANALYSIS STUDY

1. Conduct of a planning meeting
2. Development of the survey instrument
3. Dissemination of the survey
4. Analysis of the survey data
5. Development of the test specifications

2. Development of the Survey

Literature Review

Prior to the task force meeting CIDQ and its members provided Prometric with a selection of articles that emphasized the changes to the interior design field. Prometric staff reviewed these articles and topics for discussion were identified. Major themes included the Wellness Movement, ever-changing technology, the continued importance of drawing and model making, the Green Movement, and people's interaction with technology. For a complete list of literature reviewed see Appendix A.

Conduct of the Practice Analysis Study Task Force Meeting

The Task Force Committee was comprised of a representative group of interior designers. In total, the committee consisted of 12 subject-matter experts. A list of the Task Force Committee members appears in Appendix B1. The Task Force meeting was conducted on February 22nd and 23rd, 2019, in Alexandria, Virginia. The purpose of the meeting was to develop the practice analysis survey. Prometric staff facilitated the meeting.

Prometric staff sent a pre-meeting document to the Task Force that included the meeting agenda and what to expect during the meeting. This document is included in Appendix B2.

At the start of the meeting a packet of information was distributed to the committee members containing some of the literature reviewed prior. The group was asked to broadly discuss how interior design had changed since the last practice analysis (2014) and how they envisioned the profession evolving over the coming years. This discussion was to be considered throughout the survey development.

The remaining activities conducted during the meeting included reviewing and, as needed, revising the major domains, tasks and knowledge that are necessary for the competent performance as an interior designer. The draft list presented to the Task Force was developed using the results of the 2014 Practice Analysis. Survey rating scales as well as background and general information questions were presented, discussed, and revised.

Survey Construction and Review Activities

Survey Construction

Upon the completion of the Task Force Meeting, Prometric staff constructed the draft survey. The survey covered the following task and knowledge domains:

Tasks:

1. Pre-Design
2. Programming
3. Schematic Design
4. Design Development
5. Contract Documents
6. Bidding/Tendering
7. Contract Administration
8. Project Conclusion

Knowledge:

1. Programming, Sustainability, and Site Analysis
2. The Relationship between Human Behavior and the Designed Environment
3. Integration with Building Systems and Construction
4. Furniture, Fixtures, and Equipment
5. Interior Building Finishes and Materials
6. Construction Drawings, Schedules, and Specifications
7. Measuring, Drafting, and Technical Drawing Conventions
8. Contract Administration
9. Design Process and Communication Methods
10. Code Requirements, Laws, Standards, and Regulations
11. Project Process, Roles, and Coordination
12. Professional Ethics and Business Practices

Survey Review by Task Force Committee

Each Task Force member received a copy of the draft survey. The purpose of the review was to provide the Committee with an opportunity to view their work and recommend any revisions.

Comments provided by the Task Force Committee for the online survey were compiled by Prometric staff and reviewed via web conference on March 22, 2019, with the Task Force members. Refinements recommended by the Task Force were incorporated into the online survey in preparation for a pilot test.

Survey Pilot Test

The purpose of the small-scale pilot test was to have professionals in the field who had no previous involvement in the development of the survey review and offer suggestions to improve the instrument. The Task Force nominated candidates for participation in the pilot test. Thirty-seven participants received the survey link, thirteen of whom completed the survey.

Pilot participants reviewed the survey for clarity of wording, ease of use, and comprehensiveness of content coverage. Comments were compiled by Prometric staff and reviewed via web conference on April 14, 2019 with the Task Force members. The Task Force revised and finalized the survey based on the review of the pilot test comments.

Final Version of the Survey

The final version of the online surveys consisted of five sections: Section 1: Background and General Information; Section 2: Tasks; Section 3: Knowledge; Section 4: Recommendations for Test Content; and, Section 5: Write-in Comments.

In Section 1: Background and General Information, survey participants responded to general and background information about themselves and their professional activities.

In Section 2: Tasks, survey participants rated the task statements using the importance scale shown below.

Tasks
Importance: How important is this task for an Interior Designer?
0 = Of no importance
1 = Of little importance
2 = Of moderate importance
3 = Important
4 = Very important

In Section 3: Knowledge, survey participants rated the knowledge statements using the scales shown below.

Knowledge
A. Importance: How important is this knowledge for an Interior Designer?
0 = Of no importance
1 = Of little importance
2 = Of moderate importance
3 = Important
4 = Very important

Knowledge
B. Importance: How important is this knowledge as it relates to Health, Safety, and Welfare?
0 = Of no importance
1 = Of little importance
2 = Of moderate importance
3 = Important
4 = Very important

Knowledge
C. Time of Use: When is this knowledge primarily put into practice?
0 = Not applicable
1 = As a student
2 = As an emerging professional (within the first two years of practice)
3 = After two years of professional practice

Knowledge
D. Cognitive Level: To what level should this knowledge be attained at the time the Interior Designer becomes NCIDQ certified?
0 = Unnecessary – not required at all
1 = Exposure – sufficiently aware of the knowledge to be able to look it up
2 = Comprehension – able to interpret and/or discuss the concepts involved
3 = Application – able to apply the knowledge to solve simple problems
4 = Mastery – able to apply the knowledge to solve complex problems, and successfully

Survey participants were asked to provide a rating measuring the representativeness of each knowledge and task domain. Respondents made their judgments using a five-point rating scale (1 = Very Poorly; 2 = Poorly; 3 = Adequately; 4 = Well; 5 = Very Well). Respondents could note any topics that were not covered within a specific domain in an open response field.

In Section 4: Recommendation for Test Content, survey participants indicated the content weights that the knowledge areas below should receive on the exam:

1. Programming, Sustainability, and Site Analysis
2. The Relationship between Human Behavior and the Designed Environment
3. Integration with Building Systems and Construction
4. Furniture, Fixtures, and Equipment
5. Interior Building Finishes and Materials
6. Construction Drawings, Schedules, and Specifications
7. Measuring, Drafting, and Technical Drawing Conventions
8. Contract Administration
9. Design Process and Communication Methods
10. Code Requirements, Laws, Standards, and Regulations
11. Project Process, Roles, and Coordination
12. Professional Ethics and Business Practices

This was accomplished by distributing 100 percentage points across the twelve knowledge areas. These distributions represented the allocation of examination items survey participants believed should be devoted to each knowledge area.

In Section 5: Write-In Comments, survey respondents were given the opportunity to answer two open-ended questions: “How do you expect your work role to change over the next few years?” and “What tasks will be performed and what knowledge will be needed to meet changing job demands?”

3. Dissemination of the Survey

Prometric distributed the survey on May 9, 2019 to a list of all active CIDQ members, provided by CIDQ. The invited survey participants received multiple email reminders from Prometric prior to the survey's close.

Appendix C contains the online survey.

4. Analysis of the Survey Data

As previously noted, the purpose of the survey was to validate the tasks and knowledge that a relatively large numbers of professionals judged to be relevant (verified as important) to their work. This objective was accomplished through an analysis of the mean importance ratings for task and knowledge statements. The derivation of test specifications from those statements verified as important by the surveyed professionals provides a substantial evidential basis for the content validity of credentialing examinations.

Based on information obtained from the survey, data analyses by respondent subgroups (e.g., level of education) are possible when sample size permits. A subgroup category is required to have at least 30 respondents to be included in the mean analyses. This is a necessary condition to ensure that the mean value based upon the sample of respondents is an accurate estimate of the corresponding population mean value.

The following quantitative data analyses were produced:

- Means, standard deviations, and frequency (percentage) distributions for task and content coverage ratings
- Means, standard deviations, and frequency (percentage) distributions for knowledge statements and content coverage ratings
- Means and standard deviations for test content recommendations
- Index of agreement values for designated subgroups

Criterion for Interpretation of Mean Importance Ratings

Since a major purpose of the survey is to ensure that only validated task and knowledge statements are included in the development of test specifications, a criterion (cut point) for inclusion needs to be established.

A criterion used in similar studies is a mean importance rating that represents the midpoint between moderately important and important. For the importance rating scale used across many studies, the value of this criterion is 2.50.

This criterion is consistent with the intent of content validity. Therefore, for this practice analysis, Prometric recommended the value of this criterion should be set at 2.50. Accordingly, the task and knowledge statements were grouped into one of three categories: Pass, Borderline, or Fail as determined by their mean importance ratings.

Definition of Pass, Borderline and Fail Categories for Task and Knowledge Importance Mean Ratings

	<u>Means</u>
Pass:	At or above 2.50
Borderline:	2.40 to 2.49
Fail:	Less than 2.40

- The Pass Category contains those statements whose mean ratings are at or above 2.50, and are eligible for inclusion in the development of test specifications.
- The Borderline Category contains those statements whose mean ratings are from 2.40 to 2.49. The Borderline Category is included to provide a point of discussion for the Task Force to determine if the statement(s) warrant(s) inclusion in the test specifications.
- The Fail Category contains those statements whose mean ratings are less than 2.40. It is recommended that statements in the Fail Category be excluded from consideration in the test specifications.

5. Development of the Test Specifications

Prometric staff facilitated a meeting to develop the test specifications based on the practice analysis survey results on July 12th and 13th, 2019, in Alexandria, Virginia. The meetings focused on:

- Finalizing the task statements for test specification inclusion based on the survey results;
- Finalizing the knowledge that is important for test specification inclusion based on the survey results;
- Establishing the percentage test content weights for each area on the examinations; and,
- Creating a linkage between the task and knowledge.

These percentage test weights guide examination development activities.

RESULTS

Survey Responses

A total of 2,205 participants completed some portion of the survey. Of these completions, 672 responses were thorough enough to be used in analysis.

Based on the analysis of survey responses, a representative group of interior designers completed the survey in sufficient numbers to meet the requirements to conduct statistical analysis. This was evidenced by the distribution of responses for each of the background information questions and was confirmed through discussion with the Test Specifications Committee.

Demographic Characteristics of Survey Respondents

The profile of survey respondents is below. All responses to the background and general information section of the survey are provided in Appendix D1. Write-in responses to questions asking to “please specify” are provided in Appendices D2 through D11. The results in the figures below reflect the sample size used for analysis of 672.

Demographic Figures

Figure 1. Demographic Question 1a. How long have you been an NCIDQ Certificate holder?

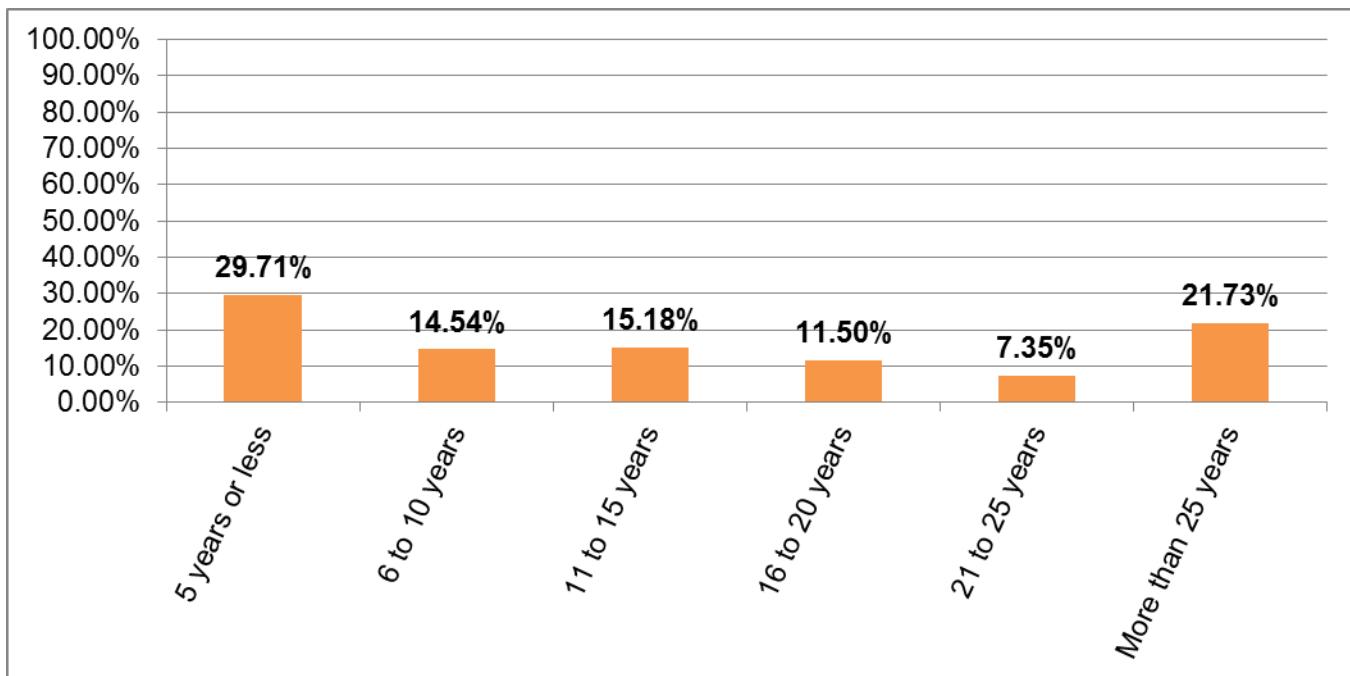


Figure 2. Demographic Question 2. Are you currently working in interior design or a related field (e.g., architects, educators)?

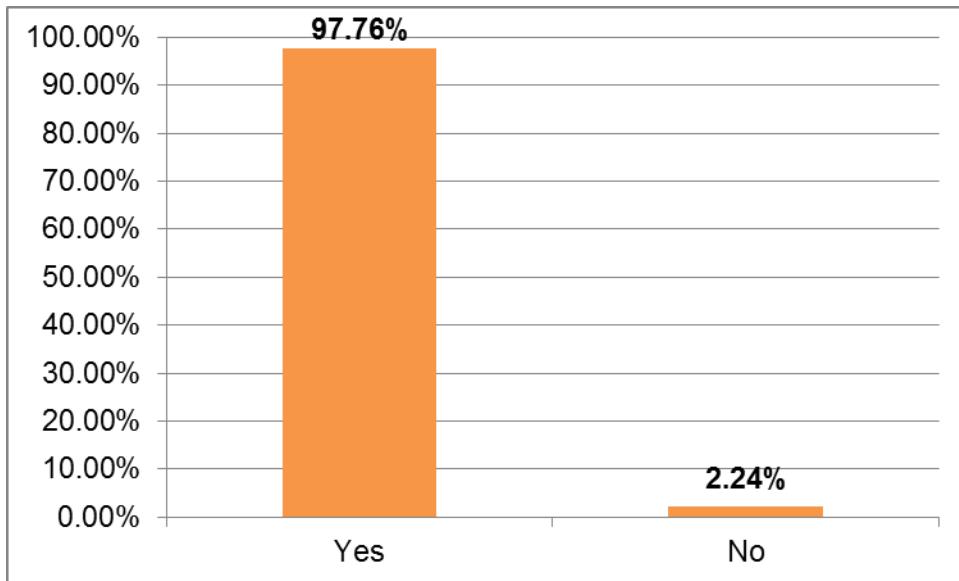


Figure 3. Demographic Question 2a. How long have you been working in interior design or a related field?

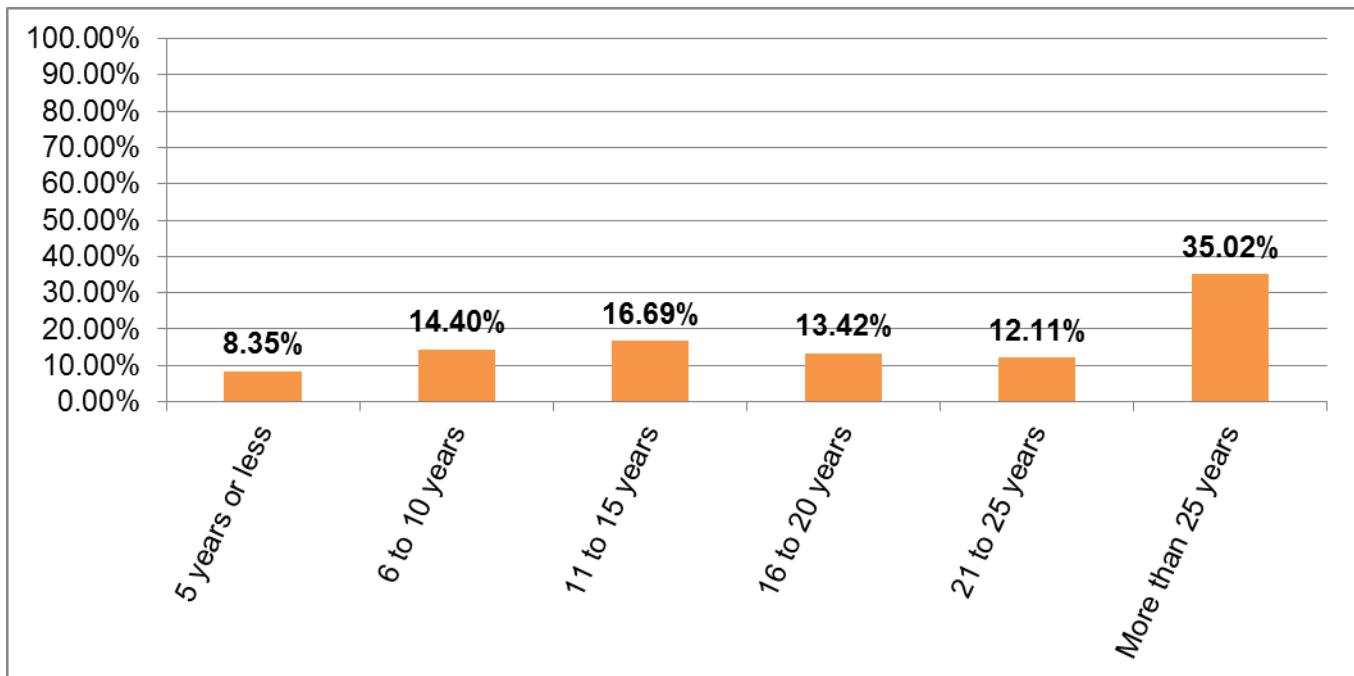


Figure 4. Demographic Question 2b. Why are you currently not working in interior design or a related field?

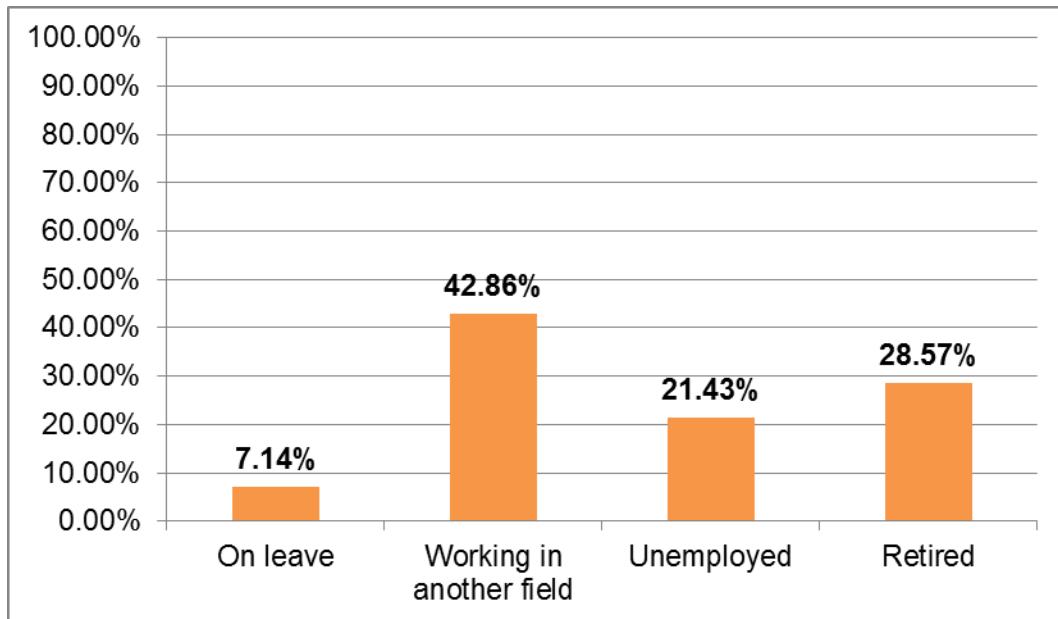


Figure 5. Demographic Question 3. What is your current employment status?

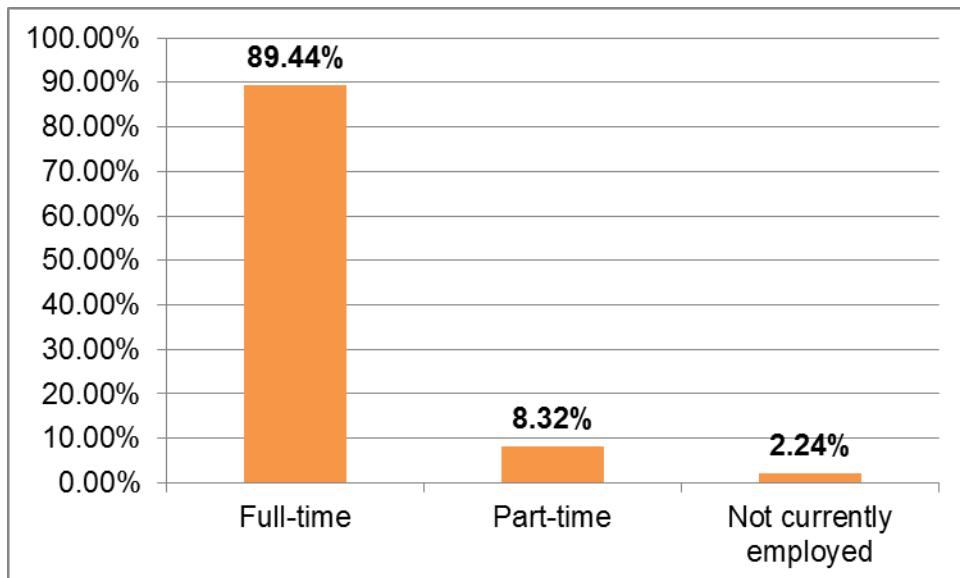


Figure 6. Demographic Question 4. With what type of organization are you currently employed?

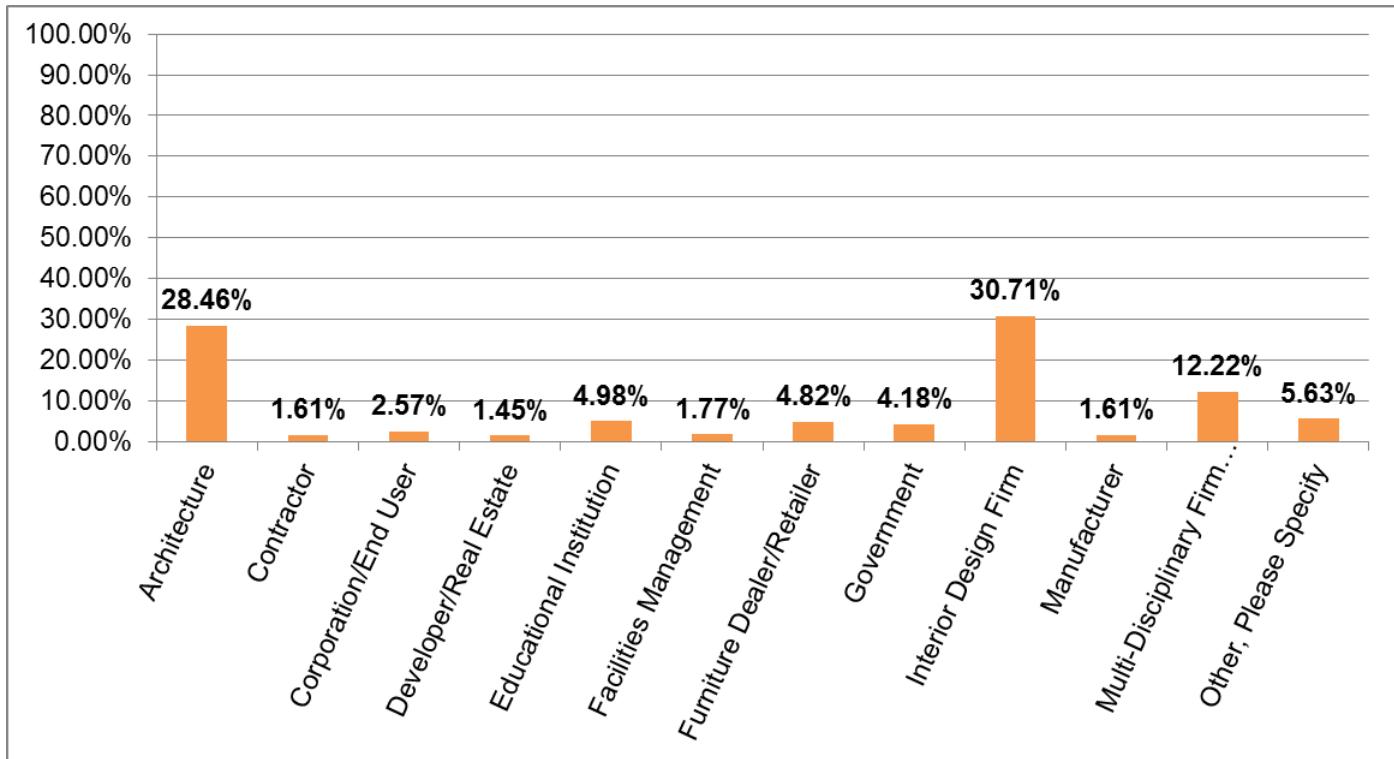


Figure 7. Demographic Question 5. What is your primary role in your organization?

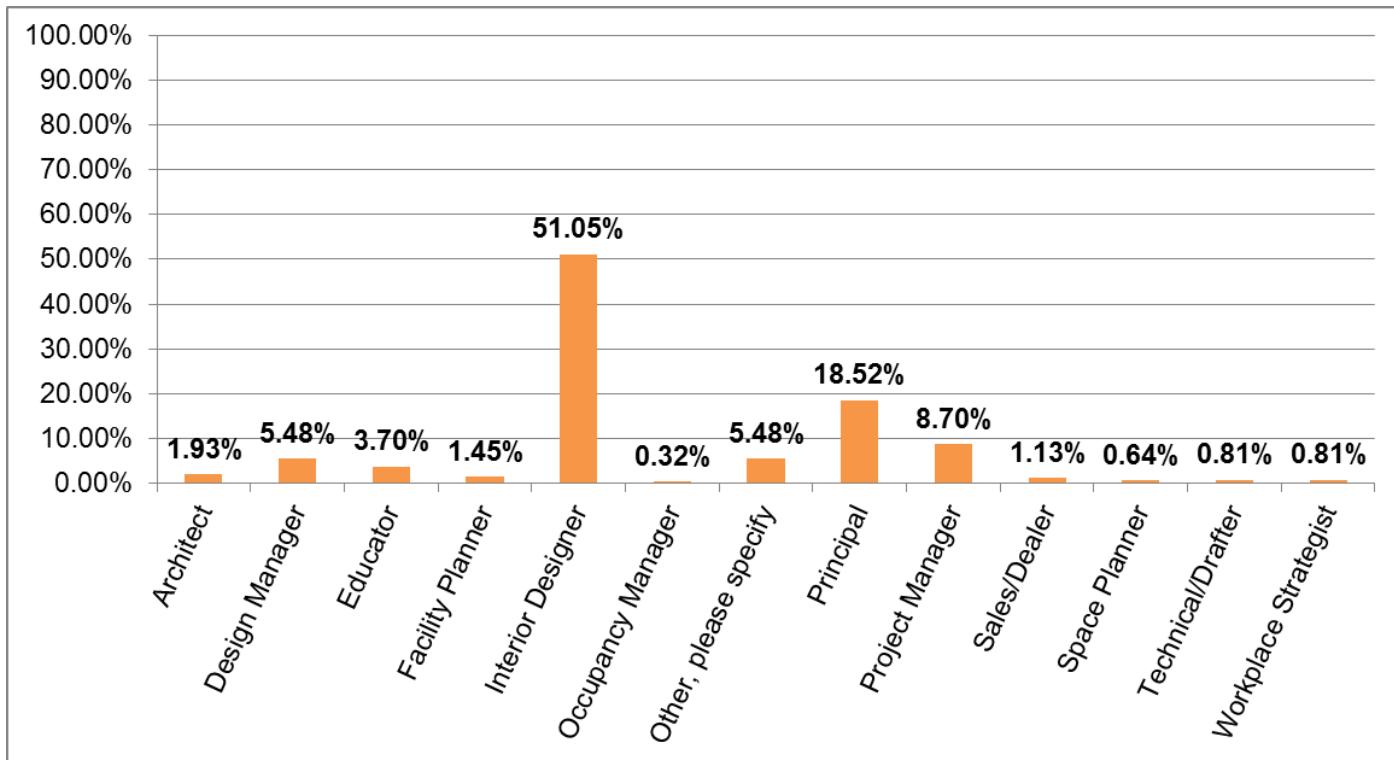


Figure 8. Demographic Question 6. Do you supervise/mentor entry-level interior designers?

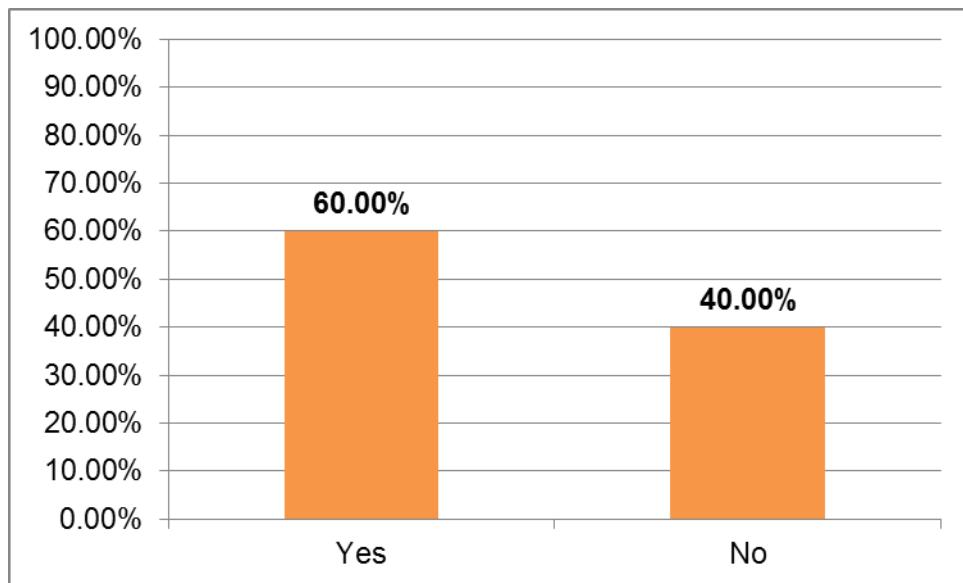


Figure 9. Demographic Question 7. How many interior designers are on staff at your primary place of employment (local office)?

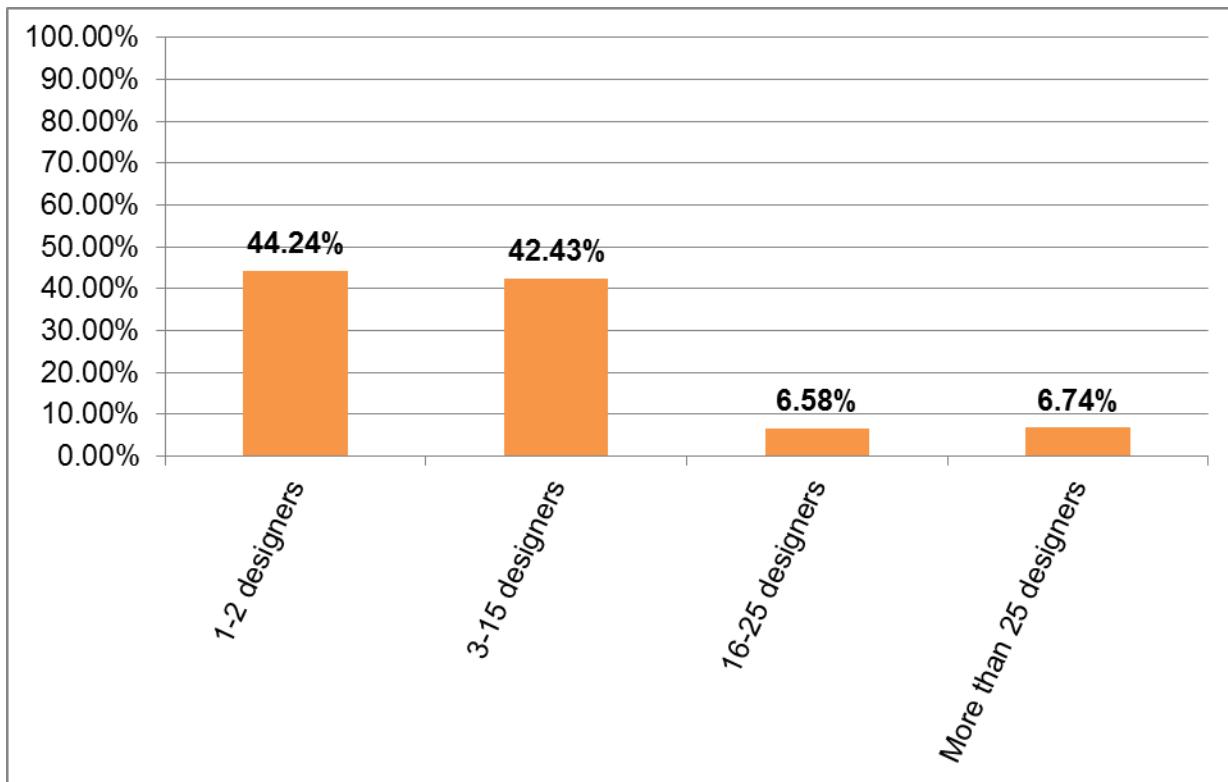


Figure 10. Demographic Question 8. How many total employees are on staff at your primary place of employment (local office)?

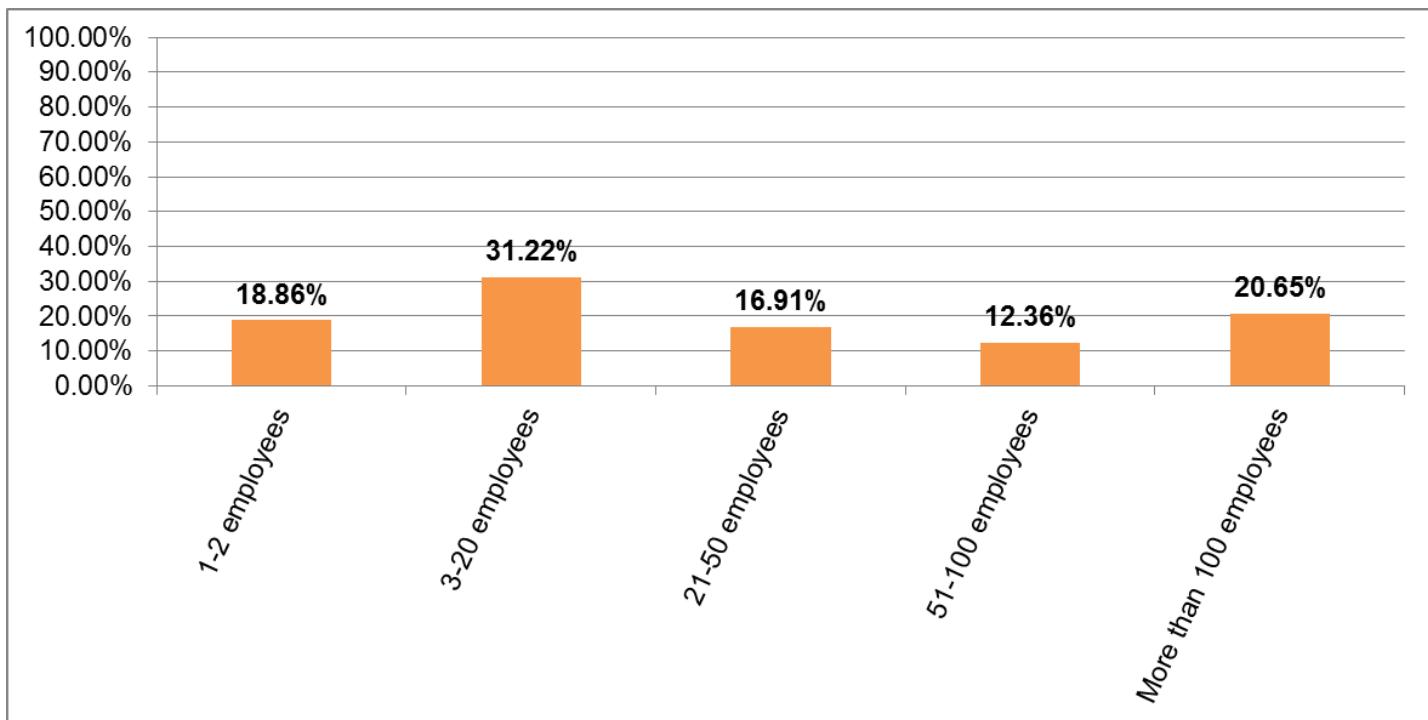


Figure 11. Demographic Question 9. What is your primary area of Interior Design expertise?

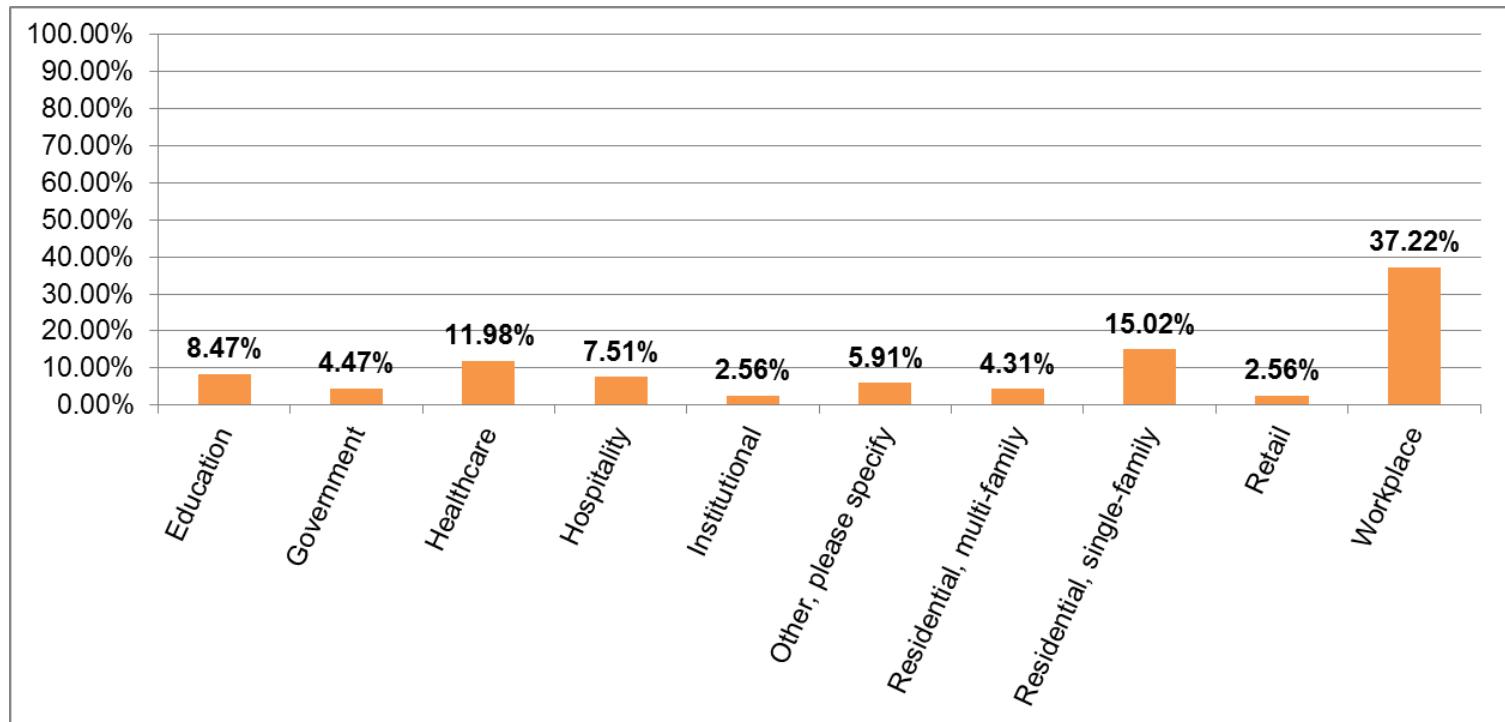


Figure 12. Demographic Question 11. In what state, province, or jurisdiction is your primary employment located (local office)?

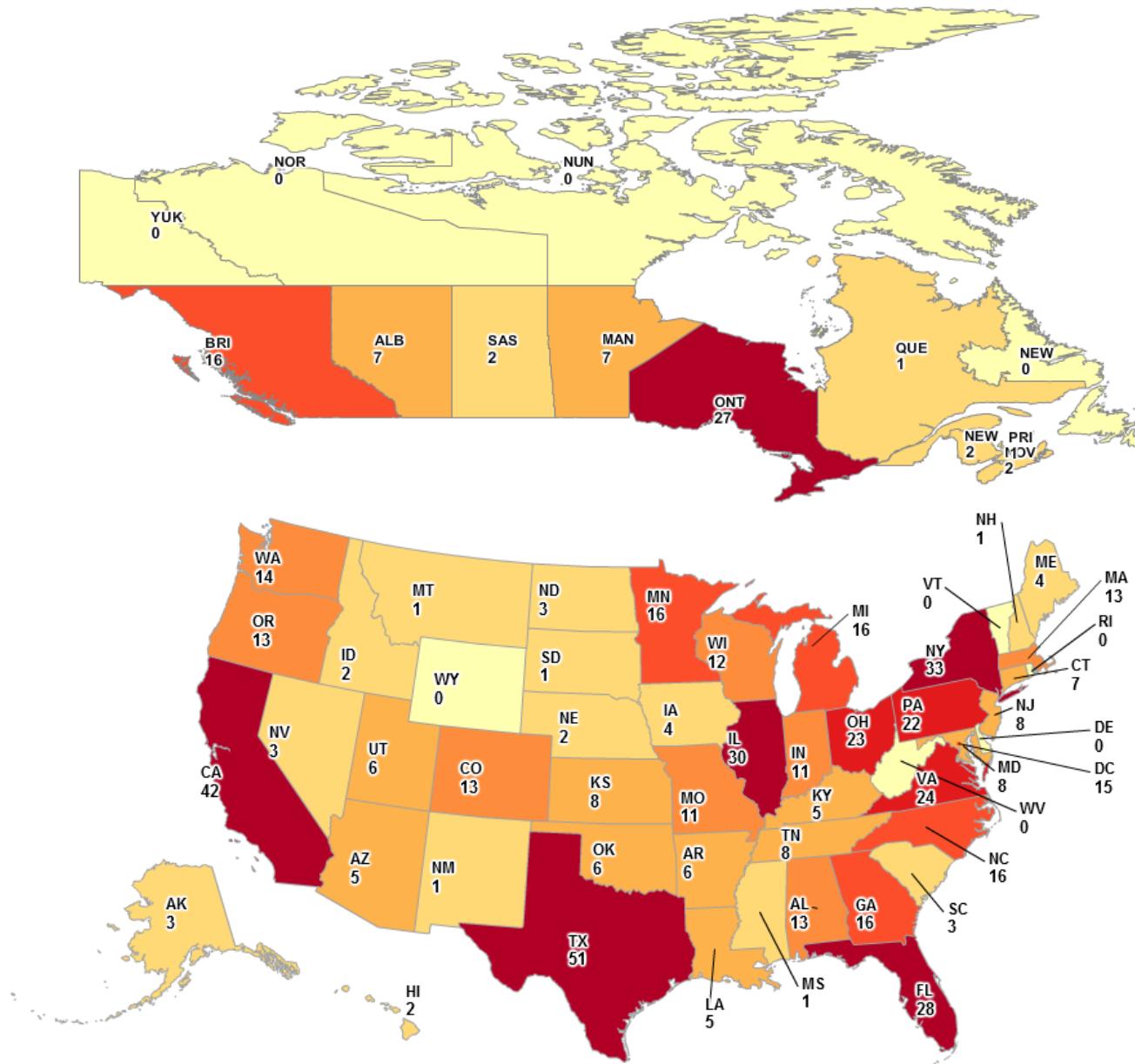


Figure 13. Demographic Question 12. Which of the following best describes your highest educational achievement?

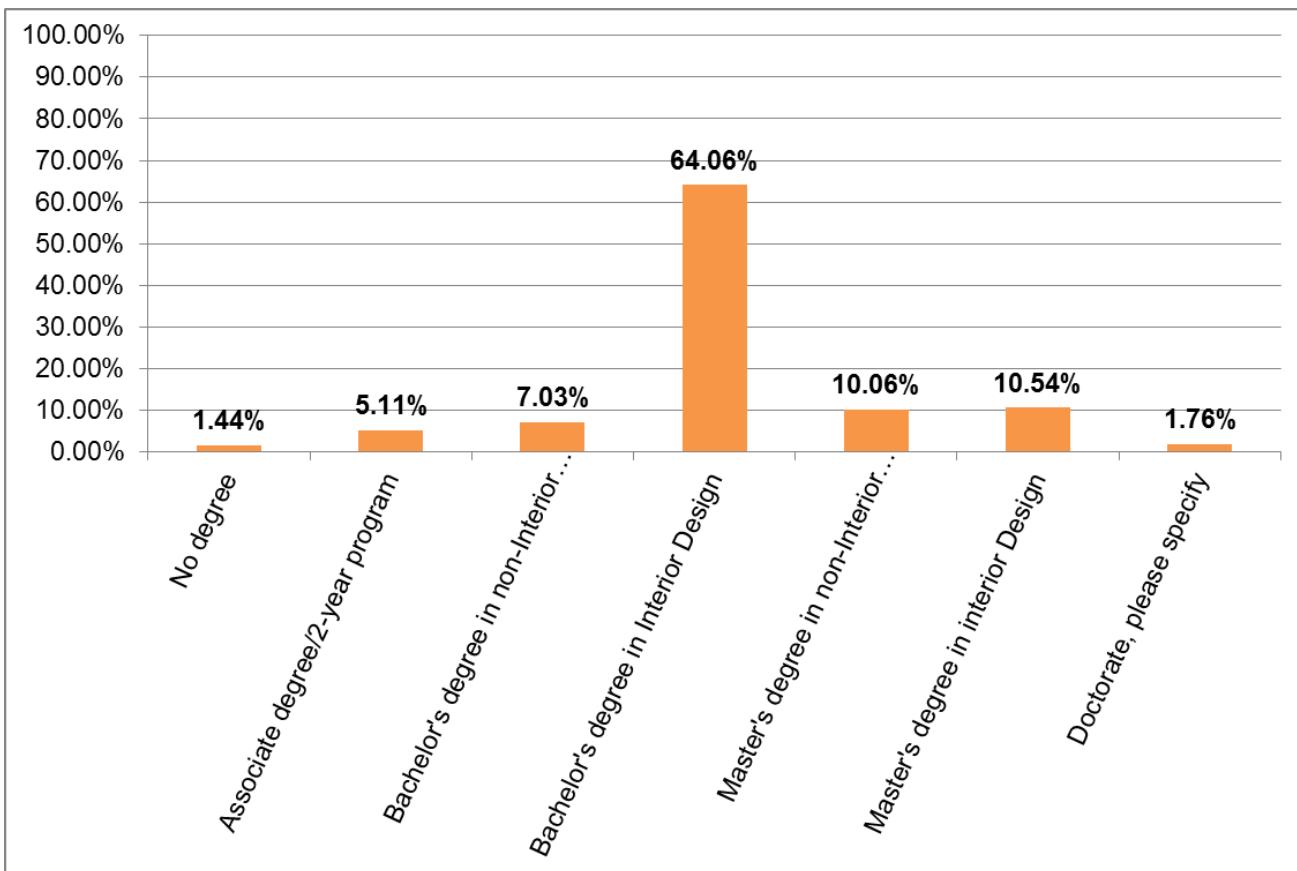


Figure 14. Demographic Question 13. What gender do you identify with?

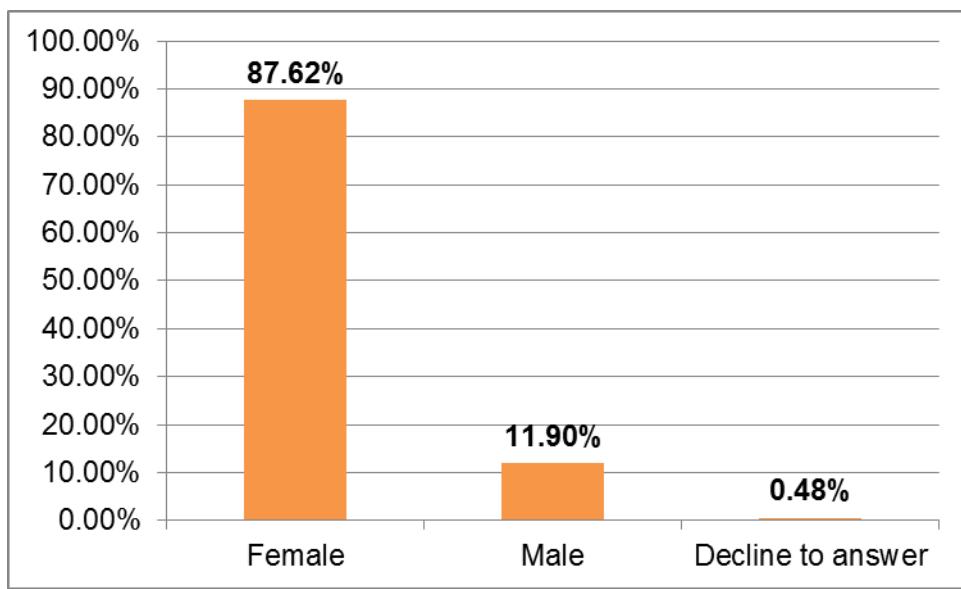


Figure 15. Demographic Question 14. What is your race/ethnicity?

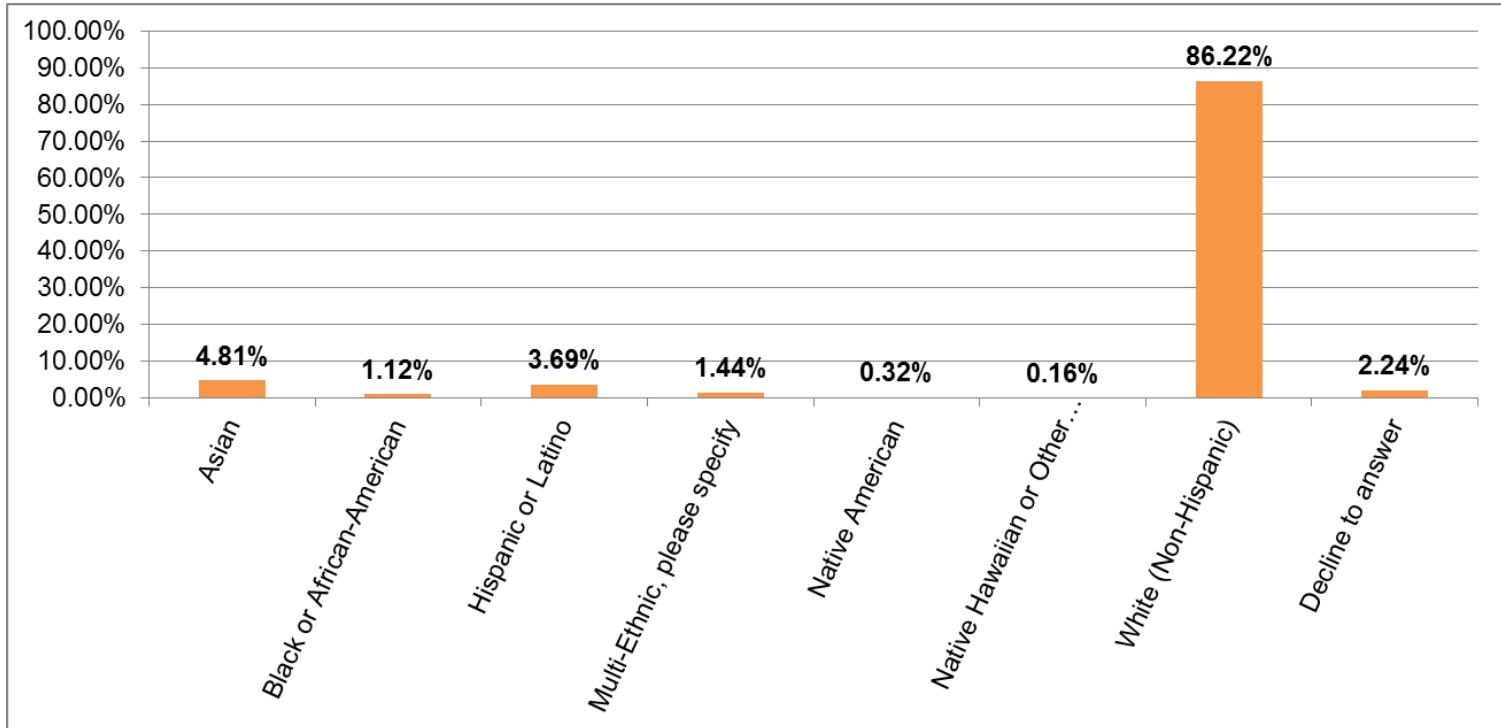
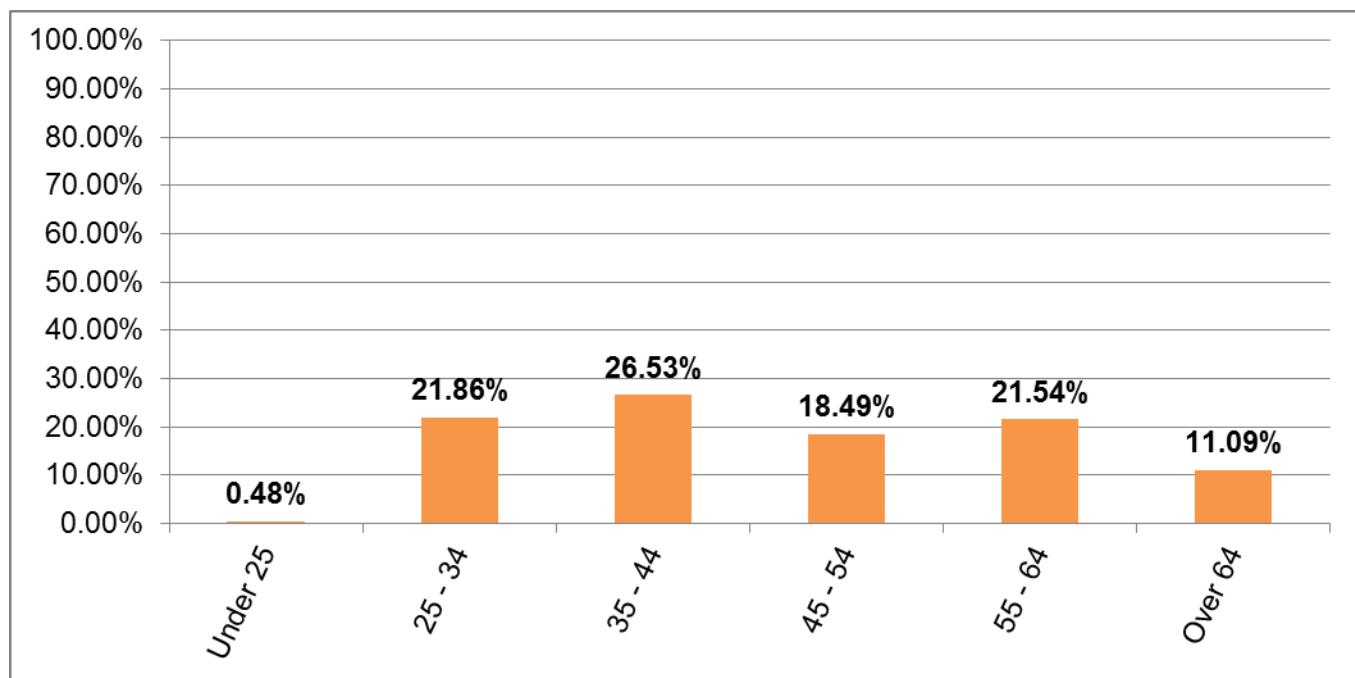


Figure 16. Demographic Question 15. What is your age?



Task and Knowledge Overall Ratings

The following provides a summary of survey respondents' ratings of the task and knowledge statements. The survey respondents passed 149 (100%) of the 149 task and knowledge statements.

Tasks

Means and standard deviations for the tasks included on the survey are in Appendix E. A total of 91 (99%) of the 92 tasks achieved high importance means. Table 1 shows the delineation of tasks in Pass, Borderline, and Fail categories by domain.

Table 1. *Tasks by Pass, Borderline, and Fail categories*

Domains	Number of Task Statements	Pass (Mean 2.50 or Above)	Borderline (Mean 2.40 to 2.49)	Fail (Mean Less than 2.40)
Pre-Design	12	11	0	1
Programming	11	11	0	0
Schematic Design	11	11	0	0
Design Development	22	22	0	0
Contract Documents	11	11	0	0
Bidding/Tendering	7	7	0	0
Contract Administration	12	12	0	0
Project Conclusion	6	6	0	0
Total	92	91	0	1
Percentage		98.91%	0.00%	1.09%

Knowledge

Analysis of the knowledge statements included on the survey are in Appendix F1. A total of 89 (99%) of the 90 knowledge statements achieved high importance means for interior designers. Table 2 shows the knowledge statements placed in Pass, Borderline, and Fail categories related.

Table 2. *Knowledge for Interior Designer Importance by Pass, Borderline, and Fail categories*

Domains	Number of Knowledge Statements	Pass (Mean 2.50 or Above)	Borderline (Mean 2.40 to 2.49)	Fail (Mean Less than 2.40)
Programming, Sustainability, and Site Analysis	7	7	0	0
The Relationship Between Human Behavior and the Designed Environment	4	4	0	0
Integration with Building Systems and Construction	13	13	0	0
Furniture, Fixtures, and Equipment	9	9	0	0
Interior Building Finishes and Materials	7	7	0	0
Construction Drawings, Schedules, and Specifications	14	14	0	0
Measuring, Drafting, and Technical Drawing Conventions	2	2	0	0
Contract Administration	9	8	0	1
Design Process and Communication Methods	6	6	0	0
Code Requirements, Laws, Standards, and Regulations	6	6	0	0
Project Process, Roles, and Coordination	5	5	0	0
Professional Ethics and Business Practices	8	8	0	0
Total	90	89	0	1
Percentage		99%	0%	1%

A total of 72 (80%) of the 90 knowledge statements achieved high importance means for interior designers. Table 3 shows the knowledge statements placed in Pass, Borderline, and Fail categories related.

Table 3. *Knowledge for Health, Safety, and Welfare Importance by Pass, Borderline, and Fail categories*

Domains	Number of Knowledge Statements	Pass (Mean 2.50 or Above)	Borderline (Mean 2.40 to 2.49)	Fail (Mean Less than 2.40)
Programming, Sustainability, and Site Analysis	7	7	0	0
The Relationship Between Human Behavior and the Designed Environment	4	4	0	0
Integration with Building Systems and Construction	13	13	0	0
Furniture, Fixtures, and Equipment	9	7	0	2
Interior Building Finishes and Materials	7	7	0	0
Construction Drawings, Schedules, and Specifications	14	13	0	1
Measuring, Drafting, and Technical Drawing Conventions	2	2	0	0
Contract Administration	9	6	0	3
Design Process and Communication Methods	6	2	1	3
Code Requirements, Laws, Standards, and Regulations	6	6	0	0
Project Process, Roles, and Coordination	5	2	0	3
Professional Ethics and Business Practices	8	3	0	5
Total	90	72	1	17
Percentage		80%	1%	19%

Subgroup Analysis of Task and Knowledge Ratings

The index of agreement (IOA) is a measure of the extent to which subgroups of respondents agree on which tasks and knowledge are important. Using the mean importance ratings for tasks and knowledge, indices of agreement were computed:

- If the subgroup means are above the critical importance value (mean ratings at or above 2.50), then they agree that the content is important.
- If the subgroup means are below the critical importance value (mean ratings less than 2.50), then the subgroups agree that the content is considered less important.
- By contrast, if one subgroup's (for example, female) mean ratings are above the critical importance value and another subgroup's (for example, male) means are below the critical importance value then the subgroups are in disagreement as to whether the content is important.

The index of agreement provides a method of computing the similarity in judgments between groups and is more tailored to the purpose of a practice analysis study than the correlation coefficient. Although the correlation coefficient measures the tendency toward agreement along the full range of possible ratings, the agreement index focuses on whether two groups agree that the content should (or should not) be included in an examination.

As one of the major purposes of this practice analysis study is to identify appropriate test content, the agreement index provides a statistical method to address this question at the subgroup level. Furthermore, the agreement index requires only 30 respondents per subgroup for computation, whereas the correlation coefficient requires at least 100 respondents per subgroup to provide a reliable measure of agreement.

An illustrative example for two groups on a survey with 100 knowledge areas shows how to compute the index. If two groups passed the same 96 knowledge areas and failed the same 2 knowledge areas (out of the 100 total knowledge areas in the survey), the consistency index would be computed as $Agreement = (96 + 2)/100 = 0.98$. Values of 0.80 or less show less than optimal agreement and therefore additional mean analyses are required.

The index of agreement coefficients for tasks and knowledge are in Appendix G. Agreement coefficients were produced on the following background questions:

- How long have you been an NCIDQ Certificate holder?
- How long have you been working in interior design or a related field?
- What is your current employment status?
- With what type of organization are you currently employed?
- What is your primary role in your organization?
- Do you supervise/mentor entry-level interior designers?
- How many interior designers are on staff at your primary place of employment (local office)?
- What is your primary area of Interior Design expertise?
- In what state, province, or jurisdiction is your primary employment located (local office)?
- Which of the following best describes your highest educational achievement?
- What gender do you identify with?
- What is your race/ethnicity?
- What is your age?

The agreement coefficients ranged from 0.90 to 1.00 for tasks, 0.91 to 1.00 for the knowledge statements as related to Interior Designers, and from 0.60 to 0.99 for the knowledge statements as related to Health, Safety, and Welfare. For items where the agreement coefficients for all groups was greater than 0.80, no additional mean analysis is required. For items where the agreement coefficient was less than 0.80 additional mean rating information can be found in Appendix G2.

Content Coverage Ratings

The survey participants indicated how well the statements within each of the task and knowledge domains covered important aspects of that area. These responses provide an indication of the comprehensiveness of the survey content.

The five-point rating scale included 1=Very Poorly, 2=Poorly, 3=Adequately, 4=Well, and 5=Very Well. The means and standard deviations for the task and knowledge ratings are provided in Tables 4 and 5. For the task domains, the means ranged from 4.17 to 4.39 and for the knowledge statements ranged from 3.96 to 4.18. These means provide evidence that the task and knowledge were adequately to very well covered on the survey.

Table 4. *Mean, Standard Deviation, and Frequency Distribution Percentage of Task Content Coverage*

Domains	Content Coverage						
	Frequency Percentage						
	Mean	SD	1=Very poorly	2=Poorly	3=Adequately	4=Well	5=Very well
Pre-Design	4.21	0.77	0.15%	0.75%	18.36%	39.70%	40.90%
Programming	4.39	0.73	0.00%	0.30%	13.64%	33.13%	52.77%
Schematic Design	4.38	0.72	0.00%	0.31%	13.23%	34.15%	52.15%
Design Development	4.37	0.70	0.00%	0.31%	12.15%	37.23%	50.15%
Contract Documents	4.31	0.74	0.00%	0.92%	13.74%	38.47%	46.72%
Bidding/Tendering	4.21	0.79	0.15%	1.08%	18.83%	37.50%	42.28%
Contract Administration	4.29	0.74	0.00%	0.62%	15.41%	38.21%	45.61%
Project Conclusion	4.17	0.81	0.15%	1.24%	20.74%	37.15%	40.56%

Table 5. *Mean, Standard Deviation, and Frequency Distribution Percentage of Knowledge Content Coverage*

Domains	Content Coverage						
	Frequency Percentage						
	Mean	SD	1=Very poorly	2=Poorly	3=Adequately	4=Well	5=Very well
1. Programming, Sustainability, and Site Analysis	3.96	0.77	0.21%	1.48%	26.00%	46.72%	25.58%
2. The Relationship Between Human Behavior and the Designed Environment	4.12	0.75	0.43%	0.21%	19.74%	46.57%	33.05%
3. Integration with Building Systems and Construction	4.06	0.75	0.22%	0.87%	21.86%	47.19%	29.87%
4. Furniture, Fixtures, and Equipment	4.07	0.74	0.22%	0.65%	20.87%	48.70%	29.57%
5. Interior Building Finishes and Materials	4.09	0.74	0.44%	0.22%	19.96%	48.90%	30.48%
6. Construction Drawings, Schedules, and Specifications	4.14	0.73	0.21%	0.21%	18.72%	47.23%	33.62%
7. Measuring, Drafting, and Technical Drawing Conventions	4.18	0.72	0.00%	0.43%	16.92%	46.42%	36.23%
8. Contract Administration	4.06	0.74	0.22%	0.43%	21.74%	48.04%	29.57%
9. Design Process and Communication Methods	4.12	0.72	0.22%	0.00%	19.47%	48.14%	32.17%
10. Code Requirements, Laws, Standards, and Regulations	4.09	0.74	0.22%	0.22%	21.25%	47.43%	30.87%
11. Project Process, Roles, and Coordination	4.07	0.75	0.00%	0.87%	22.44%	45.32%	31.37%
12. Professional Ethics and Business Practices	4.08	0.74	0.00%	0.44%	22.17%	46.78%	30.60%

Survey respondents could write in tasks or knowledge that they believed should be included in the listing of important task and knowledge. See Appendices H1 and H2 for the content coverage write-in comments. The Test Specifications Committee reviewed the comments to determine whether there were important statements not covered on the survey that should be included in the test specifications.

Test Content Recommendations

In survey Section 4: Recommendations for Test Content, participants were asked to assign a percentage weight to each knowledge domain. The sum of percentage weights was required to equal 100. This information guided the Test Specifications Committee in making decisions about how much emphasis the domains should receive on the test content outline. The mean weights across all survey respondents are in Table 6.

Table 6. Survey Respondents' Test Content Recommendations by Mean Percentages and Standard Deviations

Domain	Mean (%)	SD (%)
1. Programming, Sustainability, and Site Analysis	7.6%	3.66
2. The Relationship Between Human Behavior and the Designed Environment	7.5%	3.95
3. Integration with Building Systems and Construction	7.8%	3.61
4. Furniture, Fixtures, and Equipment	9.6%	4.40
5. Interior Building Finishes and Materials	10.6%	4.31
6. Construction Drawings, Schedules, and Specifications	12.4%	5.10
7. Measuring, Drafting, and Technical Drawing Conventions	8.9%	4.50
8. Contract Administration	6.3%	3.08
9. Design Process and Communication Methods	7.8%	3.48
10. Code Requirements, Laws, Standards, and Regulations	9.9%	4.46
11. Project Process, Roles, and Coordination	5.5%	2.53
12. Professional Ethics and Business Practices	6.3%	4.73

Write-In Comments

Many survey respondents provided responses to the open-ended questions in Section 5: Comments about expected changes in their job role over the next few years and professional development/continuing education needs. See Appendix I for write-in comments.

DEVELOPMENT OF TEST SPECIFICATIONS

The test specification meeting for CIDQ's Interior Designer Exams occurred July 12th and 13th, 2019, in Alexandria, Virginia. A total of 11 committee members participated in the meeting. Nine members were in-person for the meeting and the remaining two joined remotely. For a list of participants, see Appendix B1.

The steps involved in the development of test specifications included the following:

- Presentation of the practice analysis survey and results to the Test Specifications Committee;
- Identification of the task and knowledge statements to be included on the three CIDQ test specifications;
- Division of knowledge statements by exam;
- Development of cognitive level recommendations;
- Development of the test content weights for the exam; and,
- Linkage of task and knowledge statements.

Presentation of the Practice Analysis Survey and Results to the Test Specifications Committee

The first activity involved in the test specification development was to provide the Test Specifications Committee an overview of the practice analysis activities that were conducted. This was followed by a presentation of the results of the study.

Identification of the Task and Knowledge to be Included on the CIDQ Exams

The Test Specifications Committee reviewed the task and knowledge results to make final recommendations about the areas that should be included on the exams.

The survey results served as the primary source of information used by the Test Specification Committee members to make test content decisions. Recommendations were based on the following criteria:

- Mean task and knowledge ratings;
- Frequency distribution of ratings; and,
- Appropriateness of the content for the examination.

Appendices J1 and J2 outline the task and knowledge approval decisions.

Tasks Recommended for Inclusion

- A total of 91 of the 92 tasks achieved mean ratings at or above 2.50 (Pass category). Two of the task statements that achieved a rating at or above were combined and the subsequent 90 tasks were included in the test specifications. Of the 90 statements included, 74 required no changes and 16 were included after being modified for clarity.
- No task statements achieved mean ratings between 2.40 and 2.49 (Borderline category).
- One task statement achieved mean ratings less than 2.40 (Fail category) and was rejected from the final test specifications.

Knowledge Recommended for Inclusion

- A total of 72 of the 90 knowledge statements achieved mean ratings at or above 2.50 (Pass category) in relation to both Interior Design and Health, Safety, and Welfare. All 72 of these statements were approved for inclusion in the final test specifications. 65 were included with no changes and the remaining seven were approved with minor changes.
- One knowledge statement achieved a mean rating between 2.40 and 2.49 (Borderline category) in relation to Health, Safety, and Welfare and a mean rating at or above 2.50 (Pass category) in relation to Interior Design. This item was not included in the final test specifications.
- 16 knowledge statements achieved a mean rating less than 2.40 (Fail category) in relation to Health, Safety, and Welfare and mean ratings at or above 2.50 (Pass category) in relation to Interior Design. Of these items, seven were included as is, seven were included with changes, and two were rejected.
- One knowledge statement achieved a mean rating less than 2.40 (Fail category) in relation to both Interior Design and Health, Safety, and Welfare and subsequently was rejected.

Table 7 contains the knowledge statements modified during this process.

Table 7. Knowledge Statements Modified on the Test Specifications

Domain	Knowledge	Notes
The Relationship Between Human Behavior and the Designed Environment	Human factors (e.g., ergonomics, anthropometrics, proxemics, psychological, physiological, social)	Added social to the examples
The Relationship Between Human Behavior and the Designed Environment	Universal Design (e.g., accessibility, ability level, inclusivity, special needs, aging population, bariatric, pediatric)	Clarified examples
Furniture, Fixtures, and Equipment	Procurement, delivery, and installation (e.g., sequencing, purchase orders, prepayment requirements, Customer's Own Material, liabilities, shop drawings, lead time)	Clarified examples
Interior Building Finishes and Materials	Wayfinding and signage (e.g., types, testing standards and codes, applications, installation methods, estimating, technical specifications)	Changed examples
Construction Drawings, Schedules, and Specifications	Floor plan (e.g., partition plan, construction plan, dimension plan)	Removed examples
Construction Drawings, Schedules, and Specifications	Phased construction plan	Modified for clarity
Contract Administration	Site visits and field reports	Removed examples
Contract Administration	Project meetings (e.g., management, protocol, minutes)	Reworked to include examples
Contract Administration	Project accounting (e.g., payment schedules, invoices, contractor pay applications and approvals)	Added to the examples
Design Process and Communication Methods	Communication techniques: Conceptual diagrams	Eliminated examples
Design Process and Communication Methods	Communication techniques: Data and research	Eliminated examples
Design Process and Communication Methods	Communication techniques: Planning diagrams	Eliminated examples
Professional Ethics and Business Practices	Project budgeting principles and practices	Edited for clarity
Professional Ethics and Business Practices	Contracts (e.g., legal considerations, liabilities, terms and conditions)	Edited for clarity

Division of Test Content

After determining which task and knowledge statements should be included in CIDQ's test specifications the Test Specifications Committee discussed how the content covered should be divided amongst CIDQ's three exams. Recommendations were based on the following criteria:

- Eligibility requirements for each exam;
- The survey results from Knowledge Scale "C. Time of Use: When is this knowledge primarily put into practice?"; and
- The survey results from Knowledge Scale "D. Cognitive Level: To what level should this knowledge be attained at the time the Interior Designer becomes NCIDQ certified?"

Each knowledge statement was assigned to either the Interior Design Fundamentals Exam (IDFX) or the Interior Design Professional Exam (IDPX). This decision was made using the "Time of Use" knowledge scale and the committee's consensus around when an interior designer should acquire the necessary knowledge. Knowledge statements the survey identified as requiring a high level of competence based on the "Cognitive Level" rating scale were then considered for additional inclusion on the Interior Designer Practicum Exam (PRAC).

The survey results for the "Time of Use" and "Cognitive Level" rating scales is in Appendix F2.

Cognitive Level Guidelines

The Test Specifications Committee also used the "Cognitive Level" survey results to provide guidance for the cognitive extent to which candidates should be tested. These recommendations were provided broadly at an exam level with more specific knowledge domain recommendations for future content development.

Tables 8 and 9 shows the recommendations for the cognitive level content coverage for the IDFX and IDPX.

Table 8. Interior Design Fundamentals Exam Test Content Cognitive Level Distribution Recommended by the Test Specifications Committee

Cognitive Level	% Weight
Recall	40%
Application	40%
Analysis	20%

Table 9. Interior Design Professional Exam Test Content Cognitive Level Distribution Recommended by the Test Specifications Committee

Cognitive Level	% Weight
Recall	40%
Application	70%
Analysis	40%

The Test Specifications Committee determined a specific breakdown of content by cognitive level was not necessary for the PRAC as it, by nature, tests candidates at only the application and analysis level.

The committee's guidance for content development can be found in Appendix K.

Development of Test Content Weights

After the knowledge statements were divided into the various exams, Test Specifications Committee participated in an exercise that required each member to assign a percentage weight to each of the knowledge domains. Weights were then entered into a spreadsheet and shown to the committee. The committee members were able to compare the test content weights from the other group members responses to their own estimates. This resulted in a productive discussion among the committee members regarding the optimal percentages for each exam.

Tables 10-12 shows the test specifications recommendation including the percentage content. The complete test specifications are in Appendix L.

Table 10. Interior Design Fundamentals Exam Test Content Weights Recommended by the Test Specifications Committee

Knowledge Domains	No. of Statements	% Weight
I. Programming and Site Analysis	3	10%
II. Relationship between Human Behavior and the Designed Environment	4	10%
III. Design Communication Techniques	3	10%
IV. Life Safety and Universal Design	2	20%
V. Interior Building Finishes and Materials	7	10%
VI. Technical Specifications for Furniture, Fixtures, & Equipment and Lighting	4	15%
VII. Construction Drawings, Schedules, and Specifications	13	20%
VIII. Professional Development and Ethics	2	5%

Table 11. *Interior Design Professional Exam Test Content Weights Recommended by the Test Specifications Committee*

Knowledge Domains	No. of Statements	% Weight
I. Programming and Site Analysis	4	15%
II. Relationship between Human Behavior and the Designed Environment	9	15%
III. Design Communication Techniques	6	10%
IV. Life Safety and Universal Design	4	20%
V. Interior Building Finishes and Materials	13	15%
VI. Technical Specifications for Furniture, Fixtures, & Equipment and Lighting	5	10%
VII. Construction Drawings, Schedules, and Specifications	7	15%

Table 12. *Interior Design Practicum Exam Test Content Weights Recommended by the Test Specifications Committee*

Knowledge Domains	No. of Statements	% Weight
I. Programming, Planning, and Analysis	7	15%
II. Code Requirements, Laws, Standards, and Regulations	5	30%
III. Integration With Building Systems and Construction	9	25%
IV. Contract Documents	17	30%

Linkage of Task and Knowledge Statements

Task and knowledge linking verifies that each knowledge area included on an examination relates to the competent performance of important tasks. As such, linking supports the content validity of the task included in the test specifications. Linking does not require the production of an exhaustive listing; rather, task-knowledge links are developed to ensure that each knowledge is identified as being related to the performance of at least one, or in most cases several, important tasks.

Linking also provides guidance for item-writing activities. When item writers develop questions for specific knowledge areas, they have a listing of tasks that relate to the knowledge. This provides context for developing examination questions, and assists the item writers in question design. The linkage of tasks to knowledge is in Appendix M.

SUMMARY AND CONCLUSIONS

The practice analysis study for CIDQ identified task and knowledge statements that are important to the work performed by interior designers. Further, the data collected will guide the development of the test specifications used for CIDQ's Interior Design Fundamentals Exam (IDFX), Interior Design Professional Exam (IDPX), and Interior Design Practicum Exam (PRAC).

The task and knowledge statements were developed through an iterative process involving the combined efforts of CIDQ, subject-matter experts, and Prometric staff. These statements were made into a survey and disseminated to active CIDQ members for verification/refutation. The survey participants were asked to rate the importance of task and knowledge statements and determine when and to what extent knowledge should be acquired by interior designers.

The results of the study support the following:

- All of the task and knowledge statements that were verified as important through the survey provide the foundation of empirically derived information from which to develop test specifications for the three CIDQ exams (IDFX, IDPX, PRAC).
- Evidence was provided in this study that the comprehensiveness of the content within the task and knowledge domains was well to very well covered.
- The process utilized and all of the information that resulted from the analysis supported the development of the test specifications.

In summary, the study used a multi-method approach to identify the tasks and knowledge that are important to the work performed by interior designers along with when and to what extent the should be mastered. The results of the study were used to develop the test specifications for the IDFX, IDPX, and PRAC.