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**THE INTERIOR DESIGN PROFESSION'S  
BODY OF KNOWLEDGE  
AND ITS RELATIONSHIP TO  
PEOPLE'S HEALTH, SAFETY, AND WELFARE**

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**September 2010**

**EXECUTIVE SUMMARY**

This Executive Summary is a compilation of the highlights of the research report entitled, *The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare* (September 2010). For an in-depth understanding of all aspects of the study, its purpose, rationale, methods, analysis and results, and conclusions, refer to the report in its entirety.

Note: Throughout this report, "BOK" (use of the acronym) refers to the interior design profession's body of knowledge. When reference is to the concept of a body of knowledge or other professions' bodies of knowledge, it is spelled out, i.e., "body of knowledge."

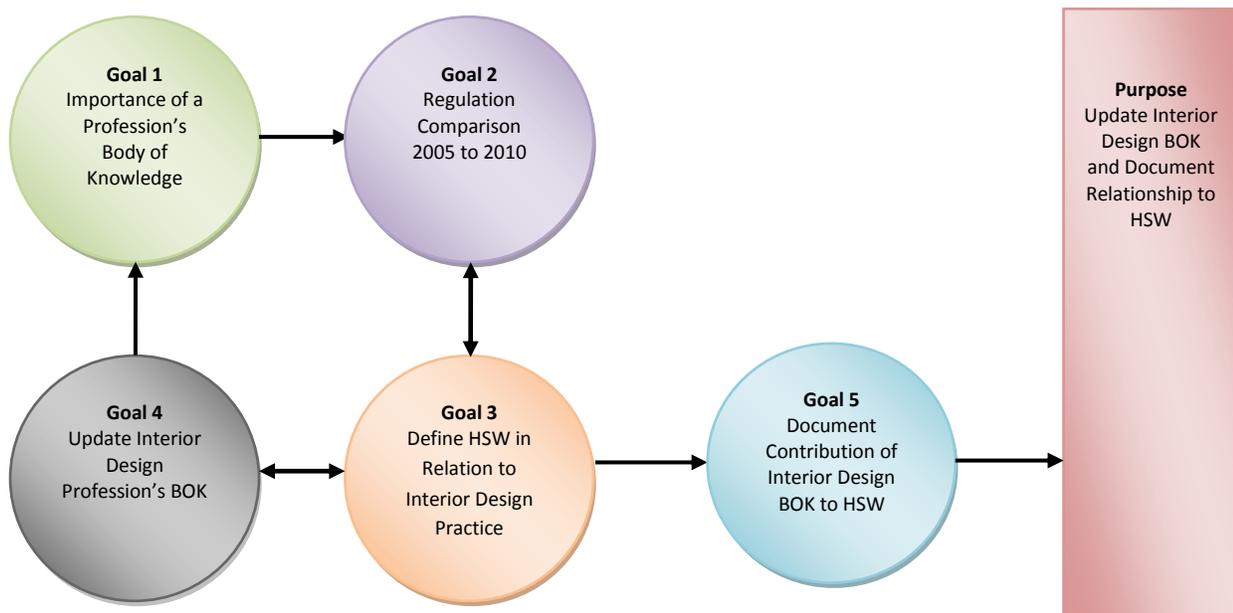
**Purpose of the Study**

The purpose of this study was to update the interior design profession's body of knowledge (BOK) and document its relationship to health, safety, and welfare (HSW). The following five specific goals were completed to accomplish this purpose:

Goal 1.	Provide an empirical basis for a profession's body of knowledge, relate the importance of a body of knowledge to professions, and document and assess interior design's professionalization journey;
Goal 2.	Compare 2010 interior design regulations to 2005 regulations and discuss the comparison as it relates to how interior design is defined and titled;
Goal 3.	Define and describe HSW as related to interior design practice;
Goal 4.	Update the interior design profession's BOK; and
Goal 5.	Document and analyze the contribution of the interior design profession's BOK to HSW within the context of interior design practice.

As a profession's body of knowledge and its work are inexorably linked, the goals of this study became a set of interrelated smaller studies. Figure 1.2 shows the interrelationship of these goals to achieve the purpose of the study. The outcome of the first goal was an investigation of professionalization literature, which underpinned the importance of an update of the interior design profession's BOK, the fourth goal. Parallel to those two goals, there was a need to review recent regulation of the interior design profession (the second goal and also a component of professionalization), which is contingent upon the public's knowledge that interior design practice contributes to their HSW. Therefore, a definition of HSW was required, which led to identification of HSW factors, i.e., words that define the **work** of the profession. Finally, all of these needed to be vetted by current interior design practitioners who actually do the work of the profession. This was the fifth and final goal, all of which, in this interrelated way, contributed to the purpose so it could be comprehensively addressed.

Figure 1.2. Interrelationships of Goals and Purpose of the Study.



### Rationale for Updating the BOK

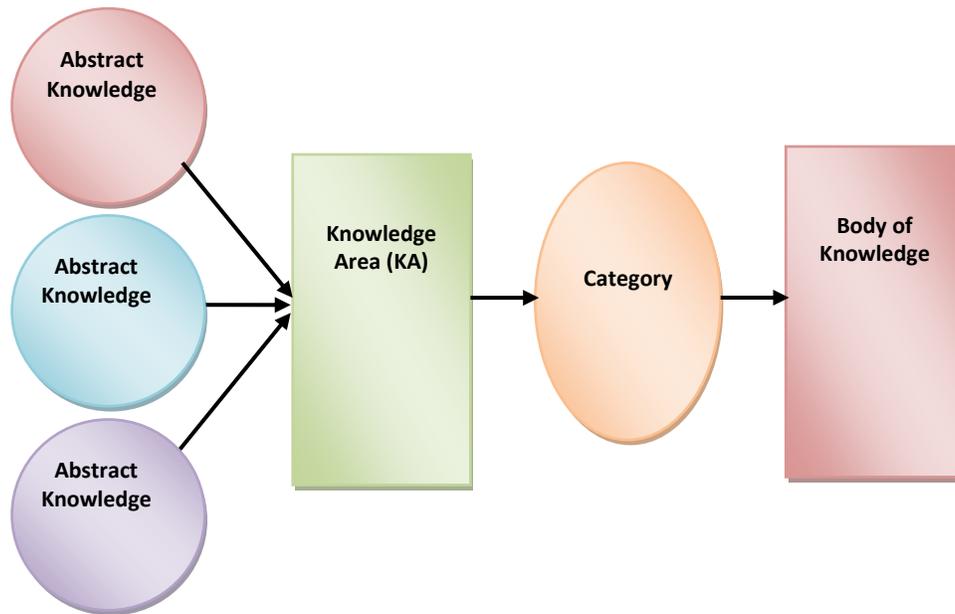
A body of knowledge is considered the foundation of a profession and abstract knowledge is the basis of a body of knowledge (Abbott, 1988). Abstract knowledge is the specialized knowledge that is required to practice and defines the interior design profession's

jurisdictional boundaries through the development and maintenance of knowledge. Knowledge constantly evolves, transforms, and grows, forever demonstrating its value; moreover, it must be discussed, defined, and documented by members of the profession. With a defined body of knowledge, it is possible to declare that a level of professionalization has been reached, the jurisdictional boundaries of knowledge of a profession can be identified, and gaps in knowledge can be defined. Once a profession has defined and documented its body of knowledge, its members can participate in the future growth and development of abstract knowledge in an informed way. The act of documenting the body of knowledge allows all members and other stakeholders to consider what is known by practitioners of the profession or what is newly developing and should be added to augment the current definition, which will change the profession's jurisdictional boundaries.

A profession is identified by society and the public as having expertise based on specialized knowledge. The process of becoming a profession, or professionalization, is “how modern societies institutionalize expertise” (Abbott, 1988, p. xii). The practitioners of a profession, in this case, interior design practitioners, are the ones who, through their practice or **work**, define and add to abstract knowledge that develops the body of knowledge, which, in turn, continues the development of the profession—an iterative process.

Abstract knowledge is the specialized knowledge required by interior designers to do their **work**, that is, to protect people's HSW through the design of interior environments. For example, in this study and report, knowledge areas (KAs) are comprised of clusters of abstract knowledge—the specialized knowledge that interior designers must have to practice. A KA is the umbrella or overarching meaning of specific abstract knowledge. KAs are then grouped into categories that are named to reflect a domain of knowledge within the entire body of knowledge. Figure 1.1 shows a conceptual model of a body of knowledge and the categories, which are comprised of KAs that contain abstract knowledge. It must be noted that Figure 1.1 shows only the relationship among these parts of a body of knowledge, not the number of each part.

Figure 1.1. Relationship of Abstract Knowledge to a KA and to Categories of a Body of Knowledge



### The Interior Design Profession's BOK as Related to HSW

As the world becomes more complex, changes have occurred in the interior design profession's BOK. These changes reflect interior designers' evolving, specialized knowledge and illustrate to the profession the need to develop and maintain its abstract knowledge. Since the first comprehensive definition and documentation of the interior design profession's BOK (Guerin & Martin, 2001), there have been societal changes that have affected people's HSW, such as public attention and emphasis on indoor air quality (IAQ), ergonomics, and employee performance in the workplace. These changes have also influenced the growth of interior design's specialized knowledge related to HSW. This typical, constant change in abstract knowledge is the impetus for changes in a profession's jurisdictional boundaries (Abbott, 1988). Subsequently, the BOK changes and requires periodic examination and revised documentation.

Further, external and internal factors are influencing the change in interior design's abstract knowledge. Interior design practitioners' knowledge is growing and their responsibility to protect the public's HSW is becoming regulated by legal jurisdictions throughout Canada and the United States. But, there are few documents that define the interior design profession's **work** as it relates to HSW. There are no studies that have tied together the profession's BOK and the relationship of HSW to practice.

This study was completed in response to the need for the profession to determine its jurisdictional knowledge boundaries as they relate to design for the public's HSW and to document for the public what interior designers do to protect them from harm, as it is the public for whom interior design **work** is done.

### **BOK Background**

The researchers of this study have conducted two previous studies of the interior design profession's BOK. The initial study was conducted in 2000, *The Interior Design Profession's Body of Knowledge: Its Definition and Documentation* (Guerin & Martin, 2001). Eighty-one KAs were assigned to one of seven categories: Codes (2 KAs), Communication (13 KAs), Design (22 KAs), Furnishing, Fixtures, & Equipment (7 KAs), Human Needs (11 KAs), Interior Building Construction (18 KAs), and Professional Practice (10 KAs). The purpose of the second study, the *Interior Design Profession's Body of Knowledge, 2005 Edition* (Martin & Guerin, 2006), was to update the BOK and to weight the categories and KAs within the categories to show relative importance. In the second study, 96 KAs were identified and assigned to six revised categories weighted by importance: Human Environmental Needs (20 KAs); Interior Construction, Codes, & Regulations (20 KAs); Design (19 KAs); Products & Materials (14 KAs); Professional Practice (13 KAs); and Communication (10 KAs).

It has been five years since the last snapshot of the profession's BOK. Given 1) the complexity and increase in quantity of built environment knowledge, 2) the importance of protecting the HSW of the public, and 3) the need to document the value interior design practitioners provide to the occupants of interior environments, it is essential to once again define and document the profession's BOK in context of these issues.

### **Methods**

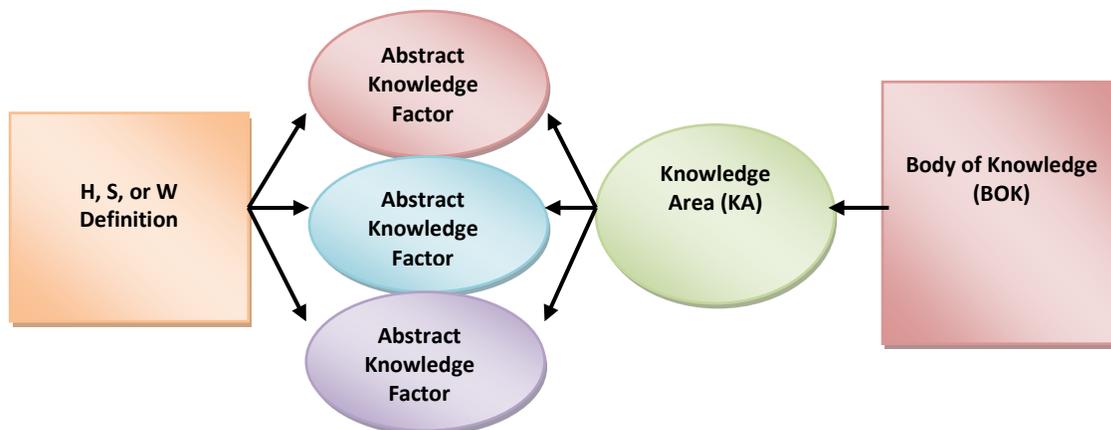
Following is a discussion of the research methods used to accomplish the five goals. **Goal 1** was accomplished by completing a review of professionalization literature. Documents were reviewed from a sample of professions that explored their relative importance to society, the roles they serve, and the path and process they took to become professions. This literature also covered the essential function served by each profession's body of knowledge to both society and the professions themselves, thereby establishing a context for the professionalization of interior design.

**Goal 2** was accomplished by a review of current regulatory language in Canadian and U.S. jurisdictions, i.e., provinces, states, and territories, relative to how interior design (by whatever title used) is defined and titled, i.e., the regulated title or name. This information was then compared to definitions and titles that were in place in jurisdictions in 2005 (Martin & Guerin, 2006). Regulatory language can be considered a measure of how regulatory bodies, such as licensing boards, define interior design and to what extent they understand/iterate/state/support the profession's role in protecting their citizens' HSW. Appendix B reports the regulatory language in Canada and the United States from 2005 and 2010, the regulated title in 2010, and the type of regulation in each jurisdiction.

**Goal 3** began with a review of over 200 pieces of literature from interior design, government, and public documents regarding various entities' definitions of HSW. From this literature, new definitions for the terms "health," "safety," and "welfare" relative to interior design were developed. Additionally, factors that represent the abstract knowledge content were identified in research literature and related to each term, i.e., health, safety, and welfare. It was apparent that definitions could be more meaningful by relating measurable factors from practitioners' work to the HSW definitions. These abstract knowledge factors could then be tied directly and meaningfully to interior design practice.

A conceptual model of this interrelationship might look like Figure 2.1, wherein factors are drawn from the definition of health, safety, or welfare and reflect the specialized knowledge of a KA, which comprises the BOK. In other words, factors arise from the confluence of the HSW definitions and the KAs that comprise the BOK.

Figure 2.1. Relationship of HSW Definition to Abstract Knowledge Factors from KAs.

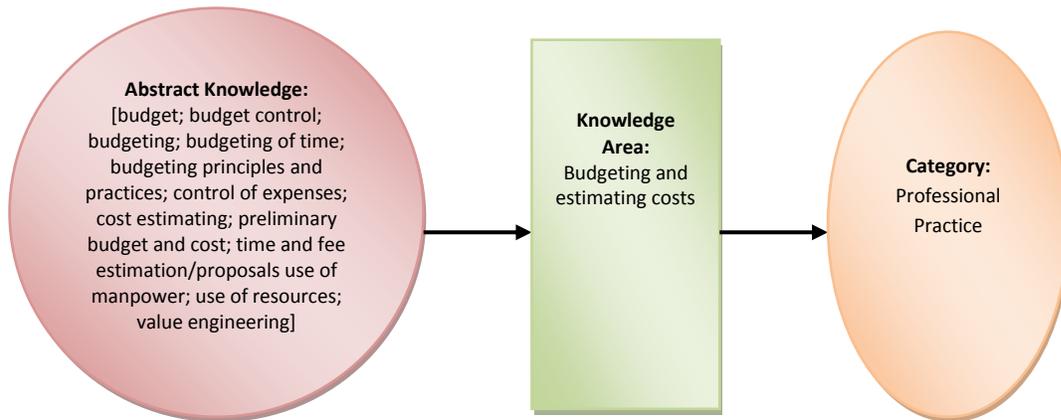


**Goal 4** was accomplished by conducting a content analysis of interior design documents from education, experience, and examination. The outcome was identification of abstract knowledge within the current BOK, grouping them into KAs, and then into categories. The findings, the 2010 BOK, were then used as the basis for Goal 5. Content analysis provides an objective, systematic, reproducible approach to derive meaning from any data that have been communicated, e.g., writing, audio recordings, video (Berg, 1989; Stemler, 2001). The basis of content analysis is the counting, coding, and categorization of data. This study applied manifest and latent content analysis through identification of words/phrases that were present in the source documents from interior design education, experience, and examination. Multiple raters were selected for their knowledge of a subject matter and then trained in the content analysis process. Decision rules were made by the researchers to guide and define coding, which impact both reliability and validity of the findings (Berg, 1989; Sommer & Sommer, 2002). Source documents used for this analysis were:

- Education: CIDA's *Professional Standards 2009*; Sections II and III (Council for Interior Design Accreditation, 2008). These sections pertain to interior design educational content, whereas other sections describe aspects of accreditation beyond abstract knowledge, such as faculty and facility requirements;
- Experience: NCIDQ's Interior Design Experience Program, *IDEP Guidelines*, "Task Content Areas" and "Task Content Area Descriptions" (National Council for Interior Design Qualification, 2009); and
- Examination: *Blueprint of the Exam Content Guide* from NCIDQ's *2008 Analysis of the Interior Design Profession* (National Council for Interior Design Qualification, 2008). This is a set of explicit knowledge areas that are used, exclusively, by examination item writers to be certain the practice analysis findings are reflected in the examination content.

Because of the quantity and variety of abstract knowledge that comprise the BOK, the researchers grouped abstract knowledge into KAs and assigned a Knowledge Area name. This relationship is shown in Figure 2.2 to clarify organizing terms that are subsequently used.

Figure 2.2. Relationship Among Category, KA, and Abstract Knowledge.



**Goal 5** was accomplished by conducting a survey of interior design practitioners to determine their perceptions of the contribution each KA in the BOK makes to health, safety, and welfare, independently, and as newly defined by the outcomes in Goal 3.

A questionnaire was developed by the researchers to determine interior design practitioners’ perception of each KA to each term “health,” “safety,” and “welfare. Data were collected from interior design practitioners who were NCIDQ certificate holders. These interior design practitioners were determined to be the study population because passage of the NCIDQ exam is recognized by all regulatory boards in Canada and the United States as one of the eligibility criteria for protection of the public’s health, safety, and welfare. Interior designers were asked to rate the extent of contribution of 10-11 different KAs, first to health, then to safety, and finally to welfare on a scale of 1-7 where “1” meant “no contribution” and “7” meant “extensive contribution.” An example of one question is shown in Figure 2.3.

Figure 2.3. Question Example.

<b>The following question was asked for health, safety, and welfare, so three questions were asked for each KA.</b>						
To what extent does the following knowledge area contribute to a client’s or user’s <b>health</b> ?						
❖ Human factors including such knowledge as:						
<ul style="list-style-type: none"> <li>• ergonomic and anthropometric data</li> <li>• proxemics, e.g., territoriality</li> <li>• physiological responses, e.g., visual acuity</li> </ul>						
No Contribution						Extensive Contribution
1	2	3	4	5	6	7

There are 65 different KAs in the BOK; each of them has many abstract knowledge factors. As interior designers had to rate each KA on three different terms (HSW), the KAs were randomly assigned to six different sample groups so practitioners needed to answer only about 35 questions, thus increasing the likelihood, accuracy, and thoughtfulness of their responses. Interior designers were randomly assigned to each of the six different groups who were representative of the population; each group was then sent a different questionnaire in May 2010.

The questionnaires were emailed to the sample of over 10,000 interior designers who were NCIDQ certificate holders. An initial question eliminated interior designers who had not practiced interior design in the last five years; the remainder, 1,578 people completed the entire questionnaire for a 17% return rate. They answered four demographic questions: 1) the number of years of practice, 2) type of practice (residential, commercial, mix), 3) gender, and 4) location of residence (state, province, territory), which gave a profile of each of the six groups of practitioners and the entire sample. The groups were compared for differences, and the characteristics of the entire sample (all six groups) were compared to the population characteristics for differences. Population data were based on the characteristics of NCIDQ certificate holders reported in the *2008 NCIDQ Analysis of the Interior Design Profession*. There were no significant differences in characteristics of each group so the entire sample was combined for analysis.

The sample shows that of those who responded to the questionnaire, 34.3% have practiced more than 20 years. The smallest group of interior designers, 13.4%, has practiced less than six years. The balance of them (52.1%) has practiced between 6 and 20 years. Two-thirds (66.9%) of the sample practice commercial interior design only. The rest were almost evenly split between those who practiced residential interior design only (16%) and those who practice a mix of residential and commercial interior design (17.1%).

Most of the interior designers are female (88.4%); 11.6% are male, which reflects the national numbers for all interior designers. Finally, 90.7% of the interior designers were from the United States; 8.9% were from Canada; and the balance (0.4%) was from other jurisdictions. All of the characteristics are similar between the six groups and from the entire sample to the population, meaning the results of this survey can be generalized to all NCIDQ certificate holders in Canada and the United States. Generalizing means that although only a portion of the population was tested, the characteristics of those sampled closely represent the characteristics

of all NCIDQ certificate holders, i.e., the population, and the answers of respondents would be very similar to the answers of those who were not sampled.

## Results and Discussion

This section presents the results of the study's goals. It is important to review the purpose and goals of this study to frame discussion of the results from the data collected and analyzed.

### Goal 1. Results of Examination of Professionalization

Goal 1 focuses on the importance of the professionalization process, the influence professions have on society and the professionals themselves, and the importance of a body of knowledge to a profession.

#### Definition and Characteristics of Profession

*Webster's New World College Dictionary* (2009) defines "profession" as "a vocation or occupation requiring advanced education and training and involving intellectual skills, as medicine, law, theology, engineering, teaching, etc....The body of persons in any such calling or occupation." According to Abbott (1988), professions are engaged in work that cannot be routinized, but instead involves the accumulation and application of abstract knowledge. Furthermore, Abbott states that "professionalization is how modern societies institutionalize expertise" (1988, p. xii).

Oppenheim and Pollecutt (2000) reviewed librarianship literature and found the basic characteristics of a profession included, "a specialized skill or knowledge gained through extensive education; the development of this body of knowledge through research; a valuable service that benefits society; and autonomy" (p. 187). Dyer (1985) in his discussion of medical ethics as a component of professionalism found that knowledge and expertise, service, and ethics define a profession. Khurana, Nohria, and Penrice (2005) note that "[w]hen the need for such judgment has arisen in other spheres that are vital to the interests of society (such as law and government, military affairs, health, and religion), modern societies have responded by creating the institutions that we know as professions." In comparing business management to the professions noted above, they identified four characteristics that define them:

- A common body of knowledge resting on a well-developed, widely accepted theoretical base;

- A system for certifying that individuals possess such knowledge before being licensed or otherwise allowed to practice;
- A commitment to use specialized knowledge for the public good, and a renunciation of the goal of profit maximization, in return for professional autonomy and monopoly power; and
- A code of ethics, with provisions for monitoring individual compliance with the code and a system of sanctions for enforcing it. (Khurana et al., 2005)

These early descriptors are supported in more recent literature. Walker in Romeo and Rigsby (2008) discussed accountancy and suggested that professions are comprised of four elements, “an intellectual basis...acquired by specialist training and education;...a code of ethical behavior; professional autonomy; and altruism as opposed to self-interest” (p. 418).

Singer (2003) studied traditional and online journalism and identified the benchmarks of a profession to be 1) a cognitive dimension, comprised of the profession's body of esoteric knowledge and the techniques and skills learned to apply that knowledge through training; 2) a normative dimension that encompasses the service aspects of the profession, including its code of conduct and ethics; and 3) autonomy, which allows the profession to identify appropriate standards, separation and identification from other professions and occupations, and status.

### **Role of Professions in Society (Canada and the United States)**

The role of a profession is characterized as protection of the public and actualized as safeguarding of life, health, and/or welfare (Abbott, 1988; Freidson, 1994; Tamir & Wilson, 2005). For example, “[e]stablishment of a ‘community of the competent,’” is used to describe the purpose of the accountancy profession (Miranti, as cited in Romeo & Rigsby, 2008, p. 416). In the case of teachers, “educators proclaim their concerns for the ‘future of our children,’ the ‘health of our democracy,’ or the ‘prosperity of our nation’” (Tamir & Wilson, 2005).

Professional responsibility is keenly felt by healthcare providers, air traffic controllers, defense attorneys, and others. This level of responsibility also confers autonomy and power and infers control over knowledge and the work that applies to that knowledge. As noted by Tamir and Wilson (2005), a profession is able to protect the public in important, essential ways by “maximizing the public good, even if economic, social, or political pressures suggest otherwise” (p. 335). Weidner and Kulick (1999), referencing Freidson (1994), discuss a professional's commitment to conducting work based in expert knowledge (gleaned from a body of knowledge) and maintaining a fiduciary relationship with clients as the foundation for affording privileges to professions. And, due to the globalization of knowledge, professions of the future

will need to operate within a paradigm of “risk-knowledge management” as their “professional jurisdictions, mandates, and values” evolve (Olgiati, 2006, p. 545).

### Process of Becoming a Profession

The professionalization process has been studied and documented innumerable times by sociologists and others studying a specific profession from within its ranks. According to Sullivan (2001) in the *Journal of Professional Nursing*, “Constructing a profession is similar to building a physical structure. It’s a slow, tedious, and often discouraging process. But, just as a building is assembled brick-by-brick, so is a profession similarly constructed” (p. 67).

The professionalization path is seldom easy and is affected by both internal and external factors. Internal factors typically consist of the actions of the those involved in the future profession such as their determination and clarity regarding their responsibilities to society and the clients they serve and especially their understanding of their body of knowledge as the foundation of their professional work (Martin, 1998).

External factors to the profession such as societal conditions, demographics, and public perception, also affect the professionalization process. The process can run smoothly or delays can occur due to interaction and protest from related professions that view the new or emerging profession as a challenge to their professional jurisdictional claims. For example, protests from persons currently operating within the boundaries of the new profession’s jurisdiction who do not have the newly identified and defined professional qualifications can confuse and delay professionalization. And, there are a myriad of other factors that hamper the new profession, which change over time.

It is the internal actions that are important to this review of where interior design is in the professionalization process as is typical of the professionalization process for all professions. Abbott (1988) identified directly and indirectly six internal actions taken by occupations or trades as they worked to become professions: 1) *professional association (also known as an “organization”) membership* for the purpose of creating community, 2) *name change* of the occupation to help create definition for the new profession, 3) *development of a code of ethics* to signal to professionals and the public that the profession has standards of quality and behavior, and 4) *legal recognition (also known as “regulation”)* to call out those individuals qualified to protect the public. Martin’s (1998; 2007) study of design professions added two internal actions that were indirectly identified by Abbott’s first internal action,

*professional association membership*. These two actions are implemented by professions in the form of membership requirements: 5) *educational requirements* as the basis of the profession's body of knowledge and 6) *comprehensive examination* of the body of knowledge and skills to establish a minimum level of competency, thereby identifying who is qualified to apply for legal regulation. A seventh internal action is *continuing education* as assurance to the public that the professional's knowledge base is current and continuously updated (Martin, 2007). Each action has been enacted by various professions to first establish and then maintain the boundaries of their profession's jurisdictions.

### **Importance of a Body of Knowledge to a Profession**

Formation and maintenance of a profession's jurisdiction is dependent on the profession's ability to create and apply abstract knowledge (Abbott, 1988). Professions, including interior design, are engaged in knowledge creation—whether or not this knowledge is defined and documented formally in a body of knowledge, have a foundation for engagement and service to the public and consumers (Cohen, 1958; Weidner & Kulick, 1999). This activity serves as both a statement of the profession's existence and as a basis for dialog and debate within the profession—further refining the body of knowledge. These actions support and reflect a principle function of a profession's behavior—constant change, instigated from both internal and external forces (Abbott, 1988). Defining and documenting a body of knowledge is an ongoing effort (Nickols et al., 2009), and for new or emerging professions the task can be daunting. Professions established at the beginning of the 20<sup>th</sup>-century, such as social work and family social science, found the process to be one of reflecting upon and documenting what was “known” over decades of development (Cohen, 1958; Nickols et al., 2009).

The interior design profession has followed both of these two processes to define and document their BOK (Guerin & Martin, 2001; Martin & Guerin, 2006). The profession's BOK has been disseminated to the profession and the public via a Web site ([www.careersininteriordesign.org](http://www.careersininteriordesign.org)), and much dialogue and scholarship have focused on discussion and debate about aspects of the profession's BOK, in terms of format, content, and purpose (Dohr, 2010; Guerin & Martin, 2004; Marshall-Baker, 2010; Rhoads, 2010; White & Dickson, 1994). This study itself is evidence of the continued interest in the BOK, commissioned by the Issues Forum members (comprised of the leadership of ASID, CIDA, IDC, IDEC, IIDA, and NCIDQ).

### Definition of a “Body of Knowledge”

A search to define “body of knowledge” yielded several results. Though the phrase is not defined by Merriam-Webster, a mainstay of dictionaries, *Wikipedia*<sup>TM</sup> (2009) offers the following definition:

...is used to represent the complete set of concepts, terms and activities that make up a professional domain, as defined by the relevant professional association. While the term body of knowledge is also used to describe the document that defines that knowledge—the body of knowledge itself is more than simply a collection of terms; a professional reading list; a library; a website or a collection of websites; a description of professional functions; or even a collection of information. It is the accepted ontology for a specific domain.

The importance of a profession's body of knowledge cannot be overstated. Defining it and documenting its components are often the first, important step in establishing and maintaining the jurisdictional boundaries of a profession. As noted by Northrup et al. (2004), when reporting on the current state of professional nursing:

Once differentiated as a distinct domain of knowledge, ultimate responsibility for expanding the conceptual basis of nursing science; for explicating the inextricable link between our theories, practice, and research; for articulating and extending nursing's contribution to healthcare, and; for elucidating the difference we make to the people we serve, rests within nursing and not with other disciplines. (p. 59)

It is apparent that a profession's body of knowledge is not static over time, and in fact, knowledge is accumulated, shared, or lost. Researchers suggest that a body of knowledge is the documentation of knowledge that is primarily used by professionals to a greater extent than by others, i.e., core knowledge, frequently used as the basis for decision making; it is specialized knowledge, some of it unique to the profession, and some is not—some portion of every profession's body of knowledge is shared among many professions. And, professionals integrate shared and unique knowledge in practice. (To review an examination of various professions and the creation, identification, definition, and documentation of their respective bodies of knowledge see *Section 3. Goal 1* of the study.)

### Analysis of Interior Design Professionalization and the BOK

Interior design is a profession, based on Abbott's theory of professionalization grounded in the seven internal actions that define a profession. Six of these actions have been

fully accomplished, and the seventh, legal recognition/regulation is underway in Canada and the United States (Martin, 2007). It is important to note that in Canada, IDC is the national organization for members within eight provincial interior design associations. (Prior to 2010, IDC was the umbrella organization over the provincial organizations themselves, not at the member level.) For the purposes of this analysis, one of the provincial associations, ARIDO, the largest association in terms of membership, will be used as an example of adoption of the seven actions taken by interior design to be a profession. Significant actions include:

- 1) *Professional Association (Organization) Membership*: ASID (1975; principal mergers beginning in 1931); IIDA (1994; from organizations established in 1969); and ARIDO (established in 1934 as Interior Designers of Ontario) are all interior design professional associations.
- 2) *Name Change*: Conscious separation from the name “interior decoration” and use of the name “interior design” occurred as the profession began expanding its focus on non-residential/commercial space design in the 1950s.
- 3) *Code of Ethics*: ASID, IIDA, and ARIDO have prescribed codes of ethics and conduct (as do other provincial organizations within Canada including IDC).
- 4) *Educational Requirements*: CIDA has accredited interior design programs in institutions of higher education in Canada and the United States (formerly known as FIDER, 1970-2006).
- 5) *Comprehensive Examination*: NCIDQ has offered an examination that addresses health, safety, and welfare since 1974; it has been the primary qualification examination in both Canada and the United States since 1970).
- 6) *Legal Recognition/Regulation*: Canadian regulation began in 1960 with a title act in Alberta and in 1973 with a practice/title act in Puerto Rico. Currently there are 34 Canadian and U.S. jurisdictions with title, practice/title, self-regulating, or permitting regulations. Every year there are regulatory efforts undertaken in these countries in multiple jurisdictions to clarify, enhance, or establish legal recognition/regulation of interior design.
- 7) *Continuing Education*: a requirement for maintaining professional membership in ASID, IIDA, and ARIDO, among other provincial organizations within IDC, as well as some regulatory jurisdictions. Interior designers must complete a specified number of continuing education units annually that are approved by the Interior Design Continuing Education Council (IDCEC), among others.

### Interior Designers Today

Interior designers are creating design solutions for interior spaces that include corporate, government, healthcare, hospitality, institutional, residential, and retail; and many specialize in sustainability, aging-in-place, universal design, or evidence-based design approaches. According to the U.S. Bureau of Labor Statistics (BLS), in 2006, there were 72,000 interior designers in the United States. That number is expected to grow 19% by 2016, raising the total to 86,000, which is higher than the average growth rate projected for all occupations (U.S. Bureau of Labor Statistics, 2009b).

An examination of *the Occupational Outlook Handbook, 2008-2009 Edition*, “Professional and Related Occupations” from the BLS (U.S. Bureau of Labor Statistics, 2008) presents occupations grouped under 16 major categories. “Interior designers” is a subheading under a major category, “Art and design occupations.” Other subheadings under that same major heading include, “artists and related workers; commercial and industrial designers; fashion designers; floral designers; and graphic designers” (U.S. Bureau of Labor Statistics, 2008). In the BLS (U.S. Bureau of Labor Statistics, 2009a) description of interior designers, the discussion of “Related Occupations” states,

Workers in other occupations who *design or arrange objects to enhance their appearance and function* include architects, except landscape and naval; artists and related workers; commercial and industrial designers; fashion designers; floral designers; graphic designers; and landscape architects. (*Italics added for emphasis; p. 4*)

This statement does not acknowledge the responsibilities to a person's HSW; instead, the focus is on designing and arranging of objects.

Interior designers' application of their BOK to plan and design interior space embodies their understanding and responsibility to protect the occupant's HSW. Interior designers protect and enhance people's interaction with the interior built environment, in addition to consideration of aesthetics and cost. Balancing the myriad needs and issues of the people using the space, cultural context, society, and sustainability is complicated; extensive qualifications are required to practice in the profession of interior design.

### Qualifications of Interior Designers

As a recognized profession, interior design has identified the three most crucial components necessary for an individual to be qualified to practice interior design. Formalized education, monitored experience, and a qualification examination—commonly referred to by

those in the interior design profession as the “three Es,” are considered the core qualifications of regulated professions in society today (Guerin & Martin, 2001). They define the acquisition of abstract knowledge, i.e., the BOK, accrued through formalized education, application through practice experience, and testing of practitioners’ comprehension and proficiency. The three Es ensure that the interior design professional protects the public’s health, safety, and welfare.

Consistent growth in CIDA-accredited programs and a significant increase in NCIDQ certificate holders are indicative that qualifications do matter, which has been recognized by institutions, prospective interior design students and their parents, educators, interior design practitioners, clients, and the public. Some people believe that interior designers need not meet recognized qualifications even though these qualifications are required and supported by the profession (Carpenter, 2006; Interior Design Protection Council, 2009; National Kitchen and Bath Association, 2008); and others believe that interior designers are not qualified enough (American Institute of Architects, 2009). Understanding and acceptance of qualifications to practice professional interior design are a matter of educating all stakeholders.

From this examination, evidence exists that professions are a well-established, growing facet of our society. Being a profession is acknowledged as a benefit by those engaged in the profession; the benefits to society are far-reaching and crucial as related to protection of life, health, safety, and welfare. This was demonstrated in this report of numerous professions and their development history and bodies of knowledge. In addition, the public trust afforded professions is generally appropriately granted, as professionals have attained specific, time-tested qualifications required to deliver necessary services to the public. Professions that maintain the quality of their expertise and application of knowledge in meeting the public’s needs are enduring, though they typically change over time; others with diminished use lose value and/or cease to exist over time.

It is apparent that interior design has achieved professional status as shown by the criteria from several theorists and researchers, e.g., Abbott (1988), Khurana et al. (2005), Flexner (1915), Freidson (1944), and Martin (1998, 2007).

In later sections of this executive summary, interior design’s BOK will be defined and documented. This report is one of many documents to discuss interior design’s BOK, though perhaps the most recent effort to document the interior design profession’s BOK in the context of its influence on HSW. These authors have done this twice before (Guerin & Martin, 2001; Martin & Guerin, 2006). The second BOK report was more refined than the first, and this BOK

study has an additional refinement as well—focusing on current knowledge areas as documented by entities of the profession and viewed in relation to HSW.

The profession's BOK is important not only to scholars, but educators, researchers, students, and other stakeholders such as clients, code officials, legislators, and the public. Spending 90% of our time indoors makes the design of interior spaces of paramount interest to us all.

## **Goal 2: Results of Examination of Regulation**

This segment of the report compares the 2010 interior design regulations to regulations from 2005 and discusses the comparison as it relates to interior design practice and HSW, specifically the KAs contained in regulatory language. To do this, definitions of interior design from regulatory language in both 2005 and 2010 were reviewed. Also, the specific title used to name the regulated interior design practitioner in a specific Canadian or U.S. jurisdiction is identified. (Definitions of interior design from all jurisdictions with regulation of interior design are presented in Appendix B of the report.)

### **Regulatory Process**

Regulatory process varies by jurisdiction, and moreover to a great degree between Canada and the United States. In Canada, provincial laws are enacted as bills by the legislative assembly but are regulated through the interior design associations within the province. For example, ARIDO, is both an interior design organization with members, similar to ASID, and regulates use of the title Interior Designer in Ontario. In the United States, the legislature enacts laws, namely statutes and rules on a state-by-state basis and is wholly separate from interior design membership organizations.

In both Canada and the United States, most interior design regulation has been enacted first as title legislation. These regulations typically control the title of the profession, but not the practice of the profession. What this means is that persons in a jurisdiction with interior design title regulation can call themselves Certified Interior Designers (as an example title), only if they have met the qualifications established by the jurisdiction. It is a violation of law for all others to use the protected title. However, in that same jurisdiction, anyone can practice interior design if there is only a title act. There are variations; a few jurisdictions afford additional privileges to persons who meet the qualifications, but they are not described in this report. In

contrast to title regulation, practice regulation controls the practice as well as the title/name. Under practice regulation, persons who are not qualified cannot use the title or practice interior design as defined in the regulatory language of the jurisdiction.

Table 3.1 identifies each Canadian and U.S. jurisdiction that regulates interior design, whether or not it was regulated in that jurisdiction in 2005 (at the time of the Martin & Guerin BOK study, 2006), and the title currently regulated. Also, the type of regulation is noted: "title/practice," "title," "self-certification," or "permitting." (Appendix B.) presents the jurisdictions' definitions of these titles.) It is important to review these definitions to identify any KAs that are contained in the language and connect them to HSW.

Thirty-four Canadian and U.S. jurisdictions regulate the title and/or practice of interior design. In Canada, there are seven provincial associations with title regulation; one regulates title and practice of interior design. For additional detailed information and to receive the most current information, contact the Interior Designers of Canada ([www.interiordesigncanada.org](http://www.interiordesigncanada.org)).

In the United States, 27 states and territories have regulation. Of them, six regulate both the title and practice of interior design: Alabama, Florida, Louisiana, Nevada, Puerto Rico, and Washington, DC. For additional detailed information and to receive the most current information, contact the regulatory board directly. Also, both ASID ([www.asid.org](http://www.asid.org)) and IIDA ([www.iida.org](http://www.iida.org)) provide information about regulatory activities.

Table 3.1. Interior Design Regulation in Canada and the United States (2005 and 2010).

<b>Canada</b>				
<b>Province</b>	<b>2005</b>	<b>2010</b>	<b>Title Regulated (2010)</b>	<b>Regulation Type (2010)</b>
Alberta	❖	❖	Registered Interior Designer	Title
British Columbia	❖	❖	Registered Interior Designer	Title
Manitoba	❖	❖	Professional Interior Designer	Title
New Brunswick	❖	❖	Registered Interior Designer	Title
Nova Scotia	❖	❖	Interior Designer	Title/Practice
Ontario	❖	❖	Interior Designer	Title
Quebec	❖	none		
Saskatchewan	❖	❖	Interior Designer	Title
<b>United States</b>				
<b>State or Territory</b>	<b>2005</b>	<b>2010</b>	<b>Title Regulated (2010)</b>	<b>Regulation Type (2010)</b>
Alabama*	❖	❖	Registered Interior Designer	Title/Practice
Arkansas	❖	❖	Registered Interior Designer	Title
California	❖	❖	Certified Interior Designer	Title (Self-Certification)
Colorado	❖	❖	Interior Designer	Permitting
Connecticut*	❖	❖	Registered Interior Designer	Title
Florida	❖	❖	Registered Interior Designer	Title/Practice
Georgia	❖	❖	Registered Interior Designer	Title
Illinois	❖	❖	Registered Interior Designer	Title
Indiana	none	❖	Registered Interior Designer	Title
Iowa**	❖	❖	Registered Interior Designer	Title
Kentucky	❖	❖	Certified Interior Designer	Title
Louisiana	❖	❖	Registered Interior Designer	Title/Practice
Maine	❖	❖	Certified Interior Designer	Title
Maryland	❖	❖	Certified Interior Designer	Title
Minnesota	❖	❖	Certified Interior Designer	Title
Missouri	❖	❖	Registered Interior Designer	Title
Nevada	❖	❖	Registered Interior Designer	Title/Practice
New Jersey	❖	❖	Certified Interior Designer	Title
New Mexico	❖	❖	Licensed Interior Designer or Licensed Designer	Title
New York	❖	❖	Certified Interior Designer	Title
Oklahoma	none	❖	Registered Interior Designer	Title
Puerto Rico	❖	❖	NA	Title/Practice
Tennessee	❖	❖	Registered Interior Designer	Title
Texas	❖	❖	Registered Interior Designer	Title
Virginia	❖	❖	Certified Interior Designer	Title
Washington, DC	❖	❖	Interior Designer	Title/Practice
Wisconsin	❖	❖	Registered Interior Designer	Title

\*Regulatory titles and language are in flux in several jurisdictions. This information was current at the time of the report, however situations are fluid.

\*\*Interior design was regulated in Iowa in 2005, but after the 2005 Edition of the BOK was published (Martin & Guerin, 2006).

### **Discussion of Regulatory Findings**

Generally, very little has changed within the definitions of interior design when all interior design regulations are taken into account across Canada and the United States between 2005 and 2010. In the 2005 study, there were 32 regulated jurisdictions in Canada and the United States; 33 if Iowa is counted as it took effect in 2005 shortly after that study was completed—as compared to a total of 34 jurisdictions that define interior design in 2010.

Since 2005, one jurisdiction is no longer regulated: Quebec, Canada; two additional jurisdictions are regulated in the United States: Indiana and Oklahoma. Of the seven Canadian provinces with regulation, only British Columbia has changed its definition of interior design. In the United States, of the 27 states, territories, and jurisdictions, approximately nine of them have had definitions of interior design language changes: Alabama, Colorado, Connecticut, Georgia, Illinois, Maine, New Mexico, Tennessee, and Texas. Overall, this represents a period of stability of interior design's regulatory definition(s).

### ***Regulatory Titles (Names)***

In 2010, the primary regulatory title used to identify interior design is “Registered Interior Designer” (18 provinces and states), followed by “Certified Interior Designer” in the United States (8 states). In Canada, the titles “Registered Interior Designer” (3) and “Interior Designer” (3) are used equally (Interior Designers of Canada, n.d.). That title is used minimally by states and territories in the United States; Puerto Rico (since 1973) and Washington, DC (since 1986) (Martin, 2007). Florida (1994) also used “Interior Designer” as a regulated title, in addition to “Registered Interior Designer,” but that “naked” title, i.e., “Interior Designer,” was found unconstitutional in early 2010 via a court ruling (Locke et al. v Shore et al., 2010). A “naked” title act was an issue because prior to the law being enacted many persons already used that name to identify themselves; therefore a descriptor was determined necessary to be used with the term “interior design,” e.g., “Registered Interior Designer.” This scenario describes why in most jurisdictions persons who consider themselves an “engineer” have the regulatory title “Professional Engineer.”

### ***Regulation and the BOK***

In legislators' views, protection of the public's HSW is the only reason a profession is (or should be) regulated and therefore serves as the means by which the public can identify who is

qualified through meeting minimal standards to use the title and/or practice a specific profession (Kleiner, 2006; Martin, 2007). As interior design continues on its professionalization journey, there is precedent for the profession to pursue regulation of its title and practice as an internal action to further identify it as a profession (Abbott, 1988; Martin, 2007). Professional status is closely tied to the development and maintenance of abstract knowledge, i.e., the profession's BOK. Interior design's efforts to be regulated in Canada and the United States, a nearly 50-year effort, have relied on the relationship between its BOK and HSW. Unfortunately, the definitions of interior design (by any name regulated, as discussed above) that comprise numerous jurisdiction's regulatory language belie this linkage.

However, there are also regulatory jurisdictions that have language that does contain a more comprehensive representation of interior design's KAs within their definition, perhaps best illustrated by those that incorporate or reference the NCIDQ definition of interior design (National Council for Interior Design Qualification, 2004a). Other jurisdictions' definitions do contain an extensive list of KAs representative of interior design's BOK. Many definitions seem restrictive as KAs are included and often present divisions between professions and their knowledge and responsibilities, although in practice, those divisions are often difficult to determine.

### ***Regulatory Support of HSW***

"Health, safety, and welfare" is evident in regulatory language in many cases, and in others, it is implied through the KAs noted in the definitions when applied by interior designers. Considering that the purpose of regulation is to "protect the public's health, safety, and welfare," it may be redundant to use those terms in regulatory language as they are the foundation of any regulation. Perhaps that is why that phrase is absent in most regulatory language. Other phrases that capture the essence of the protection of the public's HSW are clearly evident in the tie made overtly between the built environment and the people who will occupy it.

### **Goal 3. Results of Defining HSW as Related to Interior Design Practice**

In the following discussion of *Goal 3*, the purpose and rationale for defining HSW are discussed. New definitions for each HSW term as it related to interior design are presented.

### **Purpose of Defining Health, Safety, and Welfare**

“Protection of the public’s health, safety, and welfare” is a phrase frequently used by licensed professions such as medicine, architecture, and accountants to identify the effect their work has on people’s lives. Prevention of harm is the sole reason any occupation becomes regulated by government agencies (Kleiner, 2006; Martin, 2007), yet the exact meaning of each term in that phrase used to describe the prevention of harm is not always clear.

At the mile-high level, the terms “health, safety, and welfare” seem to be relatively straightforward and clear. However, upon closer inspection, the terms are not as well understood by the public, i.e., the people interior designers protect, and, often, by interior design practitioners themselves. Although interior designers are aware of the value a well-designed, supportive interior environment can bring to its occupants, interior designers generally do not articulate these types of overarching benefits to themselves or their clients. This omission may occur because practitioners do not consciously promote the value of interior design to their clients because they assume the protection of the public is inherent in practice. Therefore, it is important to define the terms “health,” “safety,” and “welfare” to clarify their meanings so interior design practitioners can articulate to their clients and the public 1) the value of designing to prevent harm and 2) clearly understand the ways in which their practices protect the public.

Results of Goal 3 show new definitions for each term, “health,” “safety,” and “welfare” in relation to the practice of interior design. Additionally, research about numerous abstract knowledge factors that describe each term (i.e., HSW) are then related to interior design practice.

### **Rationale for Defining HSW**

The importance of defining HSW cannot be overestimated. People spend 90% or more of their lives indoors, and they have many experiences, such as fires, falls, or exposure to toxic air, in interiors that can harm them. Or, conversely, people can experience environments that negate harmful outcomes and support their productivity, healing, satisfaction, social interaction, or comfort. Responsible, qualified interior designers design interior environments with the goal of increasing positive experiences. In this way, interior designers add value to people’s quality of life. Simply put, well-designed interiors improve the human condition.

However, the current definitions of health, safety, and welfare inadequately identify the outcomes of health, safety, or welfare in language that can be linked to the specialized knowledge that interior designers are required to master to practice. In other words, more explicit terminology for each definition will provide more concrete linkages so interior designers can relate their practice knowledge and application to each term (i.e., HSW). They will be able to document and fully express what they do to protect people through design of interior environments.

Additionally, without a demonstrated linkage between HSW and interior design practice, the public has little understanding of the influence interior designers have on people's lives in ways that prevent harm and improve daily working and living conditions. As suggested by Vanderwagen (2006), these are society's priorities. He stated, "In general...populations are seeking some safety and security in which to function in everyday life. After the police and public safety needs are addressed, preservation of the health and well-being of the population is usually the next priority in most societies" (p. 3).

### **Definitions of HSW**

The most recognized and often-quoted source of basic definitions of HSW for the interior design profession is NCIDQ (2004a). Although these definitions have served well, there is now the need to have definitions that are more specific, measurable, and connected to interior design practice. Definitions of each term, "health," "safety," and "welfare," were culled from a review of over 200 pieces of literature. Sources include dictionaries, government and public entities, and interior design-based publications. Also, abstract knowledge factors that provide meaning to each term (i.e., HSW) were identified as they relate to the BOK.

### **Health Defined**

Overall, dictionary definitions from the sources noted above address the physical, mental, emotional, and, in some cases, spiritual aspects of human health. Many government and public entities do not specifically define health, but address influences of good health or lack of good health. Literature from many of these entities revealed discussions about or observations of health and reflect a connection to interior design practice. Sources included the World Health Organization, the U.S. Department of Health and Human Services, the National Environmental Health Association, the National Institutes of Health, the National Science Foundation, the

National Institute for Occupational Safety and Health, the Occupational Safety and Health Association, and the U.S. Green Building Council, and others.

Professional interior design/design-related organizations and practitioners provide few definitions of health as related to interior design practice. However, their literature often includes descriptions of health-related design factors under the purview of interior designers, such as descriptions of health by Kopec (2006), the *Whole Building Design Guide* (Heerwagen, 2008), ASID (2010), IIDA (n.d.), ARIDO (n.d.a), the Business and Institutional Furniture Manufacturer's Association (2008), the Environmental Design Research Association (n.d.a), and others.

### **New Definition of Health as Related to Interior Design Practice**

Based on an analysis of the literature, a new definition of health was developed to reflect interior design practitioners' knowledge. It identifies where the profession's BOK intersects with health and describes the knowledge needed to design healthy interior environments. Health is actualized in design by the contributions of numerous abstract knowledge factors contained in KAs in the BOK.

**Definition of Health as Related to Interior Design Practice: Interior designers create interior environments that support people's soundness of body and mind; protect their physical, mental, and social well-being; and prevent disease, injury, illness, or pain that could be caused by occupancy of interior environments.**

### **Evidence of Protecting People's Health via the Interior Design BOK**

Interior designers' abstract knowledge is used to design interior spaces that protect people's health, i.e., that the factors that comprise the definition affect people's health. A sampling of four abstract knowledge factors contained within KAs of the BOK and their effect on health might include ergonomics, IAQ, light, and acoustics—and there are many others. The relationship between these factors and the BOK places designing for positive health squarely on responsible practice by the interior design profession.

### **Safety Defined**

Definitions of safety from dictionaries address the freedom or right people have to not be exposed to physical danger or risk; conditions must exist so that people will not be put in harm's way. Safety in the built environment is related to avoidance of risk and accidents. A review of government and public entities' publications authored by committees, commissions, departments, or other entities revealed that many of these entities do not specifically define safety, but address influences of safety or lack thereof. Sources included the National Safety Council (n.d.), a review of high-risk population occupancies by Thornton (2003), impacts experienced by those in healthcare settings (Cooper, Gaba, Liang, Woods, & Blum, 2000; Spath, 2000), creation of a Total Safety Culture (Geller, 2001) in work settings, occupational safety by the National Institute for Occupational Safety and Health (2007), and product safety as identified by the U.S. Consumer Product Safety Commission (n.d.) to name a few.

Professional interior design/design-related organizations and practitioners provide few definitions of safety as related to interior design practice. However, their literature often includes descriptions of safety-related design factors under the purview of interior designers, such as descriptions offered by Carson Guest (2008), Kopec (2006), the National Business Institute, the *Whole Building Design Guide*, ASID (American Society of Interior Designers, 2010), IIDA (International Interior Design Association, n.d.), ARIDO (Association of Registered Interior Designers of Ontario, n.d.b.) and the Business and Institutional Furniture Manufacturer's Association (n.d.a) as well as others.

### **New Definition of Safety as Related to Interior Design Practice**

Based on an analysis of the previous literature, a new definition of safety was developed to reflect interior design practitioners' knowledge. It defines where the profession's BOK intersects with safety and describes the knowledge needed to design safe interior environments. Safety is actualized in design by the contributions of numerous factors represented by KAs in the BOK.

**Definition of Safety as Related to Interior Design Practice: Interior designers create interior environments that protect people against actual or perceived danger; protect against risk from crime, accidents, or physical hazards; and prevent injury, loss, or death that could be caused by occupancy of interior environments.**

### **Evidence of Protecting People's Safety via the Interior Design BOK**

Interior designers' abstract knowledge is used to design interior spaces that protect people's safety, i.e., the factors that comprise the definition affect people's safety. A sampling of three abstract knowledge factors contained within KAs of the BOK and their effect on safety might include building systems; space planning; and specification of equipment, materials, and products. The relationship between these factors and the BOK places designing for safety squarely on responsible practice by the interior design profession.

### **Welfare/Well-Being Defined**

Definitions of welfare from dictionaries (it should be noted here that only the term *welfare* was searched in the dictionaries; *well-being* was not) frequently included the term well-being; the terms were found to be nearly interchangeable. Overall, these definitions address people's emotional state that signals their overall well-being. Welfare and well-being are used to define a person's social, psychological, and emotional quality of life. Definitions from government and public entities' publications authored by committees, commissions, departments, or other entities, revealed that many of these entities do not specifically define welfare, but address influences of welfare and well-being. Sources included the U.S. Department of Health and Human Services (2000), the U.S. National Research Council (2001), the American Association of Retired Persons (n.d.), the National Institute for Occupational Safety and Health (n.d.), and the U.S. Green Building Council (n.d.); as well as researchers (Strengmann-Kuhn, 2002) and entities (National Institutes of Health, n.d.) that focused on economic welfare

Professional interior design and design-related organizations and practitioners provide few definitions of welfare as related to interior design practice. However, their literature often includes descriptions of welfare-related design factors under the purview of interior designers,

such as is presented by Carson Guest (2008), Heerwagen (as cited in Kolleeny, 2003), and organizational literature of ASID (American Society of Interior Designers, 2010), IIDA (International Interior Design Association, n.d.), ARIDO (Association of Registered Interior Designers of Ontario, n.d.b), BIFMA (Business and Institutional Furniture Manufacturer's Association, n.d.b), IFMA (International Facility Management Association, 2010), and the Environmental Design Research Association (n.d.b), among others.

### **New Definition of Welfare as Related to Interior Design Practice**

Based on an analysis of the previous literature, a new definition of welfare was developed to reflect interior design practitioners' knowledge. It identifies where the profession's BOK intersects with welfare/well-being and describes the knowledge needed to design interior environments that provide for people's welfare/well-being. Welfare is actualized in design by the contributions of numerous factors represented by KAs in the BOK.

**Definition of Welfare as Related to Interior Design Practice: Interior designers create interior environments that support people's physical, psychological, social, and spiritual well-being; and assist with or contribute to their financial or economic management, success, and responsibility.**

### **Evidence of Protecting People's Welfare via the Interior Design BOK**

Interior designers' abstract knowledge is used to design interior spaces that protect people's welfare, i.e., the factors that comprise the definition affect people's welfare. A sampling of five abstract knowledge factors contained within KAs of the BOK and their effect on welfare might be occupant well-being and performance, human factors/behavior, cultural and social context, natural lighting/nature, and color principles. The relationship between these factors and the BOK places designing for people's welfare squarely on responsible practice by the interior design profession.

One overarching conclusion is readily apparent; there is an interrelatedness of the conditions that result in HSW. Roberts and Guenther (2006) say it well, "...numerous studies have shown that buildings designed for good IAQ, have many benefits, including increased production, safety, morale, and general well-being of the occupants, not to mention extended

life and value of the building” (p. 88). Interior designers specify the products, materials, finishes, and textiles, all of which can be selected to reduce off-gassing of toxins and create positive health issues for users. Interior designers also influence a person’s safety through the specification of room exiting and people’s egress paths. Finally, an interior environment that has good IAQ reduces fatigue, which can contribute to increased productivity and employee satisfaction—all of which reflect on how well a person functions in the interior environment.

#### Goal 4: Results of Updating the BOK

##### Discussion of BOK Categories and Knowledge Areas

The interior design profession’s BOK was updated by a content analysis method. Results of the BOK content analysis are discussed in this segment of the report. Included are the description of the categories and KAs within each category and identification of abstract knowledge in each KA. The raters found 65 KAs, which they placed into six categories. Each category has 7-16 KAs; each KA has from 1-30 terms factors that are identified as abstract knowledge and assigned to a KA. The categories are shown in Table 3.5 below:

Table 3.5. Categories with Number of KAs per Category.

<b>Category</b>
• Number of KAs
<b>Communication</b>
• 7 KAs
<b>Design Theory and Process</b>
• 16 KAs
<b>Human Environment Needs: Research and Application</b>
• 10 KAs
<b>Interior Construction, Codes, and Regulations</b>
• 10 KAs
<b>Products and Materials: Evaluation, Installation, Specifications, Inspection</b>
• 8 KAs
<b>Professional Practice: Principles, Methods, and Tools</b>
• 14 KAs

Categories were named to reflect the overall content of the KAs in each category. Category names used in this study were based on those established in the 2005 study (Martin & Guerin, 2006). Some category names were revised to clarify the category content. For example, “Professional Practice” from the 2005 study became “Professional Practice: Principles, Methods, and Tools.” This change meant aspects of the design process that relate to the business of interior design, i.e., “project scope and size” within “project management,” could be contained within this category, yet remain distinct from the design aspects of the design process, i.e.,

“detailed space plans” within “design development,” that were contained within “Design Theory and Process,” which had formerly been named “Design.”

It should be noted that in this study frequencies for KAs are not given, and KAs were not weighted for importance or contribution to their category or the BOK. Weighting allows a number to be attached to a KA, which can be used to artificially evaluate and assign a level of importance of a KA. As the BOK only represents the three stages of the first phase of the career cycle, i.e., education, experience, and examination, this level of importance could erroneously underpin decisions made by educators, practitioners, and researchers. It was determined that it is more important to identify *what* knowledge interior design practitioners attain in the first phase of their careers, a strength of content analysis (Stemler, 2001). Attaching a number to the KAs does not consider the quality, depth, or duration of learning the specific abstract knowledge.

### **Abstract Knowledge that Comprise KAs of the 2010 BOK**

Tables 3.6 – 3.11 show each category followed by a list of its KAs and a list of the abstract knowledge contained in that KA. The categories, KAs, and abstract knowledge are all listed in alphabetical order within the KA to help readers find certain content. The quantity of KAs and their abstract knowledge within categories varies. This is evidenced by the two largest categories, Design Theory and Process (16 KAs) and Professional Practice (14 KAs) versus the category with the fewest KAs, Communication (7 KAs). In many cases, the source documents contained abstract knowledge that was not identical but closely related to other abstract knowledge, and so the quantity of abstract knowledge within a KA increases such as within the KA “project management” (contains 13 abstract knowledge factors) within Professional Practice.

In other cases, abstract knowledge seemed to separate into smaller subgroups within a KA, and so the researchers assigned them as such. An example would be the subgroup contained within the KA “design process” in the Design Theory and Process Category. Subgroups of abstract knowledge within “design process” include “programming,” “schematic design,” “design development,” “contract documents,” and “contract administration,” and each of them have their own abstract knowledge. Subgroups were simply a way to organize the content and make it manageable. However, it was also discovered that in certain cases, the specificity of the abstract knowledge identified did not allow it to be part of another KA. For

example, “evidence-based design” and “wayfinding” were unique within the KAs. Also, in these cases, the KA may or may not contain additional abstract knowledge beyond that which is noted in the KA itself.

Table 3.6. Communication Category with KAs and Abstract Knowledge.

<b>Communication Category (7 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
communication	client and contractor meetings; client meetings; client/user interviews; collaboration; communication techniques and technologies; consensus building; discussions with the client; effective communicators; facilitation/negotiation; interviewing clients and users; liaison between the client and contractors; negotiation strategies; project team dynamics
construction documents	coordinated drawings, schedules, and specifications; general conditions; general notes - construction drawings and documents; as-built plan; construction drawings; demolition plan; detail drawings; detail page; drawings; drawings for interior construction; electrical plans and preliminary specs; elevation plan; floor plans; lighting plans and preliminary specs; reflected ceiling plan; working drawings; working drawings for all details; working drawings-custom cabinets and furniture; working drawings-interior construction - specifications and schedules for construction and materials; prescriptive, performance, and proprietary specifications; schedules; spec writing; specifications; specifications and related schedules; technical specifications
critical listening	critical listening skills; evaluate what they are hearing from several points of view, including but not limited to speaker credibility, logic and meaning of the message, underlying assumptions of the message
presentation(s)	color rendering; color use effectively in all aspects of visual communications, e.g., presentations, models, etc.; integrate oral and visual material to present ideas clearly; material and color boards; presentation of the conceptual drawings; presentation drawings across a range of appropriate media; presentations—oral, written, and graphic; presentation techniques and skills; presentation of a variety of ideas, approaches, and concepts; presentation materials; presenting the complete design to the client for approval; rendering, e.g., 3-D and 2-D
sketching	preliminary drawings; sketches as a design and communication tool (ideation drawings); three-dimensional sketches that explore the image of the concept
visual, written, and verbal design communication methods and techniques	digital media; graphic software; measuring, drafting, and technical drawing conventions; models; oral and written communication; visual design communication methods and techniques; written design communication methods and techniques
written form of agreement	bid forms/tender forms; bonds; bulletins; change orders; charts; contracts; contractual agreements; form(s); invoices; minutes and field reports; proposals; punch/deficiency list; purchase documents; purchase orders; records for tax purposes; tenant work letter requirements; transmittals

Table 3.7. Design Theory and Process Category with KAs and Abstract Knowledge.

<b>Design Theory and Process Category (16 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
acoustical design principles	no additional abstract knowledge
color and light principles and theories	color and light; interaction of light and color and their impact on one another and interior environments
color principles, theories, and systems	apply color effectively; color(s); color concept; color with regard to its multiple purposes
creative thinking	creative solutions that support human behavior within the interior environment; creative thinking and originality; innovation
design concept	concept(s); concept models; design concept statement; functional parti diagrams
design process	<p>phases of a project</p> <ul style="list-style-type: none"> <li>-programming [design problem (goals, objectives, performance criteria); goals; design research; project context; programmatic information; clients' and users' needs, goals, and special requirements; client requirements; gathering and analyzing information about the client's and user's needs; compiling and evaluating data; writing the program; matrices; adjacency matrices; square footage allocations]</li> <li>-schematic design [multiple design responses to programmatic requirements; design issues and implications; design application; bubble diagrams; block plans; stacking/zoning diagrams; preliminary plans, furniture layouts, materials choices, and other components; preliminary space and furniture plans that are appropriate to the budget and reflect the character, function and aesthetic concept; furniture, fixture, and equipment (layouts)]</li> <li>-design development [detailed space plans; mock-ups and prototypes; final recommendations for the complete project; procedures necessary to obtain approval of design; client approval for production of working drawings]</li> <li>-contract documents (note: see Communication category, "construction documents" for additional KAs) [interior design documentation; coordinating design drawings for these components (lighting, electrical, plumbing, and HVAC)]</li> <li>-contract administration [construction mock-ups; shop drawings; substitutions; inspection of the completed premises with review of deficiencies; inspection of final design solutions; project close-out]</li> </ul>
design theory	elements, principles, and theories of design; theories of two- and three-dimensional design, and spatial definition and organization; three-dimensional design solutions; two-dimensional design solutions
evaluating existing premises including space allocation, furnishings, equipment, and other attributes of the existing environment	existing conditions; field administration; inventory of furniture; measure and record all site conditions; site analysis; site analysis procedures; site inspection, survey, and documentation; space and conditions analysis
evidence-based design	evaluate, select, and apply information and research findings to design
historical precedent to inform design solutions	history; interiors, architecture, art and the decorative arts within a historical and cultural context; movements and periods in interior design and furniture; movements and traditions in architecture; social, political, and physical influences affecting historical changes in design of the built environment; stylistic movements and periods of art
natural and electrical lighting design principles	daylighting; lighting: color, quality, sources, use control; select and apply luminaires and light sources
principles of thermal design	no additional abstract knowledge
<b>CONTINUED ON NEXT PAGE</b>	

Table 3.7. Design Theory and Process Category with KAs and Abstract Knowledge (Continued).

<b>Design Theory and Process Category (16 KAs) CONTINUED</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
problem solving	creative problem solving; critical thinking; design responses/solutions; identify and explore complex problems; multiple design responses to programmatic requirements; problem solving methods; strategic planning; synthesize information
space planning	space and form; space relationships; spatial definition and organization
sustainability concepts, principles, and theories	renewable resources; sustainable design practices; sustainability; sustainability guidelines
wayfinding	signage

Table 3.8. Human Environment Needs Category with KAs and Abstract Knowledge.

<b>Human Environment Needs Category (10 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
business, organizational, and familial structures	client organization structure and facility type; familial structures (co-housing, nuclear, extended family, or others)
ecological, socio-economic, and cultural contexts	cultural contexts; ecological (issues); economic factors; environmental, social, psychological, cultural, aesthetic, global influences; external considerations; functional, behavioral, aesthetic, perceptual, cultural, and economic; functional, behavioral, and cultural needs; other cultures; social and cultural norms; social, political, economic, ecological issues; varied needs for different socio-economic populations
globalization	geography; global context for design; global view to weigh design decisions; implications of conducting interior practice within a world market; location; surroundings
human factors	anthropometrics; ergonomics; ergonomic and anthropometric data; physiological responses, e.g., visual acuity; proxemics, e.g., territoriality
lighting, acoustics, thermal comfort, and indoor air quality principles	acoustics; acoustical control; indoor air quality; indoor air quality principles; noise control, sound distribution, speech privacy; white noise
occupant well-being and performance	aging in place; children; elderly; health, safety, welfare; illness or injury; performance of building occupants; special needs - physical, cognitive, or emotional
post-occupancy evaluation	validity of design decisions and original programs
research	analysis of user satisfaction; development and execution of surveys and questionnaires; qualitative analysis tools, e.g., characteristics, special needs, image; quantitative analysis tools, e.g., functional program; research findings; research methods, e.g., interviewing, surveying, case studies, benchmarking/precedent; research special requirements and needs of a project
theories about the relationship between human behavior and the designed environment	behavioral science; human behavior; human behavior theories; relationship between human behavior and the built environment; relationship of object to body
universal design	design for all people including those with special needs – physical, cognitive, or emotional; universal/accessible design; universal design concepts

Table 3.9. Interior Construction, Codes, and Regulations Category with KAs and Abstract Knowledge.

<b>Interior Construction, Codes, and Regulations Category (10 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
building construction	building construction types; building methods; construction and installation standards; construction standards; construction types, e.g., wood, steel, concrete
building systems	-acoustical systems -distribution systems including power, mechanical, HVAC, data/voice telecommunications, and plumbing -energy management including HVAC, safety, and security [energy, security, and building control systems; environmental system and controls; mechanical systems; mechanical system design, airflow, occupant reaction to thermal variables; plumbing; plumbing plans and preliminary specs; plumbing systems] -lighting; electrical systems; light distribution, e.g., ambient lighting and task lighting; light source(s); lighting systems; low voltage systems; luminaires; sources (i.e., lamping, illumination) -pollutant source control, filtration, ventilation variables [CO <sub>2</sub> monitoring; mold prevention; thermal systems impact interior design solutions] -structural systems [structural systems and methods; wood-frame; wood-frame and steel-frame] -vertical circulation systems [elevators and stairways]
calculations	calculating requirements for numbers and sizes of stairs and exits, stair and corridor dimensions, ramps and public washrooms; foot candle requirements, energy efficiency, codes, lease requirements; square footage measurement standards
code requirements, laws, standards, regulations, accessibility, and sustainability	accessibility guidelines; codes; code requirements; energy conservation, energy efficiency; federal, state/provincial, and local codes; health codes; law(s); laws, codes, standards, and guidelines that impact fire and life safety; plans for barrier free design
critical path	critical path for construction and installation; design milestones, sequencing
interior construction	components, e.g., doors, windows, studs; non-structural systems including ceilings, flooring, and interior walls; relationship of design solutions and interior construction; sequencing of work, e.g., plumbing before dry walling
laws, codes, standards, and guidelines that impact the design of interior spaces	American National Standards Institute (ANSI); California 01350; CHPS; Energy Policy Act 2005; International Building Code (IBC); LEED; National Building Code of Canada
life safety	compartmentalization: fire separation and smoke containment; detection; devices that alert occupants including smoke/heat detectors and alarm systems; egress plan; fire and life safety; fire protection systems; life safety and code requirements; fire separation; movement: access to the means of egress including stairwells, corridors, exitways, egress; suppression: devices used to extinguish flames including sprinklers, standpipes, fire hose cabinets, extinguishers
regulations and ordinances	industry-specific regulations; regulations; regulations for education projects including daycare; regulations for government projects; regulations governing work in historic districts or on historic properties
researching life safety and code requirements, project type location, and access	permit requirements; searching and documenting codes, regulations, and ordinances; variances for particular requirements

Table 3.10. Products and Materials Category with KAs and Abstract Knowledge.

<b>Products and Materials Category (8 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
building materials and finishes	finish materials; maintenance requirements; materials; materials and finish selection; materials and products; material selection; selection, specification, use, and care of interior finishes, materials, and lighting
custom work	architectural woodwork; custom cabinetry, furniture, and millwork; details; detailing of custom cabinetry, furniture, and millwork; fabrication and installation methods; product assembly; product development; production time
floor, wall, and ceiling systems	ceiling treatments; floor coverings; wall treatments; window treatments
furniture, fixtures, equipment, and finish materials	furniture, fixtures, and equipment (selection; furnishing and textile selection; textiles; flammability); select and specify furniture, fixtures, equipment, and finish materials; selection of furnishings, textiles, materials, finishes, and colors
installation	installation scheduling; furniture delivery; schedules for installation of furniture, fixtures, and equipment; scheduling; installation supervision; supervising the installation of furniture, fixtures and equipment
interface of furniture with distribution and construction systems	integration with building systems and construction
performance criteria	quality control; quality control and performance; select and apply appropriate materials and products on the basis of their properties and performance criteria, including environmental attributes and life cycle cost; technical knowledge
selection and application of products and systems impact indoor air quality	toxicity

Table 3.11. Professional Practice: Principles, Methods, and Tools Category with KAs and Abstract Knowledge.

<b>Professional Practice Category (14 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
budgeting and estimating costs	budget; budgeting; budget control; budgeting of time; budgeting principles and practices; control of expenses; cost estimating; preliminary budget and cost; time and fee estimation/proposals; use of manpower; use of resources; value engineering
business development	bringing in new clients; market sectors and client types; marketing the services of the firm; marketing tools; public image; public relations; public speaking
business practice	business and organizational structures; business licenses required by local jurisdictions; human relations; lease requirements; legal considerations (e.g., liabilities and forms of business); maintaining an efficient and effective practice; organization, structure, and goals; sole proprietor, partnerships; strategic planning (internal); types of design practices
consultations with consultants	specialized consultants including: acoustical consultants; audiovisual consultants; architects; contractors/construction managers; decorators; developers; electrical, structural mechanical, civil engineers; food service consultants; graphics/signage designer; landscape architects; leasing agents; lighting consultants; lighting, electrical, plumbing, and HVAC consultants; real estate professionals
contributions of interior design to contemporary society	community service; contemporary issues affecting interior design; public and community service; value of interior designers' contribution to the built environment
ethical and accepted standards of practice	leadership; practice of interior design; professional ethics; professionalism; professional practice; professional values
financial management	accounting principles; accounting; billing and design compensation; contract fee systems; fee for services/fee systems; financial aspects; financial limitations; income; methods of compensation; payouts
legal aspects of the contracts	awarding of contracts; contracts between clients and designers; contract negotiation; contracts with consultants and sub-consultants; prepayment requirements
legal recognition for the profession	certification; professional licensure; registration
liabilities	errors and omissions insurance; insurance contracts; insurance coverage; insurance issues; insurance; legal responsibility for all documents and drawings; professional exposure and liability
multi-disciplinary collaboration	determine other disciplines/specialized skills needed; good relations with contractors and suppliers; integrated design practice; integration of disciplines; integration of the work of consultants; interaction with multiple disciplines; multi-disciplinary team projects; team work structures and dynamics; team work
office procedures and regulations	office management; office procedures and technology; operating a design business; operations
professional development	professional organizations; professional activities; life-long learning; continuing education
project management	bidding process; bidding; close-out procedures; coordinate the tasks and scheduling; coordination of program requirements with consultants; determine scope of work; job observation; on-site observation; project accounting; project budget/budget review/progress and tracking; project budget; project budgeting/tracking during design phases; project coordination procedures and the roles of related design professionals; project coordination; project management of consultants; project management, project communication, and project delivery methods; project meetings/meeting management/meeting protocol; project planning; project schedule/schedule review/progress and tracking; project size and scope; scheduling; site visits

The purpose of updating the BOK was to identify the current KAs so they could be used in an empirical study to determine the level of contribution each KA makes to people's HSW through the practice of interior design. The content analysis of abstract knowledge provided the researchers with the content for the practitioner survey conducted to accomplish the next goal, Goal 5. In that way, it was critical to determining the current BOK, but that is the extent of the importance of the content analysis.

### **Goal 5: Results of Examining the Relationship of HSW to the Interior Design BOK**

A survey of interior design practitioners was conducted to identify their perceptions of the contribution each KA makes to "health," "safety," and "welfare." A questionnaire was developed and sent to 10,040 interior design practitioners who are NCIDQ certificate holders in Canada and the United States. The response rate was 17% (N=1578). Findings are the result of descriptive, statistical, and inferential analyses.

All respondents, i.e., interior designers, were asked to rate KAs on their contributions to HSW, independently. That is, they assigned a score or rating to each KA for each term; one score for health, a second score for safety, and a third score for welfare. They rated the extent of contribution on a scale of 1-7 where "1" meant "no contribution" and "7" meant "extensive contribution."

#### **Descriptive Analysis Results**

##### ***Overall Contribution of BOK Categories to HSW***

The first results discussed are the contribution level of each BOK category to HSW. The Human Environment Needs Category was found to have the highest contribution level of all categories to health and welfare. It also had the highest grand mean, which implies it contributes the most of all categories to HSW, combined (see Table 3.13). The grand mean is the average of all means for each term and is calculated by averaging the means of responses for each term. It does not reflect a question asked of respondents; it is an analysis tool that helps describe responses.

Table 3.13 Contributions of Interior Design BOK Categories to HSW.

Category		Health	Safety	Welfare	Grand Mean
Human Environment Needs: Research and Application Category	Mean	5.85	5.38	5.84	5.69
	SD	1.28	1.45	1.21	1.31
Interior Construction, Codes, and Regulations	Mean	5.52	5.92	5.42	5.62
	SD	1.49	1.37	1.47	1.44
Products and Materials: Evaluation, Installation, Specifications, and Inspection	Mean	5.59	5.79	5.32	5.57
	SD	1.47	1.34	1.47	1.43
Design Theory and Process	Mean	4.85	4.47	5.09	4.80
	SD	1.36	1.44	1.39	1.40
Communication	Mean	4.32	4.44	5.22	4.66
	SD	1.87	1.91	1.68	1.82
Professional Practice: Principles, Methods, and Tools Category	Mean	3.86	3.90	4.86	4.21
	SD	1.59	1.56	1.47	1.54
Total	Grand Mean	5.00	4.98	5.29	5.09
	SD	1.05	1.03	1.08	1.05

There is a tight range of grand means among the top three categories relative to the highest contributions to HSW: Human Environment Needs Category at 5.69; Interior Construction, Codes, and Regulations Category at 5.62; and the Products and Materials Category at 5.57. Both the Design Theory and Process Category (grand mean of 4.80) and the Communication Category (grand mean of 4.66) contribute at the substantial level.

The means for the Human Environment Needs Category are at the extensive contribution level for health (5.85) and welfare (5.84) and the substantial contribution level for safety (5.38). The Interior Construction, Codes, and Regulation Category contributes the most of all categories to safety, which is also at the extensive (5.92) level. The Professional Practice Category contributes the least of all categories to HSW, independently, as well as to HSW combined. However, the KAs in this category still contribute at the moderate level for health (3.86) and safety (3.90) and at the substantial level for welfare (4.86). All categories, except Professional Practice are perceived as contributing substantially to the BOK.

Also shown in Table 3.13, the grand mean of all categories (reading down the columns) of the BOK contribute at the substantial level to health (5.0), safety (4.98), and welfare (5.29). Moreover, it is interesting to note that KA categories' contributions to welfare (5.29) are higher than health and safety.

The category contributing most to HSW combined, and highest in contribution to both health and welfare independently, is Human Environment Needs. It contains KAs that are the heart of interior design practice. KAs such as universal design; human factors; occupant well-

being; lighting, acoustics, thermal comfort and IAQ; and human behavior theories directly impact people's health by application of knowledge that prevents disease or pain and enhances people's emotional and spiritual well-being.

The Interior Construction, Codes, and Regulations Category contributes the most of any category to safety. KAs in this category include code requirements, laws, and standards; life safety; and interior and building construction. These KAs directly protect people from physical hazards within an environment.

The Products and Materials Category also contributes at the substantial level across HSW. Abstract knowledge such as building materials and finishes; performance criteria; and selection and application of products and systems impact indoor air quality are representative of the importance of this category's KAs.

The Communication Category contributes at the substantial level to welfare, which is higher than its contribution to health or safety. The Professional Practice Category contributes at the moderate level (grand mean of 4.21) to overall HSW. The category has lower means than other categories but still contributes at the substantial level to welfare, which reflects the category's KAs of legal, ethical, financial, and business operations issues. These KAs focus on the internal factors of practice that directly affect people's financial stability and success.

### ***Contributions of KAs to HSW***

Contributions of the KAs to HSW are described in detail, separately within the report. To view the findings of these descriptive statistics, reported as means and standard deviations, and related discussion, see *Section 3. Goal 5* of the study, Tables 3.15-3.17.

All of the 65 KAs are distributed among the three highest levels of contribution, that is, KAs in the BOK contribute to welfare at the extensive, substantial, and moderate level. None are at the lower levels of minimal or no contribution, unlike contributions by KAs to health (5 KAs, 8%, at the minimal level) or safety (7 KAs, 11%, at the minimal level). Five of eleven KAs that contribute extensively to welfare are from the Human Environment Needs Category. The four highest contributors are from this category confirming the importance of KAs such as "universal design [e.g., design for all people]," "occupant well-being and performance [e.g., physical, cognitive, emotional]," and "human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]" to protecting people's welfare.

### ***Comparison of KAs Within Categories as They Relate to HSW***

Findings from descriptive analysis report the contributions of KAs to HSW within the six categories; they too are available in the study, *Section 3. Goal 5*. Category results are being reported in the order of the KAs' contributions, highest grand mean to lowest. Complete results can be found in Tables 3.18-3.23.

#### ***Human Environment Needs Category***

Of the 10 KAs within the Human Environment Needs Category, nine of 10 KAs contribute to health at the extensive (4 KAs) or substantial level (5 KAs); seven of 10 KAs contribute to safety at the extensive (3 KAs) or substantial level (4 KAs); and all KAs contribute to welfare at either the extensive (5 KAs) or substantial (5 KAs) levels. In the Human Environment Needs Category, "universal design [e.g., design for all people]" is the highest contributor to HSW. This KA includes abstract knowledge such as universal/accessible design and design for people with special needs – physical, cognitive, or emotional. It is important to note that none of the KAs within this category are at the minimum level of contribution and only four of the 10 KAs are at the moderate level of contribution.

#### ***Interior Construction, Codes, and Regulations Category***

The Interior Construction, Codes, and Regulations Category presents the second highest contribution to HSW (grand mean of 5.62), and its KAs contributions to safety are the highest among all categories (mean of 5.92). Of the 10 KAs within the Interior Construction, Codes, and Regulations Category nine of 10 KAs contribute to health at the extensive (5 KAs) or substantial (4 KAs) level; all KAs contribute to safety at the extensive (9 KAs) or substantial (1 KAs) level; and all KAs contribute to welfare at either the extensive (2 KAs) or substantial (8 KAs) level. In this category, all KAs contribute to safety at the extensive level, except for "critical path," which contributes to safety at the moderate level. Also, the KAs contributing to safety are contributing at a high level; of the nine KAs at the extensive level of contribution, eight have scores ranging between 6.05-6.76—greater than any other KA's contribution to safety in the BOK.

#### ***Products and Materials Category***

Overall, of the eight KAs within the Products and Materials Category, seven contribute to health at the extensive (5 KAs) or substantial (2 KAs) level; all eight KAs contribute to safety

at the extensive (5 KAs) or substantial (3 KAs) level; and all eight KAs contribute to welfare at either the extensive (1 KA) or substantial (7 KAs) level. In the Products and Materials Category, “selection and application of products/systems and their impact indoor air quality” is the highest KA contributor to health and welfare, but is fifth in level of contribution to safety. This KA includes toxicity. “Furniture, fixtures, equipment, and finish materials” is the highest KA contributor to safety, third highest contributor to health, and fourth highest contributor to welfare—but at the extensive level for safety and health and at the moderate level for welfare. Within this category, all KAs contribute to HSW at the extensive or substantial levels, except for “installation,” which contributes to health at the moderate level. This KA contributes the least to HSW in this category.

### *Design Theory and Process Category*

Overall, of the 16 KAs within the Design Theory and Process Category, which is the category with the highest number of KAs of all six categories, 12 of 16 KAs contribute to health at the extensive (1 KA) or substantial (11 KAs) level; seven of 16 KAs contribute to safety at the extensive (1 KA) or substantial (6 KAs) level; and 13 of 16 KAs contribute to welfare at either the extensive (1 KA) or substantial (12 KAs) level. “Natural and electrical lighting design principles” is the highest contributor to health and welfare and third highest contributor to safety. This KA includes knowledge of “daylighting; lighting: color, quality, sources, controls; and the selection and application of luminaires and light sources.” “Design process [e.g., programming, schematic design, design development, contract documents, contract administration]” is the second highest contributor to safety and welfare and third highest contributor to health. This KA contains a significant amount of abstract knowledge that is the foundation of responsible design.

### *Communication Category*

Of the seven KAs within the Communication Category, two of seven KAs contribute to health at the substantial level; two of seven KAs contribute to safety at the extensive level; and five of seven KAs contribute to welfare at either the extensive (2 KAs) or substantial (3 KAs) level. “Critical listening” is the highest contributor to health and second highest contributor to safety and welfare; “communication [e.g., consensus building, collaboration, facilitation/negotiation]” is the highest contributor to welfare and the third highest contributor

to health and safety. "Construction documents" is the highest contributor to safety, second highest contributor to health, and the fourth highest contributor to welfare. The importance of being able to communicate a design solution through appropriate drawings that demonstrate the knowledge that protects the public cannot be overstated, and is indicative of this KA's extensive level of contribution to safety.

### ***Professional Practice Category***

Of the 14 KAs within the Professional Practice Category, three of 14 KAs contribute to health at the substantial level, with the majority of KAs (seven) contributing at the moderate level; four of 14 KAs contribute to safety at the substantial level, with equal numbers (5 KAs) contributing at the moderate or minimal levels. Regarding welfare, the majority (11 KAs) of the 14 KAs contribute at the substantial level, with the remainder (3 KAs) contributing at the moderate level. "Consultation with consultants" is the highest KA contributor in all three areas of HSW, at the substantial level. Perhaps this KA contributes at the highest level as it includes all consultants in areas of design that cross over interior design practice and with whom an interior designer works depending on project scope, part of which may require knowledge outside the interior design BOK. Consultants are not limited, to but can include, acoustical and audiovisual consultants; architects; contractors/construction managers; decorators; electrical, structural mechanical, civil engineers; graphics/signage designers; and lighting, electrical, plumbing, and HVAC consultants. Though this category includes the second highest number of KAs in the BOK, it is unique in that it contains abstract knowledge that is basically inward in its focus, which may be contributing to its grand mean (4.21), the lowest among all six categories (see Table 3.13). However, KAs contained within this category are essential to the development and maintenance of the interior design profession.

### **Statistical Analysis Results**

A series of ANOVAs was conducted to examine if there is a significant difference between demographic groups relative to the extent of contributions of BOK categories to HSW. The demographics investigated were professional practice type, location where interior designers lived by region, and years of practice. Significant findings are summarized in the next segment.

### ***Category Contribution to HSW by Professional Practice Type***

Interior designers were asked to identify the type of interior design they practiced, “nearly 100% commercial,” “nearly 100% residential,” or “about an even mix of commercial and residential.” Results from these three groups, i.e., different practice types, were then tested for any differences in their responses to the contribution levels of KAs to HSW. Differences were found for health and welfare, but not for safety.

### ***BOK Category Contributions to HSW by Region***

Analysis was also conducted to determine if there were any differences among interior designers' rating of the contributions of KAs to HSW based on the regions where they lived. There were differences found for HSW across specific categories. Complete information can be found in the study, *Section 3. Goal 5*, Tables 3.26-3.28.

### ***Category Contributions to Health by Region***

There is a statistically significant mean difference in the rating by interior designers of the level of contribution of the Design Theory and Process Category to health across different regions. Interior designers practicing in Southern, Northeastern, or Western United States are more likely to highly rate the contribution of Design Theory and Process Category to health than Midwest interior designers, though all rated the contributions of the Design Theory and Process Category KAs at the substantial level.

### ***Category Contributions to Safety by Region***

There are also statistically significant mean differences in interior designers' rating of the level of contribution to safety by the Human Environment Needs Category and the Products and Materials Category. Overall, Canadian interior designers are less likely to highly rate the contribution of the Human Environment Needs Category and the Products and Materials Category to safety than U.S. interior designers. The level of the Products and Materials Category contributions to safety by interior designers in the South, Northeast, and West United States were at the extensive level, and at the substantial level for respondents in the Midwest United States and Canada.

### ***Category Contributions to Welfare by Region***

There are statistically significant mean differences in interior designers' rating of the level of contribution to welfare in three categories: Interior Construction, Codes, and

Regulations; Products and Materials; and Professional Practice. Overall, Canadian interior designers are less likely to highly rate the contribution of each of these three categories to welfare than U.S. interior designers. Ratings of the contributions of welfare within all three categories by interior designers in the South and West United States rated contributions of the Products and Materials Category and the Professional Practice Category most highly to welfare. Interior designers in the South and Northeast United States rate the Interior Construction, Codes, and Regulations Category most highly to welfare.

### ***BOK Category Contributions to HSW by Years of Practice***

In this study's sample, over two-thirds of the interior designers had practiced eight years or more; differences based on years of interior design practice were compared. Years of practice were examined in three ranges: "1-7 years," "8-15 years," or "16+ years." Findings relevant to HSW are presented in detail in the study, *Section 3. Goal 5*, Tables 3.29-3.31.

### ***Category Contributions to Health by Years of Practice***

There is a statistically significant mean difference in the rating by interior designers who have practiced less than eight years on the level of contribution by three categories to health: Communication; Design Theory and Practice; and Interior Construction, Codes, and Regulations. In other words, the contributions of these categories to health are rated significantly higher by more experienced interior designers (8+ years of practice). However, relative to the Interior Construction, Codes, and Regulations Category, there is no statistically significant difference of means regarding the rating of contribution by this category to health between those interior designers with 1-7 years versus 8-15 years of practice.

### ***Category Contributions to Safety by Years of Practice***

There is a statistically significant mean difference in the rating by interior designers who have practiced more than 16 years on the level of contribution by two categories to safety: Design Theory and Process and Professional Practice. In other words, with more experience, interior designers' rating of the contributions of these categories to safety continues to grow.

### ***Category Contributions to Welfare by Years of Practice***

There is a statistically significant mean difference between the rating by interior designers with more than 16 years of practice and those who have practiced 1-7 years on the level of contribution of five of six categories to welfare. In other words, findings indicate that

with more experience, interior designers' rating of the contributions of these categories to welfare increases. Interior designers with the most years of practice rated the KAs in these categories higher. It is likely that business experience and the impact of embedded knowledge gained via practice and continuing education are contributing to these findings. Based on these results, a closer look at KAs was warranted to determine if years of practice have any significant effect on the study results.

#### ***KA Contributions to HSW as Influenced by Years of Practice***

Descriptive analysis was used to determine differences and similarities between years of practice on KA contributions to HSW. Only those KAs that were significantly different are shown. For this analysis two groups were used. Group 1 includes interior designers with 1-7 years of practice; Group 2 includes interior designers with 8 or more years of practice. The findings and detailed discussion can be found in the study, *Section 3. Goal 5*, Tables 3.32-3.34.

#### ***KAs Contributions to Health by Years of Practice***

Group 1 (1-7 years) and Group 2 (8 years or more) rated the contributions of the same 12 KAs to health with the highest rating, and all were at the extensive level. The highest rated 12 KAs are distributed across three categories: Interior Construction, Codes, and Regulations; Products and Materials; and Human Environment Needs.

#### ***KAs Contributions to Safety by Years of Practice***

Descriptive analysis of the two practice groups comparing contributions of KAs to safety show that there are 18 KAs rated at the extensive level (5.81-7.0) by interior designers in both Group 1 and Group 2. Of these, 16 KAs are the same. The highest rated KA contributions to safety are distributed across all six categories.

#### ***KAs Contributions to Welfare by Years of Practice***

Descriptive analysis of the two practice groups comparing contributions of KAs to welfare shows results are more diverse than health and safety. Group 1 has seven KAs rated at the extensive level, and Group 2 has 14 KAs at the same level. Of the seven KAs from Group 1, all are also rated at the extensive level of contribution to welfare in Group 2. Additionally, four of the first five KAs across both groups of interior designers are exactly the same. The KAs at this extensive level of contribution to welfare are distributed across all categories with the exception of Professional Practice.

### **Inferential Analysis Results**

Many of the descriptive analysis results previously presented raised additional questions. When possible, descriptive findings were further examined via inferential statistical analysis. As a result higher degree of validity could be assigned to the findings. The results of this analysis follow.

#### ***Contribution of BOK Categories to HSW by Years of Practice***

Analysis was conducted to determine any differences between the two groups of years of practice (Group 1 who practiced 0-7 years vs. Group 2 who practiced 8 years or more) and the contribution each BOK category made to HSW, independently. To do this, *t*-test comparisons were conducted to examine if rated contributions of BOK categories to HSW significantly differed between the two groups.

#### ***Category Contributions to Health by Years of Practice***

In results from a *t*-test that examined category contributions to health across both groups (i.e., Group 1 and Group 2), Group 2 has a higher mean score than Group 1 in all six categories. However, there are significant differences in only four categories: Communication; Design Theory and Process; Interior Construction, Codes, and Regulations; and Professional Practice. This finding may indicate that the more experienced interior designers put a greater emphasis on these four categories to achieve the goal of designing to protect people's health in their design practices or that embedded knowledge contributes more significantly to KAs found in these categories.

#### ***Category Contributions to Safety by Years of Practice***

In results from a *t*-test that examined category contributions to safety across both groups (i.e., Group 1 and Group 2), Group 2 has higher mean scores than Group 1 in five categories and is the same in one category. The five categories that indicate significant differences are: Communication; Design Theory and Process; Human Environment Needs; Interior Construction, Codes, and Regulations; and Professional Practice. This finding may indicate that the more experienced interior designers put a greater emphasis on these five categories to achieve the goal of designing to protect people's safety in their design practices.

### ***Category Contributions to Welfare by Years of Practice***

In results from a *t*-test that examined category contributions to welfare across both groups (i.e., Group 1 and Group 2), Group 2 had higher mean scores than Group 1 in all six categories. Of the six, there are significant differences in four categories: Communication; Design Theory and Process; Interior Construction, Codes, and Regulations; and Products and Materials. This finding may indicate that the more experienced interior designers put a greater emphasis on these four categories to achieve the goal of designing for people's welfare in their design practices.

### ***Contribution of KAs to HSW by Years of Practice***

*T*-test comparisons were conducted to examine if there are significant differences between years of practice and KA contribution to HSW.

### ***Contribution of KAs to Health by Years of Practice***

Out of 65 KAs, there are only 11 KAs where significant differences in interior designers' ratings of the contribution of KAs to health are found between the two groups, i.e., Group 1 and Group 2. The means for each KA for Group 2 are higher than Group 1. Therefore, Group 2 is more likely than Group 1 to rate more highly the contribution of all those KAs to health.

### ***Contribution of KAs to Safety by Years of Practice***

Out of 65 KAs, there are 20 KAs where significant differences in interior designers' ratings of the contributions of KAs to safety are found between the two groups, i.e., Group 1 and Group 2. Group 2 rates all but two of the KAs more highly than Group 1. Therefore, for KAs with higher means, Group 2 is more likely than Group 1 to rate more highly the contribution of those KAs to safety. The two KAs that Group 1 rate higher were "floor, wall, and ceiling systems" and "life safety."

### ***Contribution of KAs to Welfare by Years of Practice***

Out of 65 KAs, there are 12 KAs where significant differences in interior designers' ratings of the contribution of KAs to welfare are found between the two groups, i.e., Group 1 and Group 2. Group 2 rates all but one KA higher than Group 1. Therefore, for KAs with higher means, Group 2 is more likely than Group 1 to rate more highly the contribution of those KAs to welfare. The KA that Group 1 rated higher is "business, organizational, and familial structures."

### Comparison of Years of Practice and Practice Type

Using statistical analysis, it was found that there were significant differences in the demographics of interior designers who participated in the study, across both number of years of practice and practice types. To determine if either of these variables influenced interior designers' ratings of the contributions of KAs to HSW, z-tests were conducted. Results indicated that there is a significant difference between the years of practice and type of practice. The proportion of commercial interior designers is higher in Group 1 (1-7 years) than in Group 2 (8+ years).

Conversely, the proportion of residential interior designers is higher in Group 2 than in Group 1. However, there is no significant difference in the third practice type, the mix of commercial and residential interior design and years of practice. Further analysis showed ratings of contributions of KAs to HSW were not influenced by years of practice interacting with practice type

Descriptive, statistical, and inferential analyses of interior designers' rating of the contribution of KAs to HSW provide a depth of information not previously documented. Overall, findings reinforce the importance of the interior design profession's BOK to people's HSW both at the category and KA levels. Further investigation is warranted to understand influences of practice type and years of practice on ratings of KA contributions to HSW. An additional look at welfare differences relative to regions where interior designers live would provide additional information. Results for analysis can be found in the study, *Section 3. Goal 5*, Tables 3.35-3.37.

### Recommendations and Conclusions

The researchers have identified recommendations for the interior design profession that address all five goals of this study. They are steps that need to be taken by the profession to support its future relative to its BOK and contributions to HSW. These recommendations include:

- *Recommendation 1. The interior design profession must understand its vision of where it wants to be and develop strategies on how to get there. Contribution to the profession's BOK must be at the core of these efforts.*
- *Recommendation 2. Research must be conducted that measures abstract knowledge that protects the public's HSW. This is research of the science of interior design and will connect the BOK to HSW by identifying, documenting, and measuring HSW*

*outcomes. Measured results of these outcomes will further support the regulation of practice, to the benefit of people via protection of their HSW.*

- *Recommendation 3. Interior design practitioners must become and remain engaged with the evolving BOK or be marginalized by the profession as being less qualified.*
- *Recommendation 4. The connection between interior design practice and research must be strengthened, integrated, coalesced, and automatic.*
- *Recommendation 5. NCIDQ must update its definition of interior design practice to accurately represent the 2010 BOK.*
- *Recommendation 6. The interior design profession must work toward changing the U.S. Bureau of Labor Statistic's definition of interior design to reflect its contributions to HSW and prevention of harm, as well as how the profession is currently categorized.*
- *Recommendation 7. Once vetted, the interior design profession's definitions of HSW should be publicized and promoted to the public as a description of the abstract knowledge that interior designers possess and critically apply.*
- *Recommendation 8. Interior designers must be able to articulate their ability to prevent harm through design of interior environments. They must:*
  - *include design goals that have metrics attached to them to determine when solutions achieve the predicted outcomes;*
  - *develop a vocabulary around HSW and their practice outcomes;*
  - *be able to talk about the human and environmental benefits related to HSW beyond their passion for the design solution itself; and*
  - *document the relationship between their work and HSW as defined by the study.*
- *Recommendation 9. The interior design profession needs to be a stakeholder in NIOSH's Prevention through Design National Initiative (National Institute for Occupational Safety and Health, 2007).*
- *Recommendation 10. Regulatory bodies need to require continuing education on welfare, not just health and safety.*
- *Recommendation 11. Welfare abstract knowledge factors must be researched by interior design researchers to provide evidence of improved human conditions via design of the interior environment.*
- *Recommendation 12. Interior design practitioners and researchers need to change the order of the HSW terms and speak of these terms as WELFARE, health, and safety (WHS) to reflect interior design practitioners' critical contribution to quality of life.*
- *Recommendation 13. Educators must determine curriculum focus based on results from the interior design practitioners' rating of KA contributions to HSW.*

*The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare* is a complex study, intended to update the interior design profession's BOK and document its relationship to health, safety, and welfare. Five specific goals were completed to accomplish this purpose. The researchers strongly suggest that the study be considered in its entirety as this Executive Summary is too condensed to present the extensive and significant findings contained in the full report, especially as it concerns the results from the survey of interior design practitioners in *Section 3. Goal 5*.

Upon completion of this five-goal study, the researchers identified four overarching conclusions about KA contributions to HSW:

- *The survey findings provide evidence that the KAs contained in the BOK significantly contribute to interior design practitioners' ability and responsibility to protect the public's HSW;*
- *The survey findings document that interior designers' specialized knowledge underpins their goal and responsibility of protecting people;*
- *As evidenced in this study, the specialized knowledge provided by interior designers' education, experience, and examination (i.e., their BOK), shows they are prepared to protect people's HSW, and, in fact, prevent people from being harmed and, based on this evidence;*
- *Interior design practice in public spaces must be regulated so that people know when they are receiving services from interior design practitioners who understand and apply the interior design profession's BOK and are able to design interior environments that protect them.*

This study informs the interior design profession where its jurisdictional boundaries are, regardless of their fluidity. It defines for the public, and all the built environment design professions, the content of the interior design profession's abstract knowledge, based on vetted documents, in a way that cannot be disputed. This abstract knowledge is the currency of the profession, that is, the way the public and all stakeholders identify the value added by responsible interior designers who are qualified by education, experience, examination, and regulation to prevent them from coming to harm in spaces where they live their lives. Moreover, interior designers' application of abstract knowledge will improve the quality of their lives.

The researchers are looking forward to the dialogue that the profession will conduct based on this study. They hope the evidence-based recommendations will be considered in light of their contributions to the profession's continued development.

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## SECTION 1. INTRODUCTION

The purpose of this study was to update the interior design profession's body of knowledge (BOK) and document its relationship to health, safety, and welfare (HSW). The following five specific goals were completed to accomplish this purpose:

- Goal 1. Provide an empirical basis for a profession's body of knowledge, relate the importance of a body of knowledge to professions, and document and assess interior design's professionalization journey;
- Goal 2. Compare 2010 interior design regulations to 2005 regulations and discuss the comparison as it relates to how interior design is defined and titled;
- Goal 3. Define and describe HSW as related to interior design practice;
- Goal 4. Update the interior design profession's BOK; and
- Goal 5. Document and analyze the contribution of the interior design profession's BOK to HSW within the context of interior design practice.

Note: Throughout this report, "BOK" (use of the acronym) refers to the interior design profession's body of knowledge. When reference is to the concept of a body of knowledge or other professions' bodies of knowledge, it is spelled out, i.e., "body of knowledge."

### Updating the BOK

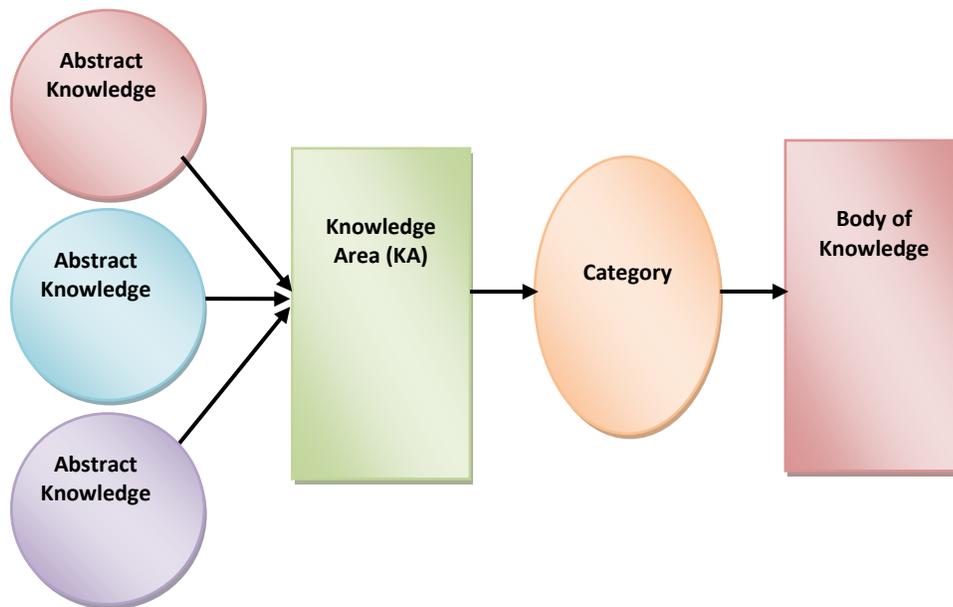
What is a "body of knowledge," and why should it be of concern to the interior design profession? A body of knowledge is considered the foundation of a profession and abstract knowledge is the basis of a body of knowledge (Abbott, 1988). Abstract knowledge defines the interior design profession's jurisdictional boundaries through the development and maintenance of knowledge. Knowledge constantly evolves, transforms, and grows, forever demonstrating its value; moreover, it must be discussed, defined, and documented by members of the profession. With a defined body of knowledge, it is possible to declare that a level of professionalization has been reached, the jurisdictional boundaries of knowledge of a profession can be identified, and gaps in knowledge can be defined. Once a profession has a defined and documented body of knowledge, its members can participate in the future growth

and development of abstract knowledge in an informed way. The act of documenting the body of knowledge allows all members and other stakeholders to consider what is inherent in the profession or what is newly developing and should be added to augment the current definition, which will change the profession's jurisdictional boundaries. For example, the interior design profession maintains jurisdiction over a specific body of knowledge (Martin, 1998), and interior designers are primarily responsible for developing their profession's BOK.

A profession is identified by society and the public as having expertise based on specialized knowledge. The process of becoming a profession, or professionalization, is "how modern societies institutionalize expertise" (Abbott, 1988, p. xii). Defining and documenting a profession's body of knowledge is one of the indicators that a practice or trade has undertaken steps to become a profession. The practitioners of a profession, in this case, interior design practitioners, are instrumental in the development and survival of the profession over time. Because they are the ones who, through their practice or **work**, define and add to abstract knowledge that develops the body of knowledge, which, in turn, continues the development of the profession—an iterative process.

In the context of interior design practice, it means, "...the public's perception [is] that the essence of a profession is its **work** [boldface added]..." (Abbott, 1988, p. 112). Abstract knowledge is the specialized knowledge required by interior designers to do their **work**, that is, to protect people's HSW through the design of interior environments. For example, in this study and report, knowledge areas (KAs) are descriptors of clusters of abstract knowledge—the specialized knowledge that interior designers must have to practice. A KA contains abstract knowledge that comprises that KA, which is the umbrella or overarching meaning of specific abstract knowledge. KAs are then grouped into categories that are given a name that suggests a domain of knowledge that comprises the entire body of knowledge. Figure 1.1 shows an organizational model of a body of knowledge and the categories within it that are comprised of KAs that contain abstract knowledge. It must be noted that Figure 1.1 shows only the relationship among the parts of a body of knowledge. Many abstract knowledge factors cluster to create a KA. In turn, several KAs are grouped into one category. Finally, the body of knowledge is comprised of several categories.

Figure 1.1 Relationship of Abstract Knowledge to a KA and to Categories of a Body of Knowledge.



### The BOK as Related to HSW

As the world becomes more complex, changes have occurred in the interior design profession's BOK. These changes reflect interior designers' evolving, specialized knowledge and illustrate to the profession the need to develop and maintain its abstract knowledge. Since the first comprehensive definition and documentation of the interior design profession's BOK (Guerin & Martin, 2001), there have been societal changes that have affected people's HSW, such as public attention and emphasis on indoor air quality (IAQ), ergonomics, and performance. These changes have also influenced the growth of interior design's specialized knowledge related to HSW reflected in interior design practice. This typical, constant change in abstract knowledge is the impetus for changes in a profession's jurisdictional boundaries (Abbott, 1988). Subsequently, the body of knowledge changes and requires periodic examination and revised documentation.

Further, external and internal factors are influencing the change in interior design's abstract knowledge. Interior design practitioners' knowledge is growing and their responsibility to protect the public's HSW is becoming regulated by legal jurisdictions throughout Canada and the United States. But, there are few documents that define the interior

design profession's **work** as it relates to HSW. There are no studies that have tied together the profession's BOK and the relationship of HSW to practice.

This study was completed in response to the need for the profession to determine its jurisdictional knowledge boundaries as they relate to design for the public's HSW and to document for the public what interior designers do to protect them from harm, as it is the public for whom interior design **work** is done.

### **BOK Background**

The researchers of this study have conducted two previous studies of the interior design profession's BOK. The initial study was conducted in 2000, *The Interior Design Profession's Body of Knowledge: Its Definition and Documentation* (Guerin & Martin, 2001). It was funded by the Association of Registered Interior Designers of Ontario (ARIDO). The 2001 study was a descriptive analysis of content that identified KAs, but did not weight them for their importance to practice or for their level of contribution to the entire BOK. Eighty-one KAs were identified through an analysis of content of interior design organizations' documents; each KA was assigned to one of seven categories. This became the BOK and categories included: Codes (2 KAs), Communication (13 KAs), Design (22 KAs), Furnishing, Fixtures, & Equipment (7 KAs), Human Needs (11 KAs), Interior Building Construction (18 KAs), and Professional Practice (10 KAs).

The source documents in which the KAs were found reflected education, experience, examination, and regulation, which comprise the abstract knowledge required in the first four stages of the professional interior designer's career cycle. Interior designers can be educated with a bachelor's degree that is accredited by the Council for Interior Design Accreditation [(CIDA) formerly known as the Foundation for Interior Design Education Research (FIDER)], constituting a primary delivery of abstract knowledge. Next, a minimum of two years of work experience is required during which time additional abstract knowledge must be learned and applied. These two stages provide preparation to sit for a two-day examination sponsored by the National Council for Interior Design Qualification (NCIDQ); the third stage is successful completion of the NCIDQ exam. Finally, if the jurisdiction in which interior designers practice is regulated, they can apply for registration in the jurisdiction (each jurisdiction may have additional, unique requirements), the fourth stage.

The initial study (2001) generated interest in further analysis of the interior design profession's BOK, and in May 2003, the Interior Design Body of Knowledge Conference was held in Washington, DC. Over 20 invited attendees included practitioners, educators, and researchers, as well as representatives of the conference sponsors: the American Society of Interior Designers (ASID), the Association of Independent Colleges of Art and Design (AICAD), FIDER, the Interior Designers of Canada (IDC), the International Interior Design Association (IIDA), and NCIDQ. At that meeting, it was determined that Guerin and Martin's 2001 study was a good starting point in defining and documenting the profession's BOK (Weigand & Harmon-Vaughn, 2003). However, conference attendees also acknowledged that the study represented a snapshot in time and was limited to the first phase, i.e., education through regulation, of the practitioner's career cycle.

Publication of the 2001 study in the *Journal of Interior Design* (Guerin & Martin, 2004), generated dialogue and discussion within the profession. (For a summary of these discussions, see Martin & Guerin, 2006.) There were valid arguments made both for continuing to develop the BOK and opposing its development and publication. Supporters suggested further development could help document the interior design profession as it continued to evolve and serve as a basis for healthy dialogue among practitioners, academics, and students.

Those who opposed its development suggested a defined BOK could be harmful to the profession as it was argued that by publishing such a document, the profession had set its own boundaries and had drawn lines around a set of limited knowledge. Further, it was argued that the 2001 BOK did not represent the full spectrum of mature practitioners' specialized knowledge, i.e., embedded knowledge that is learned through experience and expertise development.

One other identified limitation was the lack of KA ranking of importance; all KAs were seen as equal in importance, but practitioners know that is not the case. For example, the KA "space planning" might be considered very important to interior design practice and requires a deep level of knowledge, whereas the KA "acoustics" requires a more general level of knowledge with the need to use an acoustic consultant for depth of knowledge. Lack of weighting raised the following questions: What are the most important KAs? What is the core knowledge required by interior designers; what is peripheral; or, is it all equally important? What knowledge is required and attained throughout the career cycle?

In 2004, a consortium of interior design organizations (ASID, FIDER, IDC, IIDA, and NCIDQ) contracted Guerin and Martin to update and do further research related to the BOK. The purpose of the second study, the *Interior Design Profession's Body of Knowledge, 2005 Edition* (Martin & Guerin, 2006), was to update the BOK and to weight the categories and KAs within the categories to show relative importance. The weighting responded to the need identified by attendees of the 2003 BOK conference. In the second study, 96 KAs were identified, and assigned to six revised categories (listed as weighted by importance): Human Environmental Needs (20 KAs); Interior Construction, Codes, & Regulations (20 KAs); Design (19 KAs); Products & Materials (14 KAs); Professional Practice (13 KAs); and Communication (10 KAs).

Two strategies were used to validate the study's method and findings. First, a Panel of Experts reviewed the data collection method, analysis, and findings. The panel consisted of 12 experienced interior design practitioners and two experienced interior design educators/researchers. Panel members reviewed the report in advance and then met for one day in Chicago, IL. They discussed methods used to identify the KAs, i.e., the method used for the analysis of content and weighting of the KAs. Further, they revised the category names from those initially established by the researchers in the 2001 study and resigned some KAs. The outcome of this meeting was validation of the process.

For the second validation strategy, a research methodologist was identified by the funders to examine the method used to collect the data and analyze the study's findings. Professor Stephen Lacy, School of Journalism, Michigan State University, reviewed a draft of the study and issued his findings (February 5, 2006). Regarding the method used by the researchers for *The Interior Design Profession's Body of Knowledge, 2005 Edition*, Professor Lacy concluded with the following comment: "The study is sound. It is an advancement on defining Interior Design's body of knowledge, and the established typology has validity" (personal communication, February 5, 2006).

### Recent Dialogue

In *The State of the Interior Design Profession*, a book edited by Martin and Guerin (2010), there is a chapter with four essays dedicated to continued dialogue of the profession's BOK. The chapter begins with a summary of the definition of a body of knowledge: "A profession's body of knowledge is the compilation of its specialized knowledge that allows a profession to function

as an informed group of individuals; it is the currency of a profession, that which gives it value to the public" (Martin & Guerin, 2010, p. 91).

Dohr (2010) suggests that a BOK allows interior designers to "operate with overarching purpose and expectations that can be maintained, adapted, or rejected as community building continues" (p. 95). She challenges interior designers to strategically move forward by coalescing community and integrated understanding among different parts of the built environment professions.

Marshall-Baker (2010) provides a viewpoint about the fluidity of a BOK and inherent issues involved in setting boundaries. She suggests that for the seasoned interior design practitioner, few boundaries exist, and we may not want to be limited by a defined body of knowledge. She, as well as Rhoads (2010), is concerned about the embedded knowledge that is inherent in a mature practitioner's abstract knowledge. Rhoads (2010) suggests a solution to bridging the gap between explicit and tacit knowledge and Guerin and Kwon (2010) provide a method for documenting the embedded or implicit knowledge. These are four different viewpoints on the importance of, limitations of, and continued development and expansion of the interior design profession's BOK.

Given the charge of several of these authors, it is apparent that update of the interior design profession's BOK must continue; there must be caution about how this document is used; and the profession must determine a way to document the embedded knowledge of the mature practitioner and not limit the BOK to the first phase of the career cycle.

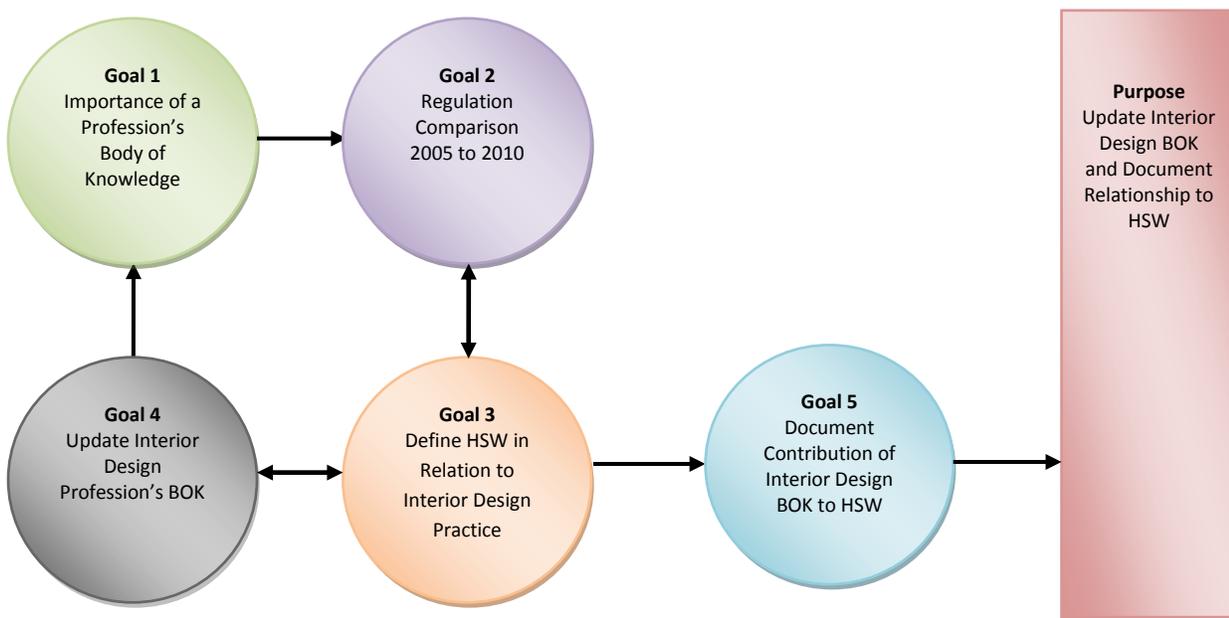
### Summary

The purpose of this study was to update the interior design profession's BOK and document its relationship to HSW. However, to fulfill the purpose of this study it became important to include several interrelated issues and to involve interior design practitioners as part of this extensive process. Therefore, five goals were developed to clearly illuminate the profession and its relationship to HSW.

As a profession's body of knowledge and its work are inexorably linked, the goals of this study became a set of interrelated smaller studies. Figure 1.2 shows the interrelationship of these goals to achieve the purpose of the study. The outcome of the first goal was an investigation of professionalization literature, which underpinned the importance of an update of the interior design profession's BOK, the fourth goal. Parallel to those two goals, there was a need to review recent regulation of the interior design profession (the second goal and also a

component of professionalization), which is contingent upon the public's knowledge that interior design practice contributes to their HSW. Therefore, a definition of HSW was required that also determined its factors, i.e., words that define the **work** of the profession. Finally, all of these needed to be vetted by current interior design practitioners who actually do the work of the profession. This was the fifth and final goal, all of which, in this interrelated way, contributed to the purpose so it could be comprehensively addressed.

Figure 1.2 Interrelationships of Goals and Purpose of the Study.



It has been five years since the last snapshot of the profession's BOK. Given 1) the complexity and increase in quantity of built environment knowledge, 2) the importance of protecting the HSW of the public, and 3) need to document the value interior design practitioners provide to the occupants of interior environments, it is essential to once again define and document the profession's BOK in context of these issues.

There are three sections in this report beyond this one, *Section 1. Introduction*. *Section 2. Method* will discuss all qualitative and quantitative methods used to collect and analyze the study's data. *Section 3. Results and Discussion* presents the findings generated by the five goals. *Section 4. Conclusions* explores ramifications of this study and justifies benefits for practice,

education, and research in contributing to the continued development of the interior design profession's BOK.

This report is intended to inform readers of where the interior design profession is in relation to its knowledge. However, again, it is a snapshot in time, yet only by knowing where a profession is can its members develop a cogent plan for the future.

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## SECTION 2. METHODS

It is important to review the purpose and goals of this study to frame discussion of the methods used to complete the study. The purpose of this study was to update the interior design profession's BOK and document its relationship to HSW. The following five specific goals were completed to accomplish this purpose:

- Goal 1. Provide an empirical basis for a profession's body of knowledge, relate the importance of a body of knowledge to professions, and document and assess interior design's professionalization journey;
- Goal 2. Compare 2010 interior design regulations to 2005 regulations and discuss the comparison as it relates to how interior design is defined and titled;
- Goal 3. Define and describe HSW as related to interior design practice;
- Goal 4. Update the interior design profession's BOK; and
- Goal 5. Document and analyze the contribution of the interior design profession's BOK to HSW within the context of interior design practice.

Goal 1 was accomplished by completing a review of professionalization literature. Documents were reviewed from a sample of professions that explored their relative importance to society, the roles they serve, and the path and process they took to become professions. This literature also covered the essential function served by the each profession's body of knowledge to both society and the professions themselves, thereby establishing a context for the professionalization of interior design.

Goal 2 was accomplished by a review of current regulatory language in Canadian and U.S. jurisdictions, i.e., provinces, states, and territories, relative to how interior design (by whatever title used) is defined and titled, i.e., the regulated title or name. This information was then compared to definitions and titles that were in place in jurisdictions in 2005 (Martin & Guerin, 2006). Regulatory language can be considered a measure of how regulatory bodies, such as licensing boards, define interior design and to what extent they understand, iterate, state, or support the profession's role in protecting their citizens' HSW.

To accomplish Goal 3, a review of literature was completed of interior design, government, and public documents regarding various entities' definitions of HSW. From this literature, definitions for the terms "health," "safety," and "welfare" relative to interior design were developed. Additionally, factors were identified that represent the abstract knowledge content related to each term, and research was reviewed to describe the relationship between health, safety, and welfare and interior design practice. (The word "factor" is being used to describe the abstract knowledge of each term, i.e., HSW.)

Goal 4 was accomplished by conducting a content analysis of interior design documents from education, experience, and examination. The outcome was identification of abstract knowledge within the current BOK, grouping them into KAs, and then into categories. The findings, the 2010 BOK, were then used as the basis for Goal 5.

Goal 5 was accomplished by conducting a survey of interior design practitioners to determine their perceptions of the contribution each KA in the BOK makes to health, safety, and welfare, independently, and as newly defined by the outcomes in Goal 3.

### Goal 1: Methods Used to Examine Professionalization

The purpose of this goal was to provide an empirical basis for a profession's body of knowledge through an examination of the professionalization process and the role a defined body of knowledge plays in establishing an occupation as a profession. The timing and importance of the development and maintenance of a profession's body of knowledge was demonstrated via a review of literature of numerous professions as context and as a reference point for the development of interior design as a profession.

The role of professions was explored via an examination of the definition of "profession," the role professions play in contemporary society, the path and process to becoming a profession, and the history of the rise of professions in Canada and the United States. Numerous professions' literature was reviewed, from social work to midwifery to project management, and similarities and differences among professions were noted. Refereed journal articles, books, and organization and profession-specific Web sites were accessed to document professionalization theory and its application to each profession. Descriptions of numerous professions' paths were considered relative to duration, degree of effort, and participation level by those who were involved in establishing the profession.

Well established, new, and emerging professions were explored to offer insight into the professionalization of interior design. Characteristics of several professions were explored and compared; the developmental history of several professions was reviewed with a focus on professionalization stages; and the value assigned by professions to their bodies of knowledge was examined. Development of their bodies of knowledge was also discussed. This is essential as the development and maintenance of a profession's body of knowledge underpins the profession itself (Abbott, 1988). Subsequently, these same issues were examined for the interior design profession. Interior design's BOK was explored as it related to the profession's development via a review of institutional documentation from CIDA, NCIDQ, and professional membership organizations, such as ASID, IDC, IIDA, and others.

This examination led to an in-depth examination of the definition of "body of knowledge" across a broad range of sources, including those from a variety of professions outside interior design. Books, refereed journal articles, and online resources that were published by the professions were the primary resources used for this exploration. The findings from this review were documented and used to examine the context, process, timeline, and content of interior design's emergence as a profession and development of its BOK. The findings

focus on a profession's process of professionalization, the role of the body of knowledge in that process, and how interior design compares to other professions whether well-established, new, or emerging. This broad context serves as a strategy to determine if interior design is typical both in its professionalization process and its development, maintenance, and use of its BOK as compared to numerous other professions. Also, the importance of these professionalization characteristics to society and the professions themselves were examined for consideration as the interior design profession continues to mature.

### **Limitations**

An objective of the literature review was to explore how interior design compares to other professions and their professionalization process. Professions selected for review were driven by the literature available and did not reflect all professions. Also, there is an extensive body of literature relative to professionalization. The literature for this review was selected based on relevancy to society-serving professions. Additionally, every effort was made to confirm that the descriptive statistics published in the literature were accurate. However, as professions continue to evolve, the findings may represent data that have been updated since the publication date of this report. Please check with the data source for continuing updates.

## Goal 2: Methods Used to Examine Regulation

The purpose of this goal was to compare 2010 interior design regulations to 2005 regulations (Martin & Guerin, 2006) relative to how interior design is defined and titled. The comparisons were then discussed as they relate to interior design practice as understood by regulatory bodies and their subsequent influence on HSW. This was accomplished through a review of regulatory language in place in Canada and the United States. Two specific aspects of the regulatory language were examined: 1) how interior design(er) is defined by the jurisdiction and 2) the title, i.e., name, being regulated in that jurisdiction.

An online search of regulatory jurisdictions' legislative or regulatory Web sites was completed. Generally, governmental regulatory language (e.g., statutes, rules, bills, acts) were accessed for these definitions. However, in specific circumstances, additional investigation via personal communication with a legislative coalition contact or with individuals from the jurisdiction was needed to find the definitions. This was necessary as current, regulated definitions were not always on the regulatory Web site, or it was known to the researchers that regulatory language had changed recently. Screen captures of language were made as a reference for later verification. After all language had been gathered, it was placed in a document (see Appendix B. Canadian and U.S. Regulatory Language: Definition of Interior Design, Regulated Title, and Type of Regulation) so jurisdictional language from 2005 could be compared to language current in 2010. "Appendix D. Interior Design Definitions of the Regulated Jurisdictions" from the 2005 BOK study (Martin & Guerin, 2006) was used for the comparison.

Appendix B reports the regulatory language in Canada and the United States from 2005 and 2010, the regulated title in 2010, and the type of regulation in each jurisdiction. It is reported by country and province, state, or territory. If there was no change in the definition of interior design(er) (noted by that title or any other) since 2005, then the 2010 entry notes "no change" immediately after the title. It is possible that other language changes occurred within the regulatory language, but the definition itself remained unchanged. The title/name currently regulated is included. Often it was gleaned from the regulatory rules or bylaws rather than in the body of the statute, bill, or act itself. Also, if no regulation was in place in a specific jurisdiction in 2005, only the 2010 entry appears, e.g., Indiana. The source is also noted as a convenience for additional examination by the reader.

### **Delimitations**

Legislation is infrequently enacted and/or modified and therefore tends to remain static for many years or even decades. However, in jurisdictions where there is legislative activity, regulatory language can be fluid because the bill or act is in the process of adoption, making it difficult for practitioners to know precisely the state of the profession relative to regulatory status at any given point in time. Also, the language is somewhat dependent on the legislative protocols of the specific jurisdiction, both in the case of Canadian provinces and territories and U.S. states and territories, which can have significant implications regarding the extent of the specificity or vagueness of the language.

### **Limitations**

Every effort was made to ensure that findings regarding regulations accurately represent current conditions and specific language. Note that Web sites do not always reflect current information, and it is not possible to always determine if information is current. The regulatory board and/or provincial, state, or territory Web sites were the primary sources for regulatory information. However, that information was augmented in cases where newer information could be accessed via other sources, such as through direct contacts with the regulatory board office or individuals who had access to the regulatory language, especially in cases where there have been legislative changes since January 2010. In cases where the regulatory definition of interior design (by any/all of its titles) was gathered from another part of the legislative record/laws outside of those governed by the regulatory board or association, the source has been noted in the reporting in Appendix B.

Also, there is much to know to be able to understand regulation of the interior design profession and its history beyond what is reported here. For further information, regulatory boards and/or associations should be consulted.

### Goal 3: Methods Used to Define HSW

The purpose of this goal was to define and describe HSW as related to interior design practice. This was accomplished through a review of definitions of the terms, i.e. HSW, identification of abstract knowledge relative to each term or its factors, and a review of research literature to document practitioners' use of abstract knowledge relative to HSW.

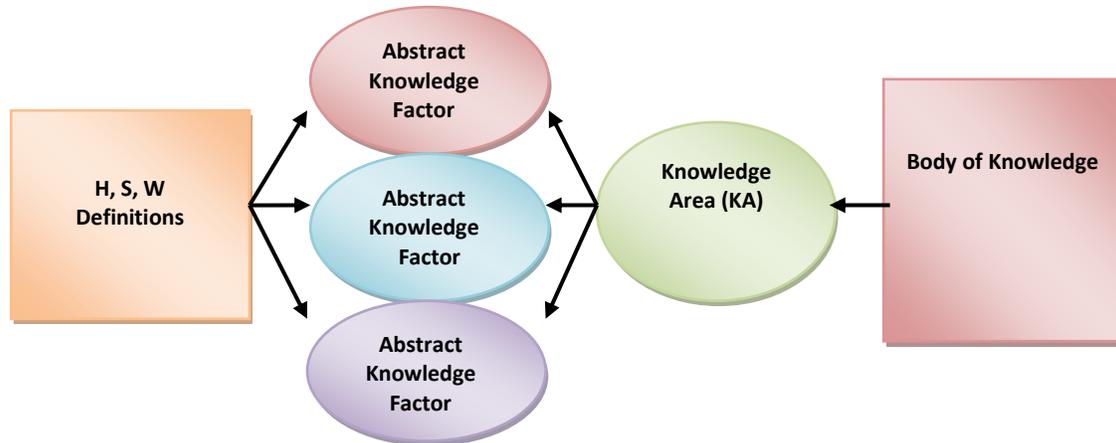
Over 200 pieces of literature and various documents were reviewed to determine the definitions of the terms "health," "safety," and "welfare." These included online and print sources from public dictionaries, refereed journals, professional design and design-related periodicals and documents, organization standards, government documents, public organization documents. First, a review of historical and contemporary definitions of these terms was conducted using public-access dictionaries and encyclopedias. Next, professional interior design organizations' literature and design periodicals were searched for their use or interpretation of factors that describe HSW. Additional searches were conducted of government documents, reports, and compliance standards.

The findings from these searches are presented first in a table that shows dictionary or encyclopedia definitions. Next, definitions are presented from government organizations and public entities, professional interior design organizations, related fields, and other literature. However, only infrequently were actual definitions of the terms "health," "safety," and "welfare" published in these document types. More often, examples, interpretations, or lists of actions involving each term, i.e., HSW, were given. The findings often described the term when discussing the definition, which became the basis for the abstract knowledge factors of each term. For meaning of how each definition, i.e., HSW, is related to the BOK's knowledge areas, and thereby to interior design practice, identification and documentation of factors that describe each term also was necessary.

It was apparent that definitions could be more meaningful by including the descriptive or measurable factors that tie practitioners' work to each term (HSW). These factors could then be tied directly and meaningfully to interior design practice. For example, the term "health" generally describes a person's absence from disease, but there are many factors that contribute to a description of this term, such as IAQ. IAQ has been documented as a KA in the interior designer's BOK through the specification of materials and products that do not emit toxins thereby preventing illness and improving health. Therefore, IAQ is a factor of health and can then be related to interior design practitioners' BOK that they apply daily to protect the public

as they design interior environments. An operational model of this interrelationship might look like Figure 2.1, wherein factors are drawn from the term definition of HSW and KAs are contained in the BOK. The factors, then, are the abstract knowledge of a KA. In other words, factors arise from the confluence of the HSW term definitions and the KAs that comprise the BOK.

Figure 2.1. Relationship of HSW Definitions to Abstract Knowledge Factors from KAs.



Based on the factors comprising each term, a review of research findings was conducted to identify evidence of interior design practice focusing on the factors that contribute to each term, i.e., HSW. These findings are included in each of the following segments paired with each term. Finally, a comprehensive, useful, and dynamic definitions of health, safety, and welfare were developed that will help all people understand the value interior designers bring to the public through the design of interior environments.

### Delimitations

Content analysis was not used as a method to define HSW. Rather, the intent was to identify useful, workable definitions that are relevant to people's HSW, and then analyze the factors contained in each definition as they relate to interior design's BOK as used in practice.

During the search, it became apparent that the terms "welfare" and "well-being" are treated interchangeably. Whenever possible, the term "welfare" was used as a search term, but if it was not found, then the term "well-being" was searched. During this search, the concept of funded social welfare such as the "government welfare program" was excluded. In fact, for each

term, any definition that did not relate to the human condition of having health, safety, or welfare/well-being was excluded. For example, the term “safety” is also defined as a field position in football; obviously, that definition was omitted.

### **Limitations**

The only limitation identified was the difficulty in finding actual definitions of each term beyond what is included in dictionaries. More often, descriptions of health, safety, or welfare were given in the documents as methods of explaining the application or influence or giving an example of the term. This is what led to the researchers' identification of factors of HSW, e.g., IAQ, as the abstract knowledge included in each term's definition.

#### Goal 4: Methods Used to Update the BOK

The purpose of Goal 4 was to update the interior design profession's BOK. This was accomplished by using content analysis to identify abstract knowledge that constitutes the BOK by a review of current, organizational documents from education, experience, and examination.

#### Overview of Content Analysis

Content analysis provides an objective, systematic, reproducible approach to derive meaning from any data that have been communicated, e.g., writing, audio recordings, video, (Berg, 1989; Stemler, 2001). As applied in this study, content analysis was both quantitative, i.e., importance of words/phrases as determined through frequencies of use, and qualitative, i.e., focusing on meaning; the what, why, and how. The basis of content analysis is the counting, coding, and categorization of data. This study applied manifest content analysis, which is considered reliable and high in representation of details (Berg, 1989), through identification of words/phrases that were directly present in the sample documents from interior design education, experience, and examination. Latent content analysis was also utilized on a limited basis to code and categorize abstract knowledge and KAs. Latent analysis is useful where multiple meanings and/or unclear data are encountered. Typically, this form of analysis is applied when the content is indirect or must be interpreted. Data collection is done by people trained in content analysis who do the counting and interpretation.

Multiple raters, i.e., persons who work independently to code the data from the documents, are considered essential to ensure that the findings from a content analysis are reliable (Babbie, 2010). Raters are selected for their knowledge of a subject matter and then trained in the content analysis process. Decision rules were made by the researchers to guide and define coding, which impact both reliability and validity of the findings (Berg, 1989; Sommer & Sommer, 2002). Initial decision rules guided the raters' approach to code the abstract knowledge in the source documents relative to which sections of the documents would be analyzed, i.e., for education only Sections II and III of the CIDA *Professional Standards 2009*. Decision rules also limited the analysis of specific content, i.e., the unit of analysis was abstract knowledge, not skills or tasks. Initial analysis and coding of the data by raters are then an iterative process. Coding decisions are discussed and data recoded based on application of additional decision rules determined by the researchers in collaboration with the raters. This iterative process typifies emergent coding (Stemler, 2001) and was the basis of the content

analysis process used in this study. To be certain content analysis protocols were followed, a statistical analysis specialist at the University of Minnesota was employed by the researchers to review training protocols, analyze inter-rater reliability, and respond to other questions raised by the researchers discussed in other sections of this report.

### **BOK Update Using Content Analysis**

An overview of the content analysis method used in this study describes the source documents used for content analysis and the selection of raters and protocol used for their training. A description of the process used to apply content analysis to the identification of the interior design profession's BOK is then explained.

#### **Sample (Source Documents)**

Identification of the source documents was the first step to define the current BOK. To document abstract knowledge, i.e., the coding unit, the most current education (CIDA), experience (IDEP via NCIDQ), and examination (NCIDQ) documents were selected. As with the first two BOK studies conducted by these researchers (Guerin & Martin, 2001; Martin & Guerin, 2006), these documents were used as they represent the first three stages of the interior design career cycle (see Guerin & Martin, 2004). Also, they have been vetted during their development through systematic research methods using experts from practice, research, and education.

In previous studies, regulatory definitions of interior design in Canada and the United States were included in the content analysis to identify KAs. However, as practitioner regulation is an outcome of reaching a point in the career cycle, not a source of abstract knowledge contributing to the interior design BOK, regulatory definitions of interior design were not included in this content analysis. However, they were reviewed and updated for a different purpose. (See Goal 2.)

Specifically, the following segments of the source documents were used in this content analysis:

- Education: CIDA's *Professional Standards 2009*; Sections II and III (Council for Interior Design Accreditation, 2008). These sections pertain to interior design educational content, whereas other sections describe aspects of accreditation beyond abstract knowledge, such as faculty and facility requirements;
- Experience: NCIDQ's Interior Design Experience Program, *IDEP Guidelines*, "Task Content Areas" and "Task Content Area Descriptions" (National Council for Interior Design Qualification, 2009); and

- Examination: *Blueprint of the Exam Content Guide* from NCIDQ's *2008 Analysis of the Interior Design Profession* (National Council for Interior Design Qualification, 2008). This is a set of explicit knowledge areas that are used, exclusively, by examination item writers to be certain the practice analysis findings are reflected in the examination content.

### **Rater Selection and Training**

Five raters were selected and employed by the researchers who have CIDA-accredited interior design degrees; have 1-5 years of professional practice; were NCIDQ certificate holders (4 of 5) and/or LEED APs (3 of 5); have research experience (4 of 5) combined with professional practice experience; are female, and are between 25 and 40 years of age. Raters were compensated for their time. It should also be noted that in content analysis, a minimum of three raters are required to ensure reliability of the findings, but five raters were engaged and trained to account for attrition. None withdrew from the study. Also, the researchers did not participate as raters as prior BOK scholarship and resultant knowledge could have skewed the findings, compromising the validity of the findings.

Content analysis requires that raters are trained to ensure that the data are reliable (Weber, 1990) by creating intra-rater reliability, i.e., a single rater would achieve the same results after coding the same content multiple times, and inter-rater reliability, i.e., multiple raters will produce the same results coding the same content (Stemler, 2001). Rater training consisted of seven hours of face-to-face training with the researchers over three meetings. Between meetings, raters had readings and exercises to complete that prepared them to understand and apply the content analysis method. Inter-rater reliability among the five raters in this study was measured at .72 overall using Krippendorffs' *alpha*, a highly acceptable level of reliability. Training of the raters is reviewed in depth in Appendix C.1.

### **Content Analysis Process**

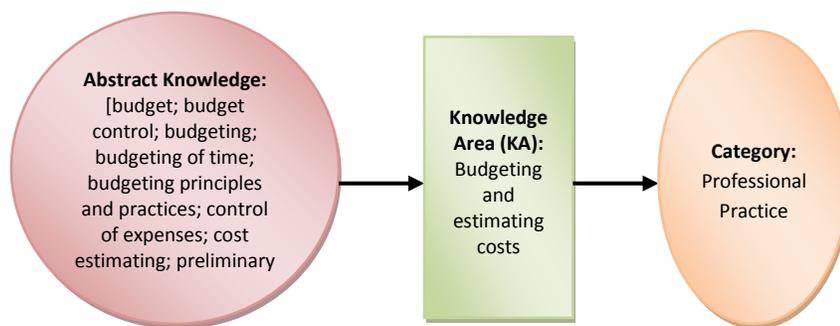
Labels assigned for purposes of clarity and the coding and categorization steps involved in the content analysis process are described below.

#### **Labels Developed for Levels of Data Collected**

Next is an overview of the process steps the raters used to identify the abstract knowledge in the interior design BOK. But first, it is important to clearly understand the terms used in this study to clarify the strata of knowledge that comprises the BOK as shown in Figure

2.2. As has been previously presented, abstract knowledge is the basis of a profession, and abstract knowledge represents the coding unit of this study. First, the raters identified all the abstract knowledge then did a preliminary grouping where the terms differed only by tense or quantity, e.g., plan, plans; specify, specifying. Next, because of the quantity and variety of abstract knowledge that comprise the BOK, the researchers grouped abstract knowledge into KAs and assigned a Knowledge Area name. Though these relationships emerged towards the end of the coding and categorization, they are presented here to help clarify organizing terms that are subsequently used.

Figure 2.2 Relationship Among Category, KA, and Abstract Knowledge.



### Process Steps

This segment discusses the steps undertaken for this study's content analysis process. It should be noted that raters did not discuss coding with each other, which was conducted independently per training protocol. Upon completion of training, the five raters began reviewing the source documents and identifying the frequencies by which all abstract knowledge appeared. First, they independently examined the three source documents from CIDA and NCIDQ separately and identified abstract knowledge within each of them. Next, the researchers combined all abstract knowledge from the raters into a single list. Third, the researchers reviewed the list, combined like words, e.g., space plan/spatial plan, clarified anomalies, and aligned conflicts. The researchers then resubmitted the combined list of abstract knowledge to the raters with a list of the six category names (based on the findings from the 2005 study; see Martin & Guerin, 2006). Raters then assigned each abstract knowledge to the six categories. If there were conflicts as to where abstract knowledge was assigned, the

researchers determined the final placement or grouping into a category based on their practice, research, and academic experiences. This was done to order and organize the data and to make it manageable for analysis and discussion. In all steps of the content analysis process, the researchers made only minimal adjustments and strived to maintain the abstract knowledge and categories as determined by the raters.

Raters' content analysis of abstract knowledge and placement into categories followed emergent coding protocols. Assignment of initial category titles, i.e., Design, were determined *a priori* (Stemler, 2001) by the researchers based on their previous studies. Researchers also renamed category titles as warranted by the updated KAs, i.e., Design Theory and Process (formerly Design in the 2005 study). Finally, researchers grouped the abstract knowledge into KAs that reflected each category. They also assigned a KA name to each KA wherein all abstract knowledge was contained. (Refer to Figure 2.2 for a model of this concept.) Specific steps taken that defined the levels of coding for this study are outlined in Appendix C.2.

### Limitations

In content analysis, the researchers made decision rules throughout the process to facilitate analysis, discussion, and recommendations for future education, experience, or examination. The researchers' prior work with interior design's BOK could be reflected in the coding and categorization of the content, which could have skewed the analysis and findings. However, content analysis is a sequential, though iterative process. Throughout the process the researchers supported the work of the raters and consulted with a statistical analysis expert to safeguard the objectivity of the coding and categorization of the source documents. Therefore, decision rules followed the protocol. (For a list of all decision rules, see Appendix C.3.)

The source documents used to identify KAs of the BOK had been developed in a scholarly method; vetted by the profession; and used by practitioners, educators, researchers, associations, and organizations. These are the documents that are universally accepted as representative of the knowledge contained in the first three stages of the interior design practitioners' career cycle, i.e., education, experience, and examination. However, these are the only documents available that are vetted in this way, and therefore is a limitation of the study.

Another limitation of using these documents is that they reflect the BOK of only the first three stages in the career cycle. There are additional, important KAs that are learned as practitioners continue to gain experience during practice and via continuing education

coursework, but it is possible these KAs are not identified here. This knowledge is often called 'embedded knowledge' and accounts for continued development of expertise as practitioners.

It is also a concern that validity of the findings might be reduced as this study does not triangulate these content analysis findings through other analysis methods (Stemler, 2001), though use of five raters does ameliorate this issue to some extent. Additionally, when coding the data, it is difficult to establish mutually exclusive and exhaustive KAs and categories due to the multiple meanings of some words, e.g., sustainable might mean a design approach or a finish specification strategy; marketing might refer to marketing the services of the design firm or designing an interior to market a client's services. As a means to resolve that challenge, the researchers determined meaning via consideration of the context of the coding unit.

Finally, frequency of abstract knowledge appearance was used to identify, confirm, and organize content, not represent importance of any one abstract knowledge. Individual abstract knowledge frequencies were not included as they would have made this report cumbersome and overwhelming. Additionally attention would then be focused on numbers that do not reflect their importance in the interior design profession's BOK. In this study, importance via contribution of KAs to HSW is the role of the findings from Goal 5.

### **Goal 5: Methods Used to Examine the Relationship of HSW to the BOK**

The purpose of this goal was to document and analyze the contribution of abstract knowledge of KAs to HSW within the context of interior design practice. This was accomplished by surveying interior design practitioners in Canada and the United States regarding their perception of the BOK and HSW.

#### **The Survey**

A questionnaire was developed to identify interior design practitioners' perceptions about the level of contribution each BOK KA makes to health, safety, and welfare, independently. The questionnaire was developed by the researchers, piloted with interior design practitioners, revised, and distributed to the sample. It received exempt status from the University of Minnesota's Institutional Review Board for survey research using human subjects. Data were collected from interior design practitioners who were NCIDQ certificate holders. This population of interior design practitioners was determined to be the study population because passage of the NCIDQ exam is recognized by all regulatory boards in Canada and the United States as one of the eligibility criteria for protection of the public's health, safety, and welfare. Additionally, only interior designers who practice in public or commercial interiors are regulated by jurisdictions, therefore, this was the population of interest for this study. There may be other practitioners designing public or commercial interiors, but if they have not passed this examination, there is no standardized evaluation of their qualifications.

Due to the extensive number of KAs contained in the BOK, the KAs were randomly assigned to six different questionnaires (Questionnaires 1-6) to reduce the length of the questionnaire. The questionnaires were emailed to over 10,000 interior designers. (See Appendix D. Questionnaire Sample.)

An initial question determined respondents' i.e., interior designers, eligibility to complete the questionnaire. It was important to have current practitioners' responses; therefore the first question asked if they had practiced interior design in the last five years. If the response was "no," then they were thanked for their participation and were not able to respond to the balance of the questionnaire. If interior designers replied, "yes" to the first question, they were qualified to respond to the balance of the questions. They then answered four demographic questions: 1) the number of years of practice, 2) type of practice (residential, commercial, mix), 3) gender, and 4) location of residence (state, province, territory), which gave

a profile of each of the six groups of practitioners and the entire sample. The groups were compared for differences, and the characteristics of the entire sample (all six groups) were compared to the population characteristics for differences (see the sample discussion segment for comparisons).

There are 65 different KAs in the BOK; each of them has a many abstract knowledge terms. As interior designers had to rate each KA on three different terms (HSW), the KAs were randomly assigned to six different sample groups so they needed to answer only about 35 questions, thus increasing the likelihood, accuracy, and thoughtfulness of their responses.

Interior designers were asked to rate the extent of contribution of 10-11 different KAs, first to health, then to safety, and finally to welfare on a scale of 1-7 where ‘1’ meant “no contribution” and ‘7’ meant “extensive contribution.” An example of one question is shown in Figure 2.3. They answered all of the health questions first, then, using the same KAs and scale, responded to the safety questions, and finally the welfare questions. Thus, all three terms were separated, and each KA was related to only one term at a time. Before each rating, the definition of each HSW term was given so all interior designers were operating from the same definition.

Figure 2.3 Question Example.

**The following question was asked for health, safety, and welfare, so three questions were asked for each KA.**

To what extent does the following knowledge area contribute to a client’s or user’s **health**?

- ❖ Human factors including such knowledge as:
  - ergonomic and anthropometric data
  - proxemics, e.g., territoriality
  - physiological responses, e.g., visual acuity

No Contribution							Extensive Contribution
1	2	3	4	5	6	7	

### The Sample

In the following segments, the sample selection and questionnaire distribution is described as well as sample group similarities and sample representativeness and characteristics.

### Sample Selection and Questionnaire Distribution

The population for the study was the entire set of NCIDQ certificate holders who had ever taken the exam (24,620). The total number of certificate holders with accessible email addresses is 10,040; this was the sampling frame from which interior designers were assigned to groups. Under the direction of the researchers, NCIDQ staff members completed the sample assignment and distribution of the questionnaires. Interior designers were randomly assigned to each of the groups to develop six different groups who were representative of the population. NCIDQ certificate holders have a 6-digit identification number. Starting with the first number, the 1<sup>st</sup> and 7<sup>th</sup> numbers were assigned to Group 1 and so on through the entire list. The same random assignment was used for Groups 2, 3, 4, 5, and 6. Each group was then sent a different questionnaire.

In May 2010, an email message was sent by NCIDQ staff members to NCIDQ certificate holders who had provided NCIDQ with their email addresses. The email message invited them to be part of this study, and it included a link to one of the six questionnaires. Interior designers were given 10 business days to respond. After eight business days, NCIDQ staff members sent an email reminder message to encourage additional response.

### Sample Group Similarities

With different interior designers assigned to different groups, it is important to determine that there were no significant differences among their characteristics within the six groups, i.e., characteristics of the subjects in each group were not significantly different and therefore differences in responses were not due to their characteristics. A chi-square test was performed on their years of practice ( $\chi^2 = 21.79$ ,  $df = 20$ ,  $p = .35$ ); types of practice ( $\chi^2 = 13.99$ ,  $df = 10$ ,  $p = .17$ ); gender ( $\chi^2 = 1.38$ ,  $df = 5$ ,  $p = .93$ ); and locations in North America ( $\chi^2 = 23.37$ ,  $df = 20$ ,  $p = .27$ ). No statistically significant differences were found among the six groups based on their characteristics. This meant that the responses from the groups could be combined to more comprehensively assess the findings. Further, the confidence level was 95%, and the margin of error is +/-2.39. Generally, this is important when the population values are not known; however, in this case they were known and a direct comparison could be made. These numbers are given here for clarity and can be applied to interpret the descriptive information shown in Table 2.1. For example, at a confidence level of 95%, the percentage of interior designers with more than 20 years experience in Canada and the United States is estimated to be between

31.91% ( $34.3 - 2.39 = 31.39$ ) and 36.69% ( $34.3 + 2.39 = 36.69$ ). At a confidence level of 95%, the percentage of female interior designers in Canada and the United States is estimated to be between 86.01% ( $88.4 - 2.39 = 86.01$ ) and 90.79% ( $88.4 + 2.39 = 90.79$ ).

### Sample Representativeness

The issue of sample representativeness is critical in generalizing the results of the study to the larger population of all NCIDQ certificate holders. Sample representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population's parameter variations. Because the target population is known in this study, testing can determine if the sample is likely to have been drawn from that population. Sample representativeness was tested across four variables: years of practice, types of practice, gender, and location using a series of z-tests. Table 2.1 shows the results of a comparison of each characteristic between the sample and population. The *p*-value must be lower than .01 to show a significant difference. As can be seen, no statistically significant differences among the variables, i.e., characteristics, were found between the sample and the population.

Table 2.1. Sample versus Population.

Variable	Measure	Sample (N = 1,578)		Population (N = 24,620) (NCIDQ, 2008)		z-test	
		Frequency	Percent	Frequency	Percent	z-value	p-value
Years of interior design practice	Less than 2 years*	3	0.2	246	1.0	3.08	1.00
	2-5 years	212	13.4	2,954	12.0	1.65	0.90
	6-10 years	330	20.9	5,663	23.0	1.89	0.94
	11-15 years	271	17.2	5,416	22.0	4.48	1.00
	16-20 years	221	14.0	2,462	10.0	5.04	1.00
	More than 20 years	541	34.3	8,125	33.0	1.02	0.69
Type of professional practice	Commercial	1,055	66.9	16,742	68.0	0.91	0.06
	Residential	252	16.0	6,155	25.0	12.4	1.00
	Commercial and Residential	271	17.1	NA	NA	NA	NA
Gender	Female	1,395	88.4	21,666	88.0	0.43	0.03
	Male	183	11.6	2,954	12.0	0.43	0.03

Table 2.1. Sample versus Population (Continued).

Variable	Measure	Sample (N = 1,578)		Population (N = 24,620) (NCIDQ, 2008)		z-test	
		Frequency	Percent	Frequency	Percent	z-value	p-value
Location	USA	1,431	90.7	22,816	92.7	2.87	1.00
	CAN	140	8.9	1,616	6.6	3.51	1.00
	Others	7	0.4	188	0.1	1.28	0.80
	South, USA	528	33.5	9,923	40.3	5.35	1.00
	Northeast, USA	204	12.9	3,137	12.7	0.18	0.14
	Midwest, USA	361	22.9	4,858	19.7	3.01	1.00
	West, USA	338	21.4	4,898	19.9	1.44	0.85
	Alberta, CAN	15	10.7	112	6.9	1.49	0.86
	British Columbia, CAN	30	21.4	367	22.7	0.24	0.19
	Manitoba, CAN	10	7.1	64	4.0	1.58	0.89
	New Brunswick, CAN	2	1.4	12	0.7	0.39	0.30
	Newfoundland and Labrador, CAN	1	0.7	3	0.2	0.31	0.25
	Nova Scotia, CAN	2	1.4	15	0.9	0.13	0.10
	Ontario, CAN	70	50.0	937	58.0	1.74	0.92
	Quebec, CAN	7	5.0	62	3.8	0.45	0.35
	Saskatchewan, CAN	3	2.1	44	2.7	0.14	0.11
Others	7	0.4	188	0.1	1.28	8.00	

\* As self-reported.

NA means the population data were not available.

### Sample Characteristics

The questionnaire was emailed to the sample of 10,040 NCIDQ certificate holders in North America. A total of 1,642 people responded to the questionnaires; 117 did not meet the first question qualification; 1,578 people completed the entire questionnaire for a 17% return rate. All interior designers in the sample have practiced in the last five years even though self-report data indicate some of them may have practiced less than five years. It is an experienced sample as 34.3% have practiced more than 20 years. The smallest group of interior designers, 13.4%, has practiced less than six years. The balance of them (52.1%) has practiced between 6 and 20 years.

Two-thirds (66.9%) of the sample practice commercial interior design only. The rest were almost evenly split between those who practiced residential interior design only (16%) and those who practice a mix of residential and commercial interior design (17.1%). Most of the interior designers are female (88.4%); 11.6% are male, which reflects the national numbers for all interior designers. Finally, 90.7% of the interior designers were from the United States; 8.9% were from Canada; and the balance (0.4%) was from other jurisdictions. All of the characteristics are similar between the six groups and from the entire sample to the population,

meaning the results of this survey can be generalized to all NCIDQ certificate holders in Canada and the United States. Generalizing means that although only a portion of the population was tested, the characteristics of those sampled closely represent the characteristics of all NCIDQ certificate holders, i.e., the population, and the answers of respondents would be very similar to the answers of those who were not sampled.

### Limitations

As is true with any survey method, the data are all self-reported and rely on the interior designers' knowledge of the subject matter being investigated. The sample selection was limited to NCIDQ certificate holders with valid email addresses. Finally, the population was not inclusive of all interior design practitioners regardless of credentials, i.e., non-certificate holders, because passage of the NCIDQ examination is recognized by all regulatory boards in Canada and the United States as one of the eligibility criteria for protection of the public's health, safety, and welfare.

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## SECTION 3. RESULTS AND DISCUSSION

This section presents the results of the study's goals. It is important to review the purpose and goals of this study to frame discussion of the results from the data collected and analyzed. The purpose of this study was to update the interior design profession's BOK and document its relationship to HSW. The following five specific goals were completed to accomplish this purpose:

- Goal 1. Provide an empirical basis for a profession's body of knowledge, relate the importance of a body of knowledge to professions, and document and assess interior design's professionalization journey;
- Goal 2. Compare 2010 interior design regulations to 2005 regulations and discuss the comparison as it relates to how interior design is defined and titled;
- Goal 3. Define and describe HSW as related to interior design practice;
- Goal 4. Update the interior design profession's BOK; and
- Goal 5. Document and analyze the contribution of the interior design profession's BOK to HSW within the context of interior design practice.

### Goal 1. Results of Examination of Professionalization

Goal 1 focuses on the importance of the professionalization process, the influence professions have on society and the professionals themselves, and the importance of a body of knowledge to a profession. Many professions are described to offer context to the path and process of the professionalization of interior design.

### The Importance of Professions

The body of knowledge is considered the foundation of a profession. To understand the importance of the body of knowledge to any profession, including the interior design "profession," it is necessary to 1) provide an empirical basis for a profession's body of knowledge by defining "profession" and identifying characteristics of a profession that distinguish it from a trade; 2) examine the role of professions in society; 3) examine the path

and process taken by a trade to become a profession, including the history of professionalization; and 4) relate the importance of the body of knowledge within the professionalization journey. Once delineated, these findings from other professions were used to assess the professionalization and BOK of the interior design profession.

### Definition and Characteristics of Profession

*Webster's New World College Dictionary* (2009) defines "profession" as "a vocation or occupation requiring advanced education and training and involving intellectual skills, as medicine, law, theology, engineering, teaching, etc....The body of persons in any such calling or occupation." According to Abbott (1988), professions are engaged in work that cannot be routinized, but instead involves the accumulation and application of abstract knowledge. Furthermore, Abbott states that "professionalization is how modern societies institutionalize expertise" (1988, p. xii).

In a discussion regarding the professionalization of exercise physiology, Boone (2001) concludes from an examination of Barrow (1977), and others, that "[p]rofessions are based on scientific and philosophical facts acquired through scholarly endeavor." Furthermore, he surmises that,

Individuals who enter a profession do so for reasons that distinguish them from other work or vocations. They understand that their work renders a unique public service with a scientific or philosophical basis and/or body of knowledge that requires an extended period of academic and hands-on preparation. Professions are also based on specialized skills necessary for the professional to perform the public service.

Oppenheim and Pollecutt (2000) reviewed librarianship literature and found the basic characteristics of a profession included, "a specialized skill or knowledge gained through extensive education; the development of this body of knowledge through research; a valuable service that benefits society; and autonomy" (p. 187).

Dyer (1985) in his discussion of medical ethics as a component of professionalism found that knowledge and expertise, service, and ethics define a profession. Khurana, Nohria, and Penrice (2005) note that "[w]hen the need for such judgment has arisen in other spheres that are vital to the interests of society (such as law and government, military affairs, health, and religion), modern societies have responded by creating the institutions that we know as professions." In comparing business management to the professions noted above, they identified four characteristics that define them:

- A common body of knowledge resting on a well-developed, widely accepted theoretical base;
- A system for certifying that individuals possess such knowledge before being licensed or otherwise allowed to practice;
- A commitment to use specialized knowledge for the public good, and a renunciation of the goal of profit maximization, in return for professional autonomy and monopoly power; and
- A code of ethics, with provisions for monitoring individual compliance with the code and a system of sanctions for enforcing it. (Khurana et al., 2005)

Nearly 100 years ago, Flexner (1915) considered the discipline of social work a profession. Well known for his study of the medical profession, he postulated characteristics of a profession in the context of social work at the National Conference of Charities and Corrections. His description of a profession's characteristics was published in the proceedings of that conference:

Professions involve essentially intellectual operations; they derive their raw materials from science and learning; this material they work up into a practical and definite end; they possess an educationally communicable technique; they tend to self-organize; they are becoming increasingly altruistic in motivation. (p. 156)

These early descriptors are supported in more recent literature. Walker in Romeo and Rigsby (2008) discussed accountancy and suggested that professions are comprised of four elements, "an intellectual basis...acquired by specialist training and education;...a code of ethical behavior; professional autonomy; and altruism as opposed to self-interest" (p. 418). The latter element speaks in contrast to the self-serving nature of professions noted by other scholars.

Singer (2003) studied traditional and online journalism and identified the benchmarks of a profession to be 1) a cognitive dimension, comprised of the profession's body of esoteric knowledge and the techniques and skills learned to apply that knowledge through training; 2) a normative dimension that encompasses the service aspects of the profession, including its code of conduct and ethics; and 3) autonomy, which allows the profession to identify appropriate standards, separation and identification from other professions and occupations, and status.

Based on these definitions and characteristics, a common part of a profession is a body of knowledge, which is deemed instrumental in establishing and maintaining a profession. Furthermore, as will be shown, society acknowledges the role and stature of professions, fortified primarily through the knowledge created, accumulated, and applied by them.

### Role of Professions in Society (Canada and the United States)

The role of a profession is characterized as protection of the public and actualized as safeguarding of life, health, and/or welfare (Abbott, 1988; Freidson, 1994; Tamir & Wilson, 2005). For example, “[e]stablishment of a ‘community of the competent,’” is used to describe the purpose of the accountancy profession (Miranti, as cited in Romeo & Rigsby, 2008, p. 416). In the case of teachers, “educators proclaim their concerns for the ‘future of our children,’ the ‘health of our democracy,’ or the ‘prosperity of our nation’” (Tamir & Wilson, 2005). Journalists identify their role as protector’s of freedom of speech via the First Amendment and thereby, by extension, of democracy itself (Singer, 2003).

Professional responsibility is keenly felt by healthcare providers, air traffic controllers, defense attorneys, and others. This level of responsibility also confers autonomy and power and infers control over knowledge and the work that applies to that knowledge. As noted by Tamir and Wilson (2005), a profession is able to protect the public in important, essential ways by “maximizing the public good, even if economic, social, or political pressures suggest otherwise” (p. 335). Weidner and Kulick (1999), referencing Freidson (1994), discuss a professional’s commitment to conducting work based in expert knowledge (gleaned from a body of knowledge) and maintaining a fiduciary relationship with clients as the foundation for affording privileges to professions.

Olgati (2006), suggested the role of professions may change in the future as he examined the influence of globalization on the status-role of professionals and their mastery of knowledge. Olgati notes that professions have an important role in future society focused on a paradigm of “risk-knowledge management.” In the future, their role and value will no longer rely on the basis upon which they were once revered; namely, operating within a procedural framework, efforts to gain status, and the legitimized control of knowledge. He reached this conclusion through a review of the work of noted professionalization sociologists such as Freidson (1994), Larson (1977), and Abbott (1988). (See Olgati, 2006 for more information about their work and viewpoints).

Contemplating a global viewpoint, the dynamics related to professions’ trustworthiness, relevance, and moral compass, i.e., western professions’ “[embodiment of] the highest creative cultural capital” is being reconsidered (Olgati, 2006, p. 534). Olgati (2006) posits that the identity, work, and value of professions—in what he refers to both as today’s “knowledge society” and “risk society” will in the near future be centered upon meeting the demands of

rapid transference and adoption of technology and scientific knowledge, societal risks, and political conflicts. The global movement of knowledge from western to non-western societies will be the impetus for this significant shift underway at this time. Due to the globalization of knowledge, professions of the future will need to operate within a paradigm of “risk-knowledge management” as their “professional jurisdictions, mandates, and values” evolve (p. 545).

### Process of Becoming a Profession

The professionalization process has been studied and documented innumerable times by sociologists and others studying a specific profession from within its ranks. According to Sullivan (2001) in the *Journal of Professional Nursing*, “Constructing a profession is similar to building a physical structure. It’s a slow, tedious, and often discouraging process. But, just as a building is assembled brick-by-brick, so is a profession similarly constructed” (p. 67).

The path is seldom easy and is often difficult and is affected by both internal and external factors. Internal factors typically consist of the actions of the those involved in the future profession such as their determination and clarity regarding their responsibilities to society and the clients they serve and especially their understanding of their body of knowledge as the foundation of their professional work (Martin, 1998).

External factors to the profession such as societal conditions, demographics, and public perception, also affect the professionalization process. The process can run smoothly or delays can occur due to interaction and protest from related professions that view the new or emerging profession as a challenge to their professional jurisdictional claims. For example, protests from persons currently operating within the boundaries of the new profession’s jurisdiction who do not have the newly identified and defined professional qualifications can confuse and delay professionalization. Both protests from related professions and those currently practicing within the boundaries of the new profession can delay the emerging profession’s efforts to gain legal recognition. And, there are a myriad of other factors that hamper the new profession, which change over time.

It is the internal actions that are important to this review of where interior design is in the professionalization process as is typical of the professionalization process for all professions. Abbott (1988) identified directly and indirectly six internal actions taken by occupations or trades as they worked to become professions: 1) *professional association (also known as an “organization”) membership* for the purpose of creating community, 2) *name*

*change* of the occupation to help create definition for the new profession, 3) *development of a code of ethics* to signal to professionals and the public that the profession has standards of quality and behavior, and 4) *legal recognition (also known as "regulation")* to call out those individuals qualified to protect the public. Martin's (1998; 2007) study of design professions added two internal actions that were indirectly identified by Abbott's first internal action, *professional association membership*. These two actions are implemented by professions in the form of membership requirements: 5) *educational requirements* as the basis of the profession's body of knowledge and 6) *comprehensive examination* of the body of knowledge and skills to establish a minimum level of competency, thereby identifying who is qualified to apply for legal regulation. A seventh internal action is *continuing education* as assurance to the public that the professional's knowledge base is current and continuously updated (Martin, 2007).

Each action has been enacted by various professions to first establish and then maintain the boundaries of their profession's jurisdictions. In the next segment, diverse professions are reviewed to illustrate the widespread evidence of these internal actions as characteristic of the professionalization process.

### **Action 1. Professional Association (Organization) Membership**

Professional membership organizations have multiple duties to an emerging and/or established profession. They are principally the author of the profession's code of ethics or code of conduct. An examination of librarianship in the United States, found that their professional association, the American Library Association (ALA), has been instrumental in creating a code of ethics; setting standards of service; and lobbying governmental entities on important societal issues, such as protesting the Communications Decency Act of 1996, which would have curtailed freedom of full accessibility to the Internet. The ALA has also been responsible for providing important initial and continuing education to their members (Oppenheim & Pollecutt, 2000).

### **Action 2. Name Change**

First, it must be said that not all professionals have names that are different from their historically recognized name, such as architecture or medicine. However, there are others that have changed their name; such is the case of "home economics." At an October 1993 meeting of the American Home Economics Association (AHEA, established in 1909), it was decided that the

profession would be identified as “family and consumer sciences.” At that same meeting, the AHEA became the American Association of Family and Consumer Sciences (AAFCS) (Nickols et al., 2009). In this example, the name was changed to more accurately reflect the purpose and focus of the profession.

### **Action 3. Code of Ethics**

A code of ethics is an essential component of professionalism. “Together with a distinct body of knowledge and self-governance of working conditions, a code of ethics is considered to be one of the criteria that characterizes a practice as a profession” (Thompson, 2002). Thompson (2002) discussed the origins of midwifery’s code of ethics and noted that it sprang, as do most healthcare providers’ code of ethics, from reaction to medical experimentation on humans undertaken during World War II, which was exposed during the Nuremberg Trials. The first nursing code of conduct, established by the International Council of Nurses (ICN) appeared in 1953, through work of the International Confederation of Midwives (ICM). Midwifery established a code of ethics in 1993, a cornerstone of that profession (Thompson, 2002).

As another example, librarianship in the United States has had a code of ethics since 1938 via the ALA. The ALA, established in 1876, is also responsible for creation of the Library Bill of Rights and other policies as safeguards to intellectual freedom (Oppenheim & Pollecott, 2000).

### **Action 4. Educational Requirements**

Educational requirements are formalized for all professions. Most professions endorse a process by which educational content can be delivered by a choice of sources. Many require that educational curriculum be accredited by an official body that oversees curricular content of students’ education.

The profession of teaching has formalized education requirements and an accreditation body. The National Council for the Accreditation of Teacher Education (NCATE), established in 1952, began the process of accrediting programs in 1959. This accreditation process was a secondary step, as an examination to evaluate a minimal level of competency for teachers began with the confirmation of certification for teachers in the 1840s. Certification was based on passage of an examination that eventually led to state licensure for teachers. To this day,

accreditation standards and educational requirements for teachers continue to evolve (Tamir & Wilson, 2005).

Journalism's Accrediting Council on Education in Journalism and Mass Communications (established in 1945 as the American Council on Education in Journalism) has over 100 accredited programs in the United States, even though there is debate over whether or not journalism has a "shared, sanctioned knowledge base" (Singer, 2003, p. 144).

Contrary to teaching, the emerging profession of public relations continues to discuss aspects of their body of knowledge that should comprise formalized education. However, it is acknowledged that "providing specialized and standardized education to all who enter the profession" is of paramount concern to the future of public relations (Sriramesh & Hornaman, 2006, p. 156). These authors also note that instruction by teachers from journalism and/or communication complicates, and perhaps even compromises, the delivery of public relations curriculum by the academy.

### **Action 5. Examination**

Professions apply examination as a benchmarking step to determine a minimum level of competency for practice. Passage of a qualification examination is typically one of the final requirements that are included in an application for licensing or certification, i.e., legal recognition, from a regulatory body. Khurana et al. (2005), in their challenge of business management as a profession, declare that it lacks "a set of institutions designed to certify that its practitioners have a basic mastery of a core body of specialized knowledge and can apply it judiciously..." (§ 13), citing its lack of "a system of examination" (§ 14), in contrast to medicine and law.

The Association of Social Work Boards (ASWB), established in 1979, develops, disseminates, and tracks those who have passed its qualification examinations. It is an agency comprised of member boards that are responsible for regulating social work. "ASWB develops and maintains the social work licensing examinations used across the country and in several Canadian provinces, and is a central resource for information on the legal regulation of social work" (Association of Social Work Boards, 2010a). ASWB offers four examinations relative to education/experience levels: Bachelors, Masters, Advanced Generalist, and Clinical. Entrance to sit for the examination is controlled by the state or provincial licensing board (Association of Social Work Boards, 2010b). The first year (1983), 2,200 candidates sat for the examination; in

2008 there were 30,767 candidates who sat for the examinations (Association of Social Work Boards, 2009).

Similarly, examination and regulation are closely tied in the case of landscape architects. The Council of Landscape Architectural Registration Boards (CLARB), like social work, is an association of member boards and exists for a parallel purpose. CLARB notes that their examination (Landscape Architecture Registration Examination; LARE), “determines whether applicants for landscape architectural licensure are able to provide landscape architectural services without endangering the health, safety, and welfare of the public” (Council of Landscape Architectural Registration Boards, 2009). The LARE was first offered in 1992, at which time 1,952 candidates sat for the examination; by 2009, that number had grown to 4,067 (the LARE replaced the Uniform National Examination offered from 1971-1991) (R. Moden, Examination Services Coordinator, CLARB, personal communication, July 28, 2010). Both social work and landscape architecture are examples of the importance and purpose of examination to professions.

### **Action 6. Legal Recognition/Regulation**

Legal recognition and/or regulation for professions are a growing trend. Brint (1994) found that the number of “professionals” has grown 12 times from the pre-World War II era through the mid-1990s according to the U.S. Census Bureau. Furthermore, this trend represents an inverse relationship with the decline of unions (Kleiner & Krueger, 2008). Efforts to attain this professional action are internally driven by the profession and typically require an enduring effort over a period of years or decades. Legal recognition/regulation signals a minimum level of competency to the public; one by which they are able to recognize who is qualified to practice the profession (Abbott, 1988; Kleiner, 2006; Martin, 2007, 2008).

A study focused on curricular aspects of public relations education conducted by Sriramesh and Hornaman (2006) found that the majority of public relations educators and practitioners surveyed did not advocate certification by the state. A few cited a concern that doing such would constitute “a violation of the First Amendment,” i.e., freedom of speech, (p. 167). This stance springs from public relations’ viewpoint that regulation symbolizes a philosophical conflict with their core belief that all persons can/should contribute to informing the public, grounded largely in this profession’s communications origins. Whereas, in contrast, accountants in the United States worked continuously to gain legal recognition for their

profession—an initial and constant goal (Romeo & Rigsby, 2008). The efforts undertaken by accountants to gain legal recognition for their profession are typical of the goals and supporting actions of most professions.

### **Action 7. Continuing Education**

Continuing education is essential in support of the knowledge of the maturing professional. This is evidenced by the requirements of the majority of professions that require it for membership to professional organizations as well as regulatory bodies that require it for renewal of licensure, registration, and/or certification. Professional membership organizations typically verify completion of continuing education during the membership renewal period. The relevance of some knowledge mastered in a formal education setting may be reduced the farther the professional member moves into years of practice. Engagement in continuing education is typically encountered via organized classes or seminars—whether virtual, in-person, or self-study.

The Project Management Institute (PMI) credentials project management professionals and requires professional development units (PDUs) once the professional is a PMI credential holder. PDUs vary per credential, and all must be received from a Registered Education Provider and recorded within a three-year cycle (Project Management Institute, 2009b).

### **Challenges Facing Professions**

Not all members of the public external to a profession or researchers studying the phenomenon of professionalization view professions as the ultimate institutional gift to society as they are believed to be by the professionals themselves. Pfadenhauer (2006) describes the crisis currently facing traditionally-formed and maintained professions as having been instigated by a combination of factors. These factors include changing societal viewpoints about expertise; exponentially increasing access to typically negatively-slanted knowledge (about the viability and need for professional expertise) presented through the media; and the emergence of the “critical client” who deems it appropriate to question advice and expertise, no matter the source.

Licensing and certification fortify a mandate for professional participation via “proof of specialist knowledge” (Pfadenhauer, 2006, p. 566). However, lines are being blurred between the expertise and subsequent control of knowledge held by a profession and others outside the

profession due to the influence of expanded, simplified access to information via communication, e.g., the Internet. This has given rise to clients engaging with “non-professionals” as a means by which to access expertise through seeking a second opinion or self-checking professional advice via an examination of information that was once inaccessible. The rise of homeopathic medicine in context with traditional medicine, and the professionals involved in those practices are examples of the erosion of modern society’s once implicit reliance on professions.

Previously, clients were seen as being in need of professional expertise, but simultaneously being unable to judge professional competency, thereby increasing the consumer’s dependence (Pfadenhauer, 2006). This phenomenon is tied to Abbott’s (1988) recognition of the reliance of a profession on the “mystery” of abstract knowledge and its supporting role in the process of professionalization, which applies abstract knowledge in a way beyond routinization of process. Pfadenhauer (2006) posits that a profession’s jurisdiction will need to focus less on its initial phase of knowledge acquisition through formalized education and more on its continuous development and updating of knowledge through monitored, continuing professional development, i.e., lifelong learning, should “postmodern professionals” (p. 566) survive in an increasingly pluralized society.

It is widely acknowledged that professions change over time, and just as new ones emerge over time, others can cease to exist (Abbott, 1988; Larson, 1977). Furthermore, though many scholars have noted the actions taken by an occupation to become a profession, no two professions develop exactly the same, and for each, specific elements will be more important than for others (Romeo & Rigsby, 2008; Singer, 2003). The following discussion of the professionalization path taken by a few professions will illustrate this well-documented, sometimes difficult path.

### **Nursing**

An examination of the nursing profession offers insight to the basis of professionalism. Though thought of by the public as a very old profession, nursing continues to evolve as a profession. British Columbia authors, Northrup et al. (2004) note the contributions of history, current societal influences, and the current confusion over definitions, i.e., discipline, profession, occupation, as “integral to how we choose to guide and shape the evolution of nursing scholarship, practice, and education” (p. 55). They take stock of the words “profession”

and “discipline” as related to nursing. They note the former as the persons involved in the practice of nursing and the latter as the specialized body of nursing knowledge; “the discipline of nursing is given structure and form by the nature of its distinct knowledge base...not by what nurses do” (p. 57). This view of the nursing profession closely parallels professions that engage in “practice,” i.e., the need to distinguish knowledge from the tasks required to apply the knowledge.

Northrup et al. (2004) note that in Canada the nursing profession is challenged by the lack of standardized educational requirements. The Canadian Nurses Association (CNA) supports a baccalaureate degree from a university; however, this educational threshold has not been required within all of the Canadian provinces and territories. Parallel to interior design in Canada and the United States, nursing also offers more than one level of nursing education in preparation for different practices; technical nurses receive education via a diploma or through associate degree programs, whereas, professional nurses must complete a baccalaureate program. According to the CNA (Canadian Nurses Association, 2010), a survey of registered nurses’ education requirements by Canadian provinces in 2009 found that Quebec and the Yukon did not require a baccalaureate degree, and Alberta, Manitoba and the Northwest Territories and Nunavut were working toward requiring a baccalaureate degree. This trend toward the baccalaureate degree has also been supported by studies that tie this higher level of education to better patient outcomes (Canadian Nurses Association, 2010).

And, though nursing’s education is somewhat dependent on knowledge from other disciplines, Northrup et al. warn of the consequence of such an approach. “When nursing’s knowledge base is limited to borrowed knowledge from other disciplines, it announces that nursing science, that is, our specialized body of knowledge, is considered scientifically unimportant” (2004, p. 58). This viewpoint, shared by other scholars, lends support to the idea that an emerging or new profession must define its body of knowledge to demonstrate its scientific underpinnings and thereby illustrate the profession’s legitimate approach to the application of theory and knowledge to specialized practice.

### **Accounting**

In an examination of the history of the accounting profession in the United States, Romeo and Rigsby (2008) cite conditions that created a movement towards an industrially-based, urban society and tremendous growth in the economy at the end of the 19<sup>th</sup>-century.

These conditions were funded by others outside the United States and created a need for what was termed the “science of accounts” (referencing McMillan, 1998) to be conducted by qualified Americans. Furthermore, as noted by Romeo and Rigsby (2008), the importance of the leaders in the development of the profession’s eventual jurisdiction and the ideological underpinnings cannot be overstated, as they are responsible for:

...defining the body of knowledge, establishing a level of competency and contribution of essential services to society in legitimizing and institutionalizing the occupational area, and then persuading the state to pass legislation legally recognizing their right to practice autonomously as a profession. (p. 417)

Though accounting professionals, known as certified public accountants (CPAs), comprise one of the most widely known professions today, it is interesting to note that competing membership organizations’ (Institute of Accountants and the American Association of Public Accountants) conflicts served to delay the passage of the first CPA law until 1896 (Romeo & Rigsby, 2008).

### **Journalism**

Journalism, largely considered a profession by the public and those within its jurisdictional boundaries, has attained many of the characteristics of a profession. However, a growing distrust by the public regarding issues of credibility as a result of journalism’s ties to corporate culture and diminishing autonomy are converging at this time with advances in technology. The result is the emergence and proliferation of online journalism and its cadre of educated journalists comingling with those from the public who choose to create online “news.” Online journalism is being questioned by those journalists in the traditional media, e.g., newspapers, as not delivering valid, reliable news; not being “professional” due to the lack of “gate-keeping” previously delivered by the editor; and by the fact that many journalists online gather news, rather than produce news content. The journalism profession perceives change is underway due to these factors; the result of which may be a splintering of online journalism as a separate, autonomous profession in the future (Singer, 2003).

### **Downside of Professions to Society and Consumers**

In contrast to many scholars who support the construct of professions and their actions, there are others who highlight the possible downside of this social institution pertaining to delivery of services. As reported by Tamir and Wilson (2005) in their review of scholarship by

Weber from 1952; Collins from 1990; and Tullock, Seldon, and Brady from 2002, social inequity, “gate-keeping,” monopoly of knowledge and its application, limiting of public choice, and creation of a phenomenon of “insiders” versus “outsiders” are viewed as reasons why professions are not essential or even beneficial to the public. (See Tamir and Wilson, 2005, for full citations and further information regarding these issues.) Additionally, Kleiner (2006) challenges the assumed quality benefits related to regulating entry into a profession, especially in context of issues relating to market choice and service costs for consumers.

### **History of Professionalization**

In the following segments, the history of professionalization is explored relative to the rise of professions’ growth and new and emerging professions. Specific examples are offered as context to the later discussion of interior design as a profession.

#### **Rise of Professions**

In the United States, professions began to come into their own in the 18<sup>th</sup>-century. Being a member of a profession prescribed control over the work. It also confirmed influence and social standing as the knowledge authority over clients who were served by professionals. Primarily, as it had been in England, being a professional was associated with being a “gentleman.” Some of the oldest professions still in existence are medicine, law, and ministry. Since that time, the power, control, and popularity of professions have ebbed and flowed with societal changes (Abbott, 1988; Boyer, 2001). For example, the success of professions to create large professional associations and put in place laws intended to protect their work, lost favor in the mid-19<sup>th</sup> century American agrarian society due to the loss of popularity of the social strata promoted by professions (Boyer, 2001).

However, as noted by Boyer (2001), the tides once again turned by the late 19<sup>th</sup>-century when a shift in Americans’ attitudes encouraged a relaxation in qualifications for entrance into established professions combined with the growth of new professions from 1880 to 1920. Engineering is one of the most well-known professions today that originally gained professional standing in the United States during this time (Boyer, 2001). Boyer noted that by the late 20<sup>th</sup>-century, professions were once again popular, powerful, and a growing trend. As stated by Boyer (2001): “To be a ‘professional,’ ...meant autonomy; status; a secure income; and escape from the indignities, depersonalization, and uncertainties of bureaucracies and markets.”

### Growth of Professions

In an examination of the U.S. Census Bureau information by Brint (1994), the number of professions grew 12 times from the pre-World War II era through the mid-1990s. This growth shows a movement away from an industrial-based society with occupational unions to a service-based society, often referred to as the “information age.” The majority of professions are licensed by Canadian provinces and territories and American states and territories. In the United States, there is evidence of an inverse relationship between the number of professionals licensed versus the number of unionized workers. Kleiner and Krueger (2008) found that in the past 50 years about 29% of the workforce is licensed whereas 12% of the workforce is unionized. This reflects the shift in the United States from a blue collar to a white collar economy. An exception is the large number of teachers and nurses who are both licensed and union members. Also, a large number of government employees tend to be licensed professionals. They also found that “[w]orkers who have higher levels of education are more likely to work in jobs that require a license” (Kleiner & Krueger, 2008, p. 7). Furthermore, the findings of their study estimated that being a member of a union or a profession tended to raise wages approximately 15%. However, it should be noted that design professions were not examined within their study.

The U.S. Bureau of Labor Statistics' (2009b) report, “Tomorrow’s Jobs,” notes that the shift from manufacturing of goods to a service industry will continue through 2016. Service sector jobs are expected to increase by 15.7 million—the fastest growing sector; whereas, there will be a loss in the number of jobs related to production of goods (p. 2). Furthermore, “goods-producing industries have been relatively stagnant since the early 1980s” (p. 4).

As has been stated, not all occupations are professions. However, the appearance of new or emerging professions springs from a myriad of causes, among them technology; demographic trends, i.e., aging, immigration, education; business trends; and changes in the law. For example, distance learning occupations have come about principally due to advances in technology, the trend towards lifelong learning, and competition between educational institutions for students (Crosby, 2002).

### **New Professions**

There has also been the emergence of new professions; three of which are presented here. They are evidence of the ongoing efforts by occupations to become recognized as professions even in the face of obstacles already described.

### ***Political Campaigning***

Gibson and Römmele (2009) explore the professionalization of political campaigning in the context of approach, strategies, and tools used by political parties and their candidates for obtaining votes. They tested an index of “10 key observable professionalized campaigning practices” (p. 266). In these ways, political campaigning is beginning to examine and document their body of knowledge through a delineation of characteristics of their work.

### ***Public Relations***

Sriramesh and Hornaman (2006) studied public relations (PR) as a profession, defining it as “strategic management of communication by organizations to build lasting and mutually beneficial relationships with their stakeholders” (p. 155). Though as evidenced through the discipline’s literature, it is believed that public relations has not yet achieved status as a profession. However, persons within PR acknowledge the benefits to the discipline and its stakeholders, i.e., clients and organizations, to do so. The actions that must be achieved to reach that professional stature, namely, a code of ethics, serving the public interest, specialized technical skills, a body of “esoteric” knowledge, formalized education, and formation of professional organizations are also noted (Sriramesh & Hornaman, 2006).

However, there has been ongoing effort by PR to identify its body of knowledge. As discussed in the 1988 publication *The Public Relations Body of Knowledge* by the Foundation for Public Relations Research and Education, it was determined that the profession had a body of knowledge. Walker (1988), the author of the report, identified the definition and documentation to have come from evidence “from all the sources—the literature, survey of practitioners and educators, selected educational programs, and in the views of abstractors of data for computerized information retrieval...” (p. 3). He subsequently defined the PR body of knowledge as the scholarship and practice of “the humanities...the social sciences...political science...psychology of motivation...sociology of conformity and confrontation...philosophy of ethical behavior...cultural anthropology...art and science of management, marketing, finance

and economics...art of communication...research methodology...and specialized knowledge in the client's and employer's business" (pp. 3-4). As is apparent from Sriramesh and Hornaman's (2006) definition of PR, they found knowledge areas identified by Walker (1988) too broadly devised.

### ***Project Management***

The Project Management Institute (PMI) is a vibrant, active membership organization. Established in 1969, it has over 250 chapters worldwide, and over 420,000 members (Project Management Institute, 2009a). PMI benchmarks include the significant actions taken during the professionalization process: educational program accreditation (50 accredited programs to date); the PMI Code of Ethics and Professional Conduct; and credentialing of practitioners who have achieved specific levels of qualifications including a combination of education, experience, and examination (Certified Associate in Project Management, no examination required; Project Management Professional; Program Management Professional; PMI Risk Management Professional; and PMI Scheduling Professional) (Project Management Institute, 2009c). PMI also requires continuing education via a network of Registered Education Providers, and acts as publisher for a scholarly journal, *Project Management Journal* (Project Management Institute, 2009a). Moreover, all of these professional benchmarks are underpinned by the project management body of knowledge (*PMBOK® Guide*, 2008). Published first in 1987, PMI published subsequent editions in 1996, 2000, 2004, and 2008. Within it, 42 project management processes are distributed within nine "Knowledge Areas" (Project Management Institute, 2008).

### ***Emerging Professions***

An example of an emerging profession is organization development (OD), as considered by those practicing within its ranks since the 1960s. Its scholars and practitioners question if OD should be a "recognized licensed profession" (Weidner & Kulick, 1999, p. 320). Principally, the debate centers on whether OD should gain licensure for it to become a profession. This concern is closely tied to an apparent lack of a defined identity "in the eyes of others...a cry for respect" (Weidner & Kulick, 1999, p. 348). Challenges yet remaining in the professionalization process include educational programs (many at the graduate level) that use several names and share curriculum and a body of knowledge shared with related disciplines, such as Human Systems Development; uncontrolled entry into the profession; lack of consistent application of a

body of knowledge, which is not specifically defined; a fractured workforce due to the wide range of highly variable work settings; and several OD professional membership organizations competing to represent the profession (Weidner & Kulick, 1999).

A review of literature identified countless new and emerging professions that are actively engaged in defining and documenting their respective bodies of knowledge. This list is not exhaustive, but intended to illustrate the breadth and diversity of active engagement by these professions in creation and documentation of knowledge for the purpose of defining their jurisdictional boundaries:

- Automation (System data, mode of access, Internet via World Wide Web) (Trevathan, 2005);
- Exercise Pathology (Boone, 2009);
- Geographic Information Science and Technology (GI S&T) (UCGIS Education Committee, 2006);
- Information Technology Architecture (Kralj, 2009);
- Infrastructure Regulation (Public Utility Research Center, University of Florida, 2008);
- Internal Auditors (Barrett, 1985);
- Management Consulting (Institute of Management Consultants, 1979);
- Software Engineering (Institute of Electrical and Electronics Engineers, 2009);
- Thanatology (Death, dying, and bereavement) (Balk, 2007); and
- Usability (Usability Professionals' Association, 2005)

### **Importance of a Body of Knowledge to a Profession**

Formation and maintenance of a profession's jurisdiction is dependent on the profession's ability to create and apply abstract knowledge (Abbott, 1988). It will be shown that professions, including interior design, that are engaged in knowledge creation—whether or not this knowledge is defined and documented formally in a body of knowledge, have a foundation for engagement and service to the public and consumers (Cohen, 1958; Weidner & Kulick, 1999). In referencing the work of Freidson (1994), Weidner and Kulick (1999) emphasize the importance of a body of knowledge in establishing a profession's privilege in society, granted in exchange for three benchmarks. The first two address the importance of a body of knowledge to the profession itself and the public:

First, the profession's body of knowledge and skill deals [sic] with problems of great importance to the public good, whereas that of other occupations does not. Second, the profession's body of knowledge and skill is [sic] so specialized and complex that lay people cannot act as rational consumers capable of protecting their own interests in the marketplace. (p. 336)

Most professions have or are currently engaged in documenting their bodies of knowledge. This activity serves as both a statement of the profession's existence and as a basis for dialog and debate within the profession—further refining the body of knowledge. These actions support and reflect a principle function of a profession's behavior—constant change, instigated from both internal and external forces (Abbott, 1988). Defining and documenting a body of knowledge is an ongoing effort (Nickols et al., 2009), and for new or emerging professions the task can be daunting. OD scholars recognize the process as one that “requires assembling a panel of experts in the subject; making the body of knowledge widely available; and creating, contracting, or partnering with an entity to run training, testing, and other programs” (Weidner & Kulick, 1999, p. 360). Professions established at the beginning of the 20<sup>th</sup>-century, such as social work and family social science, found the process to be more one of reflecting upon and documenting what was “known” over decades of development (Cohen, 1958; Nickols et al., 2009).

The interior design profession has followed both of these two processes to define and document their BOK (Guerin & Martin, 2001; Martin & Guerin, 2006). The profession's BOK has been disseminated to the profession and the public via a Web site ([www.careersininteriordesign.org](http://www.careersininteriordesign.org)), and much dialogue and scholarship have focused on discussion and debate about aspects of the profession's BOK, related to format, content, and purpose (Dohr, 2010; Guerin & Martin, 2004; Marshall-Baker, 2010; Rhoads, 2010; White & Dickson, 1994). This study itself is evidence of the continued interest in the BOK, commissioned by the Issues Forum members (comprised of the leadership of ASID, CIDA, IDC, IDEC, IIDA, and NCIDQ).

### Definition of a “Body of Knowledge”

A search to define “body of knowledge” yielded several results. Though the phrase is not defined by Merriam-Webster, a mainstay of dictionaries, other online dictionaries offer these definitions:

- *Babylon* (n.d.): “The prescribed aggregation of knowledge in a particular area an individual is expected to have mastered to be considered or certified as a practitioner.”
- *BusinessDictionary* (2009): “Domain of essential information, mastery over which is required for success in a field or profession.”
- *Wikipedia*<sup>TM</sup> (2009): “...is a term used to represent the complete set of concepts, terms and activities that make up a professional domain, as defined by the relevant professional association. While the term body of knowledge is also used to describe

the document that defines that knowledge—the body of knowledge itself is more than simply a collection of terms; a professional reading list; a library; a website or a collection of websites; a description of professional functions; or even a collection of information. It is the accepted ontology for a specific domain.”

Roy and MacNeill (1967) present the findings of a three-year study commissioned by the Carnegie Corporation of New York and the American Institute of Certified Public Accountants (AICPA) to identify certified public accountants’ “common body of knowledge” in their book, *Horizons for a Profession*. The authors describe the efforts of the 12 men of the authoring commission. They considered what was known, and, with an eye to the future, considered especially the anticipated technological advancements forecasted at the time. Considering that CPAs were first licensed in 1896 (Romeo & Rigsby, 2008), this body of knowledge reflects the best thinking of a well-established, regulated profession. Their body of knowledge is conceived of as “the entire measurement and reporting process—the body of concepts which are operative within this process and the means of communicating these measurements—that comprise the body of accounting knowledge” (Roy & MacNeill, 1967, p. 191).

However, it is important to note that the body of knowledge identified is comprised of both specialized knowledge unique to CPAs, as well as knowledge shared with and across other professions and occupations. Roy and MacNeill (1967) identified and documented knowledge areas of the CPA body of knowledge as consisting of the following:

- Accounting;
- Humanities (namely, Logic and Ethics; Communication);
- Economics and Behavioral Science (especially Organizational Behavior);
- Law (especially Business Law);
- Mathematics, Statistics, Probability; and
- Functional Fields of Business (namely, Finance; Production, i.e., Manufacturing; Marketing; Personal Relations, and Business Management). (pp. 191-267)

The importance of a profession’s body of knowledge cannot be overstated. Defining it and documenting its components are often the first, important step in establishing and maintaining the jurisdictional boundaries of a profession. As noted by Northrup et al. (2004), when reporting on the current state of professional nursing:

Once differentiated as a distinct domain of knowledge, ultimate responsibility for expanding the conceptual basis of nursing science; for explicating the inextricable link between our theories, practice, and research; for articulating and extending nursing’s

contribution to healthcare, and; for elucidating the difference we make to the people we serve, rests within nursing and not with other disciplines. (p. 59)

Even new or emerging professions strive to identify, document, and build their body of knowledge. In a content analysis of the *Journal of Sports Economics*, Mondello and Pedersen (2003), acknowledge that sports economics is a “relatively new endeavor...its history is less than a half century old” (p. 64). However, they note the purpose of the study is to “determine the foci of this body of knowledge” (p. 65) as the journal’s content telegraphs what academicians consider important, what students learn in the classroom, what is practiced by them after graduation, and subsequently what influences future research.

A body of knowledge is the foundation of a profession; however, in some cases a body of knowledge is shared by multiple professions. For example, there is a body of knowledge about youth violence that is shared by researchers looking into the behavioral and psychosocial effects of youth violence on the individual and society, mental health professionals responsible for the care and treatment of these youth, and reform school instructors and administrators who engage with them (Honkatukia, Nyqvist, & Pösö, 2003).

It is apparent that a profession’s body of knowledge is not static over time, and in fact, knowledge is accumulated, shared, or lost. Interaction by the profession with its body of knowledge, whether initial identification and documentation or periodic study and refinement, is the primary means by which the profession can claim its jurisdictional boundaries, prescribe education, and communicate with the public.

Bodies of knowledge have been broadly discussed by researchers. To summarize, they suggest that a body of knowledge is the documentation of knowledge that is primarily used by professionals to a greater extent than by others, i.e., core knowledge, frequently used as the basis for decision making; it is specialized knowledge, some of it unique to the profession, and some is not—some portion of every profession’s body of knowledge is shared among many professions. And, professionals integrate shared and unique knowledge in practice.

### **Professions and Their Bodies of Knowledge**

Professions base their work on application of a body of knowledge that is unique to that profession by virtue of the extent and composition of its abstract knowledge. What follows is a description of different professions and the development of their bodies of knowledge gleaned from refereed journal articles and books. Literature about many of the professions address the

need for past, current, and future work dedicated to studying, defining, documenting, and building the body of knowledge, as well as its importance, both theoretical and practical.

### ***Social Work***

The profession of social work is parallel to interior design in many aspects of professionalization and typical in the development of its body of knowledge to many professions. Most viewed Flexner's (1915) address to social workers, in which he questioned if social work was a profession, as a challenge to continue defining that profession—its purpose, service to society, protection of an individual's rights within society, and qualifications required to practice (Austin, 2001). Cohen (1958) in his book, *Social Work in the American Tradition*, addressed social work's body of knowledge, beginning with a discussion of where the profession was in 1900, stating, "The body of knowledge of social work was expanding rapidly through experience" (p. 78). Again, he described the state of the profession between 1900 and 1930, stating, "The body of knowledge and the theoretical framework of social work as we know it today took its shape and substance during this period" (p. 156).

Relevant to the development of interior design as a profession unique from architecture, Cohen (1958) refers to social work's modeling of medicine's foundation in science and social work's struggle to gain autonomy from psychiatry. Although social work relied on some of psychiatry's theoretical underpinnings, scholars acknowledged social work's unique body of knowledge and focused on "dealing with the individual who was facing problems of maladjustment...a view of the nature of man and his social arrangements" (p. 321). Challenges of educating the public and other stakeholders on the role of social work, establishing qualifications for professional practice, and gaining acceptance of them by individuals already practicing in the field are broadly discussed. Cohen (1958) bemoaned the state of the social work profession's progress by referencing Greenwood's statement that social work had yet failed to fully "...convince the community that those who possess the professional skill deliver a superior service than those who do not; and that the community stands to benefit from and should prefer the superior performance" (1953, p. 339).

Cohen (1958) called upon the social work profession, the National Association of Social Workers, and educational body, the Council on Social Work Education, to move the profession forward. In 1950, of the identified 75,000 social workers (70% female), "...50% had some graduate education, and a third did not have a college degree" (p. 296). Today, social work is

licensed in many Canadian provinces and across the United States. A master's degree is required in the majority of jurisdictions with the remainder requiring a bachelor's degree. All degree levels are coupled with the requirement of a qualification examination (Association of Social Work Boards, 2010c). (ASWB is a parallel organization to NCIDQ.)

### ***Family and Consumer Sciences***

Nickols et al. (2009), reviewed the development of the family and consumer sciences (FCS) body of knowledge and acknowledged its importance as a guidepost for the profession and those in academia and practice. Definition and documentation of the FCS body of knowledge represent a concerted, ongoing, deliberate effort that began with the development of their profession (initially called "home economics") in the late 19<sup>th</sup>-century. FCS came into being as a result of the socioeconomic changes taking place that had also affected the development of social work (Cohen, 1958) and accountancy (Romeo & Rigsby, 2008). These changes were primarily "industrialization, immigration, and urbanization, resulting in social strife, economic inequities, political discord, and health concerns, among others" (Nickols et al., p. 267). The authors label these changes as the "cultural kaleidoscope" present during those times as a force of change—still present and affecting professions today.

As a profession, FCS has periodically redefined and continued to develop its body of knowledge to be "relevant to contemporary society, is future-oriented to encompass emerging conditions, and has the broadest possible applications, including research and practice" (Nickols et al., 2009, p. 267). The most recent iteration of their body of knowledge has been from two task forces (1999, 2003), and includes the development of a model that depicts "three categories of concepts: integrative elements, core concepts, and cross-cutting themes" (p. 269). The authors acknowledge the interplay between elements of the model, and more importantly the body of knowledge role as a framework for identification of research to address issues within their professional jurisdiction.

### ***Public Health***

A study using systems theory as a framework was conducted to identify a taxonomy for use by local health departments that would profile the tasks, knowledge, and resources that comprise public health work. The benefits of operationalizing these aspects were noted, "When management strategies optimize congruence or 'fit' between the environment and the work,

better performance in achieving outcomes is more likely” (Merrill, Keeling, & Gebbie, 2009, p. 1819). Four essential knowledge elements, i.e., primary categories, were identified: administrative, analytic, policy and program, and public health science. The authors acknowledge the importance of this work, “as the discipline of Public Health Services and Systems Research emerges, it is incumbent upon members of this community to lay foundations for a sound and comparable body of knowledge...” (Merrill, Keeling, & Gebbie, 2009, p. 1835).

### ***Information Technology (IT) and IT Security***

Information technology is considered an emerging profession as is the profession of IT Architecture (Kralj, 2009). An “Essential Body of Knowledge” was created by the Department of Homeland Security National Cyber Security Division (DHS-NCSD) in cooperation with academia, other governmental agencies, and private industry. Their goal was to define and document “functions that professionals within the IT security workforce perform...[promotion of] uniform competency guidelines...for education, training, and professional development...including future skills training and certifications, academic curricula, or other affiliated human resource activities” (Department of Homeland Security-National Cyber Security Division, 2007).

### ***Landscape Architecture***

Of the design professions, landscape architecture is one of the first to define and document its body of knowledge. The American Society of Landscape Architects (ASLA) published the *Landscape Architecture Body of Knowledge Study Report (LABOK)*, in October 2004, and disseminated it via ASLA’s Web site to be considered and discussed by the landscape architecture community of practitioners, educators, students, and prospective students. As defined by the task force assembled, the LABOK was to address, “1) what are the core competencies shared by the profession that help define the profession and 2) what is the fundamental body of knowledge that should be expected of all graduates from accredited schools?” (American Society of Landscape Architects, 2004, p. 1). They also acknowledged that “what was needed was a systematic, quantifiable way to take a snapshot of a particular time, and, in the future, update the body of knowledge” (American Society of Landscape Architects, 2004, p. 1). The LABOK was an undertaking supported by the entire landscape architecture community: the ASLA, the Canadian Society of Landscape Architects, the Council of Educators in

Landscape Architecture, the Council of Landscape Architecture Registration Boards, and the Landscape Architectural Accreditation Board—parallel to the commissioning of this study.

### **Analysis of Interior Design Professionalization and the BOK**

The previous segments have focused on professionalization as it has been experienced by other professions. This next segment focuses on the many similarities between interior design's purpose and process and other professions' journeys.

#### **Professionalization of Interior Design**

Interior design is a profession, based on Abbott's theory of professionalization grounded in the seven internal actions that define a profession. Six of these actions have been fully accomplished, and the seventh, legal recognition/regulation is underway in Canada and the United States (Martin, 2007). It is important to note that in Canada, IDC is the national organization for members within eight provincial interior design associations. (Prior to 2010, IDC was the umbrella organization over the provincial organizations themselves, not at the member level.) For the purposes of this analysis, one of the provincial associations, ARIDO, the largest association of membership, will be used as an example of adoption of the seven actions taken by interior design to be a profession. Significant actions include:

- 1) *Professional Association (Organization) Membership*: ASID (1975; principal mergers beginning in 1931); IIDA (1994; from organizations established in 1969); and ARIDO (established in 1934 as Interior Designers of Ontario) are all interior design professional associations.
- 2) *Name Change*: Conscious separation from the name "interior decoration" and use of the name "interior design" occurred as the profession began expanding its focus on non-residential/commercial space design in the 1950s.
- 3) *Code of Ethics*: ASID, IIDA, and ARIDO have prescribed codes of ethics and conduct (as do other provincial organizations within Canada including IDC).
- 4) *Educational Requirements*: CIDA has accredited interior design programs in institutions of higher education in Canada and the United States (formerly known as FIDER, 1970-2006).
- 5) *Comprehensive Examination*: NCIDQ has offered an examination that addresses health, safety, and welfare since 1974; it has been the primary qualification examination in both Canada and the United States since 1970).

- 6) *Legal Recognition/Regulation*: Canadian regulation began in 1960 with a title act in Alberta and in 1973 with a practice/title act in Puerto Rico. Currently there are 34 Canadian and U.S. jurisdictions with title, practice/title, self-regulating, or permitting regulations. Every year there are regulatory efforts undertaken in these countries in multiple jurisdictions to clarify, enhance, or establish legal recognition/regulation of interior design.
- 7) *Continuing Education*: a requirement for maintaining professional membership in ASID, IIDA, and ARIDO, among other provincial organizations within IDC, as well as some regulatory jurisdictions. Interior designers must complete a specified number of continuing education units annually that are approved by the Interior Design Continuing Education Council (IDCEC), among others.

### Interior Designers Today

Interior designers are creating design solutions for interior spaces that include corporate, government, healthcare, hospitality, institutional, residential, and retail; and many specialize in sustainability, aging-in-place, universal design, or evidence-based design approaches. According to the U.S. Bureau of Labor Statistics (BLS), in 2006, there were 72,000 interior designers in the United States. That number is expected to grow 19% by 2016, raising the total to 86,000, which is higher than the average growth rate projected for all occupations (U.S. Bureau of Labor Statistics, 2009b). However, the accuracy of those numbers must be considered with caution as the qualifications of persons identifying themselves as interior designers are unknown due to the grouping of occupations and the manner in which interior design is defined by the BLS. The highest earnings and types of employment were for interior designers in the following industries, in this order:

- architectural, engineering, and related services (\$46,750);
- architectural services (\$46,750);
- specialized design services (\$43,250);
- furniture stores (\$38,980); and
- building material and supplies dealers (\$36,650) (U.S. Bureau of Labor Statistics, 2009a).

An examination of *the Occupational Outlook Handbook, 2008-2009 Edition*, “Professional and Related Occupations” from the BLS (U.S. Bureau of Labor Statistics, 2008) presents occupations grouped under 16 major categories. “Engineers” is a major heading, without any occupations noted below. “Architects, surveyors, and cartographers” is a major heading with

three subheadings: “architects, except landscape and naval; landscape architects; and surveyors, cartographers, photogrammetrists, and surveying technicians. “Interior designers” is a subheading under a major category, “Art and design occupations.” Other subheadings under that same major heading include, “artists and related workers; commercial and industrial designers; fashion designers; floral designers; and graphic designers” (U.S. Bureau of Labor Statistics, 2008).

In the BLS (U.S. Bureau of Labor Statistics, 2009a) description of interior designers, the discussion of “Related Occupations” states,

Workers in other occupations who *design or arrange objects to enhance their appearance and function* include architects, except landscape and naval; artists and related workers; commercial and industrial designers; fashion designers; floral designers; graphic designers; and landscape architects. (*Italics added for emphasis; p. 4*)

This statement does not acknowledge the responsibilities to a person’s HSW as it does for related occupations, though those responsibilities are acknowledged and described in the BLS’s description of interior design as an occupation (2009a). Instead, the focus is on designing and arranging of objects.

Interior designers’ application of their BOK to plan and design interior space embodies their understanding and responsibility to protect the occupant’s HSW and conservation and sustainability of the natural environment. Whether accommodating the needs of a couple who wish to age-in-place in their family home through application of universal design features and barrier-free space planning or supporting the posture of call-center operators during their workday by applying ergonomic principles to the design of workstations, interior designers protect and enhance people’s interaction with the interior built environment, in addition to consideration of aesthetics and cost. Balancing the myriad needs and issues of the people using the space, cultural context, society, and sustainability is complicated; extensive qualifications are required to practice in the profession of interior design.

These definitions speak to public confusion regarding interior design. Understanding qualifications to practice is an essential step in clarification as they describe internal actions taken by the profession during the professionalization process. The next segment describes how interior design has approached these actions.

### Qualifications of Interior Designers

As a recognized profession, interior design has identified the three most crucial components necessary for an individual to be qualified to practice interior design. Formalized education, monitored experience, and a qualification examination—commonly referred to by those in the interior design profession as the “three Es,” are considered the core qualifications of regulated professions in society today (Guerin & Martin, 2001). They define the acquisition of abstract knowledge, i.e., the BOK, accrued through formalized education, application through practice experience, and testing of practitioners’ comprehension and proficiency. The three Es ensure that the interior design professional protects the public’s health, safety, and welfare.

- 1) Education: First-professional degree programs are accredited by CIDA. The first six programs were FIDER-accredited in 1973. As of July 2010, there are 171 CIDA-accredited programs in the U.S. and Canada; of these, six are in Canada and one is in Qatar (C. TenHooen, Accreditation Coordinator, CIDA, personal communication, August 25, 2010).
- 2) Experience: Interior designers acquire knowledge via formalized education, but professional practice experience is essential to expand that knowledge base to gain the necessary qualifications to protect the HSW of the public. Experience is typically a requirement of: “state licensing boards and provincial associations [who] require proof of high-quality, diversified interior design experience for licensure and/or registration” (National Council for Interior Design Qualification, 2009a). Since 2002, the profession has had in place a formalized process and tracking of experience, IDEP, established by NCIDQ. IDEP is intended to “help entry-level professionals obtain a broad range of quality professional experience” (National Council for Interior Design Qualification, 2009a). It is currently being revised for ease of use, which may increase broader acceptance.
- 3) Examination: The qualification examination for interior design professionals in the United States and Canada has been developed and conducted by NCIDQ since 1974. Today there are 25,851 NCIDQ certificate holders (J. Kenney, Executive Director, NCIDQ, personal communication, July 23, 2010). Content is psychometrically validated every five years using instruments such as the *2008 Analysis of the Interior Design Profession*. The examination “tests knowledge in only those areas that relate to health, safety and welfare” (National Council for Interior Design Qualification, 2009b). NCIDQ has established six eligibility routes that encompass various options relevant to the minimum number of hours of education and experience to be qualified to sit for the examination. Most interior

designers choose the path that requires a minimum of 3,520 hours of supervised experience following a baccalaureate degree in interior design (National Council for Interior Design Qualification, 2009c).

### **Debate over Qualifications**

Consistent growth in CIDA-accredited programs and a significant increase in NCIDQ certificate holders are indicative that qualifications do matter, which has been recognized by institutions, prospective interior design students and their parents, educators, interior design practitioners, clients, and the public. Even in light of the push-back being encountered in the current legislative struggles to regulate the title and/or practice of interior design, many within and outside the profession realize the impact that interior designers have on human life and the natural environment via their design decisions. Some people believe that interior designers need not meet recognized qualifications even though these qualifications are required and supported by the profession (Carpenter, 2006; Interior Design Protection Council, 2009; National Kitchen and Bath Association, 2008); and others believe that interior designers are not qualified enough (American Institute of Architects, 2009). However, the profession is typical of other professions in knowing, from an intimate familiarity with its BOK and related qualifications and responsibilities that, “minimum competency requirements are not to be confused with a push towards exclusivity” (Martin, 2008, p. 26). Understanding and acceptance of qualifications to practice professional interior design are a matter of educating all stakeholders.

### **Summary**

The review of professionalization literature found extensive evidence of professions' importance to society relative to the delivery of quality of service to consumers and the HSW of people. Literature also identified issues of concern regarding professions relative to issues of control and cost.

Looking at the path and process undertaken by numerous professions, issues of quality, control/ownership of work, and identity were documented as challenges facing professions and the public's perception of professionals. Challenges discussed ranged from intra- and inter-professional threats, the time line to become a profession, and the costs and efforts incurred via the professionalization effort.

From this examination, evidence exists that professions are a well-established, growing facet of our society. Being a profession is acknowledged as a benefit by those engaged in the profession; the benefits to society are far-reaching and crucial as related to protection of life, health, safety, and welfare. This was demonstrated in this discussion of numerous professions in terms of their development history and bodies of knowledge. In addition, the public trust afforded professions is generally appropriately granted, as professionals have attained specific, time-tested qualifications required to deliver necessary services to the public. Professions that maintain the quality of their expertise and application of knowledge in meeting the public's needs are enduring, though they typically change over time; others with diminished use lose value and/or cease to exist over time.

It is the goal of this discussion and presentation of evidence that it will be apparent that the profession of interior design is not unique, from the standpoint of its origins and efforts to achieve the benchmarks of professionalization, including most notably knowledge creation via the BOK. Interior design is also not unique in terms of the challenges it faces in achieving professional status. It is also apparent that interior design has achieved professional status as shown by the criteria from several theorists and researchers, e.g., Abbott (1988), Khurana et al. (2005), Flexner (1915), (Freidson, 1944) and Martin (1998, 2007).

In later sections of this report, interior design's BOK will be defined and documented. Like the numerous histories and examples of bodies of knowledge from other professions, this report is one of many documents to discuss interior design's BOK, though perhaps the most recent effort to document the interior design profession's BOK in the context of its influence on HSW. These authors have done this twice before (Guerin & Martin, 2001; Martin & Guerin, 2006). The second BOK report was more refined than the first, and this BOK study has an additional refinement as well—focusing on current knowledge areas as documented by entities of the profession and viewed in relation to HSW.

As shown in the professions of social work, landscape architecture, and others, there can be no doubt as to the importance of defining and documenting a profession's body of knowledge. The interior design profession's BOK is important not only to scholars, but educators, researchers, students, and other stakeholders such as clients, code officials, legislators, and the public. Spending 90% of our time indoors makes the design of those spaces of paramount interest to us all.

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## Goal 2: Results of Examination of Regulation

This segment of the report compares current interior design regulations to regulations from 2005 and discusses the comparison as it relates to interior design practice and HSW, specifically in terms of the KAs contained in regulatory language. To do this, definitions of interior design from regulatory language in both 2005 and 2010 were reviewed. Also, the specific title used to name the regulated interior design practitioner in a specific Canadian or U.S. jurisdiction is identified. A brief overview of the regulatory process is presented first, followed by a table that presents an overview of regulatory statistics. This segment ends with a comparative analysis of the interaction and influence between regulatory language, KAs of the BOK, and HSW. Definitions of interior design from all jurisdictions with regulation of interior design are presented in Appendix B.

### Regulatory Process

Regulatory process varies by jurisdiction, and moreover to a great degree between Canada and the United States. In Canada, provincial laws are enacted as bills by the legislative assembly but are regulated through the interior design associations within the province. For example, ARIDO, is both an interior design organization with members, similar to ASID, and regulates use of the title Interior Designer in Ontario.

In the United States, the legislature enacts laws, namely statutes and rules on a state-by-state basis and is wholly separate from interior design membership organizations. In jurisdictions that regulate interior design, there is a board that regulates the law; and it can vary between a single-profession board, such as the Illinois Board of Interior Design Professionals, or a board that combines several professions, such as the Florida Board of Architecture and Interior Design. Some regulatory boards that regulate interior design do not have interior design in the name of the board, such as the Kentucky Board of Architects (NCIDQ, 2010).

In both Canada and the United States, most interior design regulation has been enacted first as title legislation. These regulations typically control the title of the profession, but not the practice of the profession. What this means is that persons in a jurisdiction with interior design title regulation can call themselves Certified Interior Designers (as an example title), only if they have met the qualifications established by the jurisdiction that will enable them use of the title. It is a violation of law for all others to use the protected title. However, in that same jurisdiction,

anyone can practice interior design if there is only a title act. There are variations, and there are a few jurisdictions where additional privileges are afforded persons who meet title qualifications, such as stamp and seal provisions, e.g., Minnesota, but they are not described in this report as they are outside the study's purpose. In contrast to title regulation, practice regulation controls the practice as well as the title/name. Therefore, contrary to the title regulation example described above, under practice regulation, persons who are not qualified cannot use the title or practice interior design as defined in the regulatory language of the jurisdiction.

### **Regulatory Statistics Summary**

Table 3.1 identifies each Canadian and U.S. jurisdiction that regulates interior design, whether or not it was regulated in that jurisdiction in 2005 (at the time of the Martin & Guerin BOK study, 2006), and the title currently regulated. Also, the type of regulation is noted: "title/practice," "title," "self-certification," or "permitting." Appendix B. Canadian and U.S. Regulatory Language presents the jurisdictions' definitions of these titles.

Thirty-four Canadian and U.S. jurisdictions regulate the title and/or practice of interior design; however, seven of them are title acts/bills regulating who may use the title (including the applicant's ability to meet other/additional jurisdictional qualification requirements, such as signing a code of conduct, etc.). In Canada, there are seven provincial associations with title regulation. Of them, Nova Scotia's regulation controls both the title and practice of interior design. Quebec has an interior design association (APDIQ), but no title regulation at this time. For additional detailed information and to receive the most current information, contact the Interior Designers of Canada ([www.interiordesigncanada.org](http://www.interiordesigncanada.org)).

In the United States, 27 states and territories have regulation. Of them, six regulate both the title and practice of interior design: Alabama, Florida, Louisiana, Nevada, Puerto Rico, and Washington, DC. For additional detailed information and to receive the most current information, contact the regulatory board directly. Also, both ASID ([www.asid.org](http://www.asid.org)) and IIDA ([www.iida.org](http://www.iida.org)) provide information about regulatory activities.

Table 3.1. Interior Design Regulation in Canada and the United States (2005 and 2010).

Canada				
Province	2005	2010	Title Regulated (2010)	Regulation Type (2010)
Alberta	❖	❖	Registered Interior Designer	Title
British Columbia	❖	❖	Registered Interior Designer	Title
Manitoba	❖	❖	Professional Interior Designer	Title
New Brunswick	❖	❖	Registered Interior Designer	Title
Nova Scotia	❖	❖	Interior Designer	Title/Practice
Ontario	❖	❖	Interior Designer	Title
Quebec	❖	none		
Saskatchewan	❖	❖	Interior Designer	Title
United States				
State or Territory	2005	2010	Title Regulated (2010)	Regulation Type (2010)
Alabama*	❖	❖	Registered Interior Designer	Title/Practice
Arkansas	❖	❖	Registered Interior Designer	Title
California	❖	❖	Certified Interior Designer	Title (Self-Certification)
Colorado	❖	❖	Interior Designer	Permitting
Connecticut*	❖	❖	Registered Interior Designer	Title
Florida	❖	❖	Registered Interior Designer	Title/Practice
Georgia	❖	❖	Registered Interior Designer	Title
Illinois	❖	❖	Registered Interior Designer	Title
Indiana	none	❖	Registered Interior Designer	Title
Iowa**	❖	❖	Registered Interior Designer	Title
Kentucky	❖	❖	Certified Interior Designer	Title
Louisiana	❖	❖	Registered Interior Designer	Title/Practice
Maine	❖	❖	Certified Interior Designer	Title
Maryland	❖	❖	Certified Interior Designer	Title
Minnesota	❖	❖	Certified Interior Designer	Title
Missouri	❖	❖	Registered Interior Designer	Title
Nevada	❖	❖	Registered Interior Designer	Title/Practice
New Jersey	❖	❖	Certified Interior Designer	Title
New Mexico	❖	❖	Licensed Interior Designer or Licensed Designer	Title
New York	❖	❖	Certified Interior Designer	Title
Oklahoma	none	❖	Registered Interior Designer	Title
Puerto Rico	❖	❖	NA	Title/Practice
Tennessee	❖	❖	Registered Interior Designer	Title
Texas	❖	❖	Registered Interior Designer	Title
Virginia	❖	❖	Certified Interior Designer	Title
Washington, DC	❖	❖	Interior Designer	Title/Practice
Wisconsin	❖	❖	Registered Interior Designer	Title

\*Regulatory titles and language are in flux in several jurisdictions. This information was current at the time of the report, however situations are fluid.

\*\*Interior design was regulated in Iowa in 2005, but after the 2005 Edition of the BOK was published (Martin & Guerin, 2006).

### Definitions of Interior Design from Regulatory Jurisdictions

Each bill or act has regulatory language that defines interior design. Appendix B presents 2005 and 2010 regulatory definitions and titles as well as sources for more information about interior design regulation. It is important to review these definitions to identify any KAs that are contained in the language and connect them to HSW. Additional information about the extent of rights and privileges as well as limits on tasks and responsibilities of regulated individuals that exist in bills, acts, statutes and/or rules have not been included. The discussion of regulatory findings in this report is based on the information in Appendix B. The 2005 regulations are compared to the current regulations; the influence of regulation on interior design practice and vice versa is discussed below; and linkage of regulation to issues of protection of HSW is presented as well.

### Discussion of Regulatory Findings

Generally, very little has changed within the definitions of interior design when all interior design regulations are taken into account across Canada and the United States between 2005 and 2010. In the 2005 study, there were 32 regulated jurisdictions in Canada and the United States; 33 if Iowa is counted as it took effect in 2005 shortly after that study was completed—as compared to a total of 34 jurisdictions that define interior design in 2010.

In the past five-year period, one jurisdiction is no longer regulated: Quebec, Canada; two additional jurisdictions are regulated in the United States: Indiana and Oklahoma. If considering changes in definitions of interior design, of the seven Canadian provinces with regulation, only British Columbia's has changed. In the United States, of the 27 states, territories, and jurisdictions, approximately nine of them have had definitions of interior design language changes: Alabama, Colorado, Connecticut, Georgia, Illinois, Maine, New Mexico, Tennessee, and Texas. Overall, this represents a period of stability of interior design's regulatory definition(s).

The next segment will examine some of the qualitative issues surrounding regulation of the interior design profession. It includes a comparative analysis of the interaction and influence between regulatory language, the BOK, and HSW. The interaction and influence between these components are also discussed as consideration for future interior design regulatory strategy and language creation as a critical aspect of the professionalization of interior design.

### Regulatory Titles (Names)

It is interesting to survey the titles, i.e., names, by which the interior design profession is known across regulatory jurisdictions. In 2010, the primary regulatory title used to identify interior design is “Registered Interior Designer” (18 provinces and states), followed by “Certified Interior Designer” in the United States (8 states). In Canada, the titles “Registered Interior Designer” (3) and “Interior Designer” (3) are used equally (Interior Designers of Canada, n.d.). That title is used minimally by states and territories in the United States; Puerto Rico (since 1973) and Washington, DC (since 1986) (Martin, 2007). Florida (1994) also used “Interior Designer” as a regulated title, in addition to “Registered Interior Designer,” but that “naked” title, i.e., “Interior Designer,” was found unconstitutional in early 2010 via a court ruling (Locke et al. v Shore et al., 2010). A “naked” title act was an issue because prior to the law being enacted many persons already used that name to identify themselves; therefore a descriptor was determined necessary to be used with the term “interior design,” e.g., “Registered Interior Designer.” This scenario describes why in most jurisdictions persons who consider themselves an “engineer” have the regulatory title “Professional Engineer.”

### Regulation and the BOK

In legislators’ views, protection of the public’s HSW is the only reason a profession is (or should be) regulated and therefore serves as the means by which the public can identify who is qualified through meeting minimal standards to use the title and/or practice a specific profession (Kleiner, 2006; Martin, 2007). As interior design continues on its professionalization journey, there is precedent for the profession to pursue regulation of its title and practice as an internal action to further identify it as a profession (Abbott, 1988; Martin, 2007). Professional status is closely tied to the development and maintenance of abstract knowledge, i.e., the profession’s BOK. Interior design’s efforts to be regulated in Canada and the United States, a nearly 50-year effort, have relied on the relationship between its BOK and HSW. Unfortunately, the definitions of interior design (by any name regulated, as discussed above) that comprise numerous jurisdiction’s regulatory language belie this linkage. A review of definitions in Appendix B shows that, in fact, most definitions are limited in their description of the KAs used by interior design practitioners, e.g., Minnesota; and some offer no KAs whatsoever within the regulatory definition, e.g., a “certified interior designer’ ...is certified,” in Kentucky’s language.

However, there are also regulatory jurisdictions that have language that does contain a more comprehensive representation of interior design's KAs within their definition. The most comprehensive, perhaps being those that incorporate or reference the NCIDQ definition of interior design (NCIDQ, 2004) in their definition, e.g., New Brunswick and Alabama. Other jurisdictions' definitions do contain an extensive list of KAs representative of interior design's BOK, e.g., Louisiana and Nevada, and many are similar in depth of detail and quantity of KAs to NCIDQ's definition of interior design. (See Appendix E for NCIDQ's definition of interior designer.)

Considering the breadth and depth of interior design's BOK, many definitions seem restrictive in terms of KAs included and often present divisions between professions and their knowledge and responsibilities, although in practice, those divisions are often difficult to determine. One phrase, "non-structural" or "non-load-bearing," is used as a qualifier and is a KA contained within interior design's BOK. It is used in the regulatory language of many Canadian and U.S. jurisdictions, e.g., British Columbia, Arkansas, California, and Texas. Many other definitions that contain one of those phrases also sometimes include the opposite, stating that if the work is load-bearing or structural, it is part of the work and/or responsibilities of others, i.e., architecture or engineering, and therefore outside of interior design's BOK.

Consequently, language used to identify divisions between interior design and architecture and between interior design and (professional) engineering is typically documented in the definitions of interior design in the United States as "does not include services that constitute the practice of architecture or professional engineering" as used in Iowa; or similar phrases used in Florida, Maryland, Maine, or Wisconsin, to name a few. Furthermore, in most regulatory rules' language, architects are qualified to practice interior design. This evidence supports issues relative to jurisdictional boundaries; commonly referred to as "turf protection;" it is a convention of the incumbent profession, in this case architecture (Abbott, 1988).

However, the majority of regulatory language shown in Appendix B simultaneously establishes that interior design is "a distinct profession" (Colorado) and as noted in many jurisdictions is unique from architecture. Jurisdictions substantiate uniqueness by stating that interior designers are "qualified by education, experience, and examination," e.g., New Brunswick, Arkansas, Georgia, Missouri, and Tennessee, or other similar statements. It is possible that these contrary sentiments existing in the majority of regulatory definitions of

interior design, i.e., interior design is a unique profession, but architects can practice it, are confusing to the public, and especially code officials who are responsible for plan review, permitting, and building inspections. Furthermore, it is possible that there is now evidence that the BOKs of interior design and architecture are not the same, especially from an accredited education standpoint (see Martin & Kroelinger, 2010). This issue will be further discussed in *Section 4. Conclusions* of this report.

### **Regulatory Support of HSW**

“Health, safety, and welfare” is evident in regulatory language in many cases, and in others, it is implied through the KAs noted in the definitions when applied by interior designers. In the definition of interior design from British Columbia, it is stated, “Public health, safety and welfare (HSW) are an interior designer’s first priorities.” Considering that the purpose of regulation is to “protect the public’s health, safety, and welfare,” it is interesting to consider how often those terms are directly used in the definitions of interior design. In a review of definitions, seven of 34 jurisdictions employ that phrase (New Brunswick, British Columbia, Alabama, Connecticut, Virginia, Washington, DC, and Wisconsin). It may be redundant to use those terms in regulatory language as they are the foundation of any regulation. Perhaps that is why that phrase is absent in most regulatory language.

Other phrases that capture the essence of the protection of the public’s HSW are phrased distinctly and related to human needs. It is interesting to consider phrases used such as “...designed for human habitation or occupancy,” found repeatedly in both Louisiana and Nevada’s definitions; also two of the most comprehensive definitions. Here interior design’s BOK is clearly evident in the tie made overtly between the built environment and the people who will occupy it. Other variations on this phrase can be found in other definitions as well.

Emphasizing the connection between interior design’s BOK and the public’s HSW, are phrases in such as “...in accordance with applicable laws, codes, regulations, and standards” contained within New Jersey’s definition and found in definitions from other jurisdictions as well, e.g., New York and Maryland. Additionally, references to “life and safety requirements” (British Columbia) and similar phrases are common, e.g., Nova Scotia, California, and Florida, to name a few.

### Summary

There is evidence of interaction between the profession's efforts to establish title and practice regulation and regulatory ties to HSW of the public. Regulatory language developed and utilized by the interior design profession varies to a great extent in terms of focus and emphasis. In some language, KAs are included in the definition; whereas, in other language, they are not. Also, some definitions use the title to define itself, whereas other definitions are extensive and deep in their description of the profession's BOK. It is unlikely that uniformity can or should be achieved due to regulatory practices specific to each jurisdiction even within a country. Also, it is essential that the profession consider if the purpose of regulation ("protection of the public's health, safety, and welfare") is important or redundant to the content of the definition, or if composing definitions that specify KAs is more appropriate. However, caution must be asserted should that avenue be undertaken, as the BOK is continually changing and regulations that are too specific might include KAs that, at a point in time, are not within interior design's BOK and likewise may not include KAs that will be contained in the profession's BOK in the future. Evidence of problematic issues with both approaches is seen when examining current interior design regulatory language; a review of allied professions' regulatory language is also instructional in this regard.

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### Goal 3. Results of Defining HSW as Related to Interior Design Practice

#### Purpose of Defining Health, Safety, and Welfare

Interior designers utilize a systematic, human-centric design process to identify and solve problems related to people's use of interior environments in which they live, work, and play. This design process is well documented in the literature and focuses on interior designers' understanding of human behaviors and how people's physical, social, and psychological needs are met through design of interior environments. To implement this process, interior designers use specialized knowledge gained through formal education and monitored work experience, which is then tested by a comprehensive examination. Use of this specialized knowledge, known as the interior design profession's BOK, prevents people from coming to harm in their interior environments and supports their well-being. As a consequence, interior designers protect people's HSW in the environments in which they live their lives.

"Protection of the public's health, safety, and welfare" is a phrase frequently used by licensed professions such as medicine, architecture, and accountants to identify the effect their work has on people's lives. Prevention of harm is the sole reason any occupation becomes regulated by government agencies (Kleiner, 2006; Martin, 2007), yet the exact meaning of each term in that phrase used to describe the prevention of harm is not always clear.

At the mile-high level, the terms "health, safety, and welfare" seem to be relatively straightforward and clear. However, upon closer inspection, the terms are not as well understood by the public, i.e., the people interior designers protect, and, often, by interior design practitioners themselves. Although interior designers are aware of the value a well-designed, supportive interior environment can bring to its occupants, interior designers generally do not articulate these types of overarching benefits to themselves or their clients. This omission may occur because practitioners do not consciously promote the value of interior design to their clients because they assume the protection of the public is inherent in practice. Therefore, it is important to define the terms "health," "safety," and "welfare" to clarify their meanings so interior design practitioners can articulate to their clients and the public 1) the value of designing to prevent harm and 2) clearly understand the ways in which their practices protect the public.

Results of Goal 3 show new definitions for each term, "health," "safety," and "welfare" in relation to the practice of interior design. Additionally, research about numerous abstract

knowledge factors that describe each term (i.e., HSW) are then related to interior design practice.

### **Rationale for Defining HSW**

The importance of defining HSW cannot be overestimated. People spend 90% or more of their lives indoors, and they have many experiences, such as fires, falls, or exposure to toxic air, in interiors that can harm them. For example, Henning Bloech (in Belew, 2010), executive director of the GREENGUARD Environmental Institute (GEI) notes that one factor of the interior environment can harm both health and welfare. He says,

Unfortunately, statistics consistently show that indoor air is two to five times more polluted than the air outside. Even worse, the air in newly constructed and/or renovated interior spaces can be up to 1,000 times more polluted than outdoor air. Why? Because many of the synthetic products and materials we use to design and build these spaces emit a cocktail of volatile organic compounds (VOCs) and other pollutants into the air—things like potential carcinogens, reproductive toxins, odorants, and other irritants.

Not surprisingly, research has linked poor IAQ to a number of health risks, including asthma and other respiratory ailments; headaches; eyes, nose, and throat irritation; and even cancer. This, in turn, leads to decreased productivity, lower academic performance, and increased absenteeism. (p. 12)

Or, conversely, people can experience environments that negate harmful outcomes and support their productivity, healing, satisfaction, social interaction, or comfort. Responsible, qualified interior designers design interior environments with the goal of increasing positive experiences. In this way, interior designers add value to people's quality of life. Simply put, well-designed interiors improve the human condition.

However, the current definitions of health, safety, and welfare do not adequately identify the outcomes of health, safety, or welfare in language that can be linked to the specialized knowledge that interior designers are required to master to practice. In other words, more explicit terminology for each definition will provide concrete linkages so interior designers can relate their practice knowledge and application to each term, i.e., HSW. They will be able to document and fully express what they do to protect people through design of interior environments.

Additionally, without a demonstrated linkage between HSW and interior design practice, the public has little understanding of the influence interior designers have on people's

lives in ways that prevent harm and improve daily working and living conditions. As suggested by Vanderwagen (2006), these are society's priorities. He stated, "In general...populations are seeking some safety and security in which to function in everyday life. After the police and public safety needs are addressed, preservation of the health and well-being of the population is usually the next priority in most societies" (p. 3).

In the past, there were a limited number of professions whose knowledge prepared them to protect people in the built environment as a result of their design and/or construction roles. However, technology, innovation, and new evidence have changed the way buildings are designed and built, structures are supported, and the natural environment is protected. The knowledge available to the built environment industry has become deeper, more complex and extensive, and interrelated due to these changes and technological advancements. Design professions such as architecture and interior design have had to increase the depth and breadth of their knowledge to accommodate these changes so they can continue to protect the public within their respective scopes of practice. Additionally, new knowledge has been developed that significantly increases what designers of built environments need to know to protect building inhabitants and the public because, "... a better building [brought about by informed design] facilitates physical, mental, and social well-being and productive behavior in its occupants" (Berry et al., 2004, p. 6).

For the profession of interior design, this new knowledge has been recognized as part of the interior design profession's BOK and has been related to their ability to protect the public's HSW (Guerin & Martin, 2001; Martin & Guerin, 2006). New evidence-based knowledge continues to be developed by researchers and can be applied to serve occupants of spaces. For example, sustainable materials that do not off-gas toxins must be specified (InformeDesign, 2007f); ergonomic standards in the workplace that support employees must be implemented (InformeDesign, 2007c); and the effect of overcrowded homes and schools on children's learning (InformeDesign, 2007g) must be ameliorated through proper design.

This expanding knowledge focuses on the relationship between human occupants and their needs in physical environments. Interior designers have been identified as the design professionals who have the specialized knowledge of the human/built environment relationship to address these needs (Carson Guest, 2008; Kopec, 2006; Martin & Guerin, 2006; Powell, 2008). This influx of new technology and new knowledge has been occurring at an accelerated pace over the last 25 years as the interior design profession has matured and has

been altered through the development of the profession's BOK. Defining the HSW in the context of the BOK will articulate this critical relationship to interior design practice and provide evidence of ways in which interior designers fulfill their responsibilities to occupants of the built environment.

The method used to define HSW and complete the other tasks in this section was discussed thoroughly in *Section 2. Method*. Next, the findings from the literature review of various definitions of HSW will be given.

### **Definitions of HSW**

The most recognized and often-quoted source of basic definitions of HSW for the interior design profession is NCIDQ. NCIDQ (2004) addresses health and safety as one inseparable component and defines them as “conforming to codes, regulations, and product performance standards to protect the public” (p. 22). Welfare is “the promotion of social, psychological, and physical well-being of individuals, the community, and the environment” (p. 22). Although these definitions have served well, there is now the need to have definitions that are more specific, measurable, and connected to interior design practice.

What follows are sets of definitions of each term, “health,” “safety,” and “welfare,” culled from a review of over 200 pieces of literature. Dictionary definitions are first presented to gain an understanding of each term's definition across sources and over time. Next, government and public entity definitions are presented to gain specificity and identify the public's understanding of each term. Finally, definitions from interior design-based publications and authors are included to document the profession's understanding of each term. Throughout this reporting of findings from the literature review, the abstract knowledge factors that provide meaning to each term were identified and will be used to relate the term and its factors to the BOK. (See *Section 2. Methods*, Figure 2.1. for a discussion of factors.)

### **Health Defined**

#### ***Dictionary Definitions of Health***

Table 3.2 provides definitions of health that have been published in various public domain dictionaries for each decade since 1950. The 1940s were a starting point in the search because it was during this time the World Health Organization (WHO) first defined health.

However, the term was not included in dictionaries until 1950. Also, several definitions are provided from the first decade of the 21<sup>st</sup>-century to include a broader search for the term.

Table 3.2. Dictionary Definitions of Health.

Year	Definition	Reference
1953	Soundness of body; freedom from disease or ailment; also the general condition of the body with reference to soundness and vigor; also, spiritual, moral, or mental soundness; more generally, well-being or welfare	Health. (1953). <i>The New Century Dictionary of the English Language</i> . New York: Appleton-Century-Crofts.
1963	The condition of being sound in body, mind, or soul; especially freedom from physical disease or pain; the general condition of the body; flourishing condition: well-being; general condition or state <sup>1</sup>	Health. (1963). <i>Webster's Seventh New Collegiate Dictionary</i> . Springfield, MA: G. & C. Merriam.
1971	The sound condition of a living organism; physical or mental vigor; absence of ailments or defects	Health. (1971). <i>The Lexicon Webster Dictionary</i> . Columbia University, NY: The English-Language Institute of America.
1989	Soundness of body; that condition in which its functions are duly and efficiently discharged	Health. (1989). <i>The Oxford English Dictionary</i> . Oxford: Oxford University Press.
1993	The general condition of the body or mind with reference to soundness and vigor; soundness of body or mind; freedom from disease or ailment	Health. (1993). <i>The Random House Unabridged Dictionary</i> . New York: Random House.
2001	Sound in body, mind, and soul; free from disease or pain	Health. (2001). <i>Webster's Dictionary</i> . Springfield, MA: G. & C. Merriam.
2004-2008	The state of being hale, sound, or whole in body, mind, or soul; especially, the state of being free from physical disease or pain	Health. (2004-2008). <i>Accurate &amp; Reliable Dictionary</i> . Retrieved March 24, 2008 from <a href="http://ardictionary.com/Health">http://ardictionary.com/Health</a>
2008a	The condition of being sound in body, mind, or spirit; especially: freedom from physical disease or pain; the general condition of the body; flourishing condition: well-being; general condition or state	Health. (2008a). <i>Merriam-Webster's Online Dictionary</i> . Retrieved March 24, 2008, from <a href="http://www.merriam-webster.com/dictionary/health">http://www.merriam-webster.com/dictionary/health</a>
2008b	The condition of an organism or one of its parts in which it performs its vital functions normally or properly; the state of being sound in body or mind; especially freedom from physical disease and pain	Health. (2008b). In <i>Merriam-Webster's Medical Dictionary</i> . Retrieved March 24, 2008, from <a href="http://www.merriam-webster.com/medical/health">http://www.merriam-webster.com/medical/health</a>
2009a	The condition of the body and the degree to which it is free from illness, or the state of being well	Health. (2009a). <i>Cambridge advanced learner's dictionary</i> . Cambridge, UK: Cambridge University Press.

<sup>1</sup>The same definition was used in this source in 1973.

Overall, these definitions address the physical, mental, emotional, and, in some cases, spiritual aspects of human health. Synthesizing the key terms noted in each dictionary over decades, phrases that reoccur include:

- Sound in body, mind, and soul/spirit;
- Physical, mental, and social well-being;
- Free from disease or pain;
- General conditions of the body/mind; and
- Flourishing condition; well-being

### *Government and Public Entities' Definitions of Health*

The following series of definitions and descriptions come from government and public entities' publications authored by committees, commissions, departments, or other agencies or groups. Many of these entities do not specifically define health, but address influences of good health or lack of good health. More frequently, they state the purpose of their organization or department as related to health, what part of the public they are dedicated to, and tied "good health" to their mission. Literature from many of these entities revealed discussions about or observations of health and reflect a connection to interior design practice.

WHO developed its definition of health in 1948. It states: "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (Health, 1948, p. 100). This definition was adopted by the International Health Conference in New York on June 19-22, 1946; signed on July 22, 1946 by the representatives of 61 countries; and entered into force on April 7, 1948 (Health, 1948). It should be noted that WHO has not changed this definition in over 60 years. It should also be noted that the health definition integrates the term "well-being." *Wikipedia* (Health, 2009b) presents the WHO definition, and some authors note disagreement with this definition as being too broad and sweeping. Some contributors are concerned about the WHO definition's lack of operational value; that the definition is so broad it describes most people as being in a perpetual state of ill health. However, the definition is inclusive because it implies there is a connection between the good of the body and the good of the self (Callahan, 1973). *Wikipedia* authors also suggest that health is achieved through the combination of physical, mental, emotional, and social well-being, also referred to as the Health Triangle.

In the United States, the promotion of people's good health, not just the prevention of disease or poor health, has become the focus of many design and healthcare organizations, industries, and the government. Health promotion is so vital to the U.S. government that in 1979 the U.S. Department of Health and Human Services (HHS) began a national planning process called the Healthy People Initiative. Three decades later it continues, and they have published three reports that identify the nation's 10-year health objectives:

- *Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention* (U.S. Department of Health and Human Services, 1979);
- *Healthy People 2000* (U.S. Department of Health and Human Services, 1990); and
- *Healthy People 2010: Understanding and Improving Health* (U.S. Department of Health and Human Services, 2000).

In *Healthy People 2010*, individual biological and behavioral factors are identified that affect people's health and their interactions with social and environmental factors. This report also identifies 467 objectives in 28 focus areas to aid health planners, medical practitioners, educators, elected officials, and all who work to bring better health to all people in the U.S. (U.S. Department of Health and Human Services, 2000).

The HHS (U.S. Department of Health and Human Services, 2000) suggests that adopting policies that support preventive measures will actually reduce illness and enhance quality of life, both of which can increase people's longevity. Access to quality healthcare is one of the preventive measures upon which they focus. HHS continues with the idea that a healthy community is one that embraces health as more than merely an absence of disease; a healthy community includes those elements that enable people to maintain a high quality of life and productivity. "A healthy community has roads, schools, playgrounds, and other services to meet the needs of the people in that community...a healthy community has a healthy and safe environment (U.S. Department of Health and Human Services, 2000).

The National Environmental Health Association's (NEHA) (1996) current definition of environmental health was adopted April, 1996. On the NEHA Web site, they suggest that environmental health and protection refers to protection against environmental factors that may adversely impact human health or the ecological balances essential to long-term human health and environmental quality, whether in the natural or human-made environment.

U.S. government entities are concerned with public health as it relates to infrastructure. Arnhold (2006), in his review of programs affected by the President's 2007 federal budget, suggests that "...disability prevention programs associated with the public health infrastructure...have the potential to lengthen quality of life years, extend productive working life, and prevent disability of Americans" (p. 5).

Health is increasingly seen as a key aspect of human security. Health emergencies such as fires, natural disasters, disease outbreaks, and violence can contribute significantly to preventable morbidity and mortality. WHO contends that global efforts to improve health are inseparable from medical science, but social, economic, environmental, and political factors also determine health opportunities and outcomes. "For health action to be effective, it must be guided by a broad perspective, and taken in collaboration with a variety of agencies and institutions" (World Health Organization, 2006). This philosophy opens the door for interior design practitioners to engage in design to improve people's health.

Mental or psychological and physical health are intertwined due to organizations' assertion that they are often inseparable (Kopec, 2006). The HHS (U.S. Department of Health and Human Services, 2000) asserts that:

Mental health is sometimes thought of as simply the absence of a mental illness but is actually much broader. Mental health is a state of successful mental functioning, resulting in productive activities, fulfilling relationships, and the ability to adapt to change and cope with adversity. Mental health is indispensable to personal well-being, family and interpersonal relationships, and one's contribution to society. (p. 37)

The National Institutes of Health (NIH) (n.d.) stewards medical and behavioral research for the United States. Its mission is pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability on people. This statement reflects the relationship of health to "burdens of illness and disability."

The National Science Foundation (NSF) (n.d.) has been committed to public health, safety, and protection of the environment for over 50 years. Its relationship to interior design is its focus on indoor air and the environment. It develops national health and safety standards and provides learning opportunities to and in the interest of all stakeholders.

The Office of Disease Prevention & Health & Promotion (ODPHP) (2007) is an arm of HHS and is concerned about improving the overall health of America. It develops programs to support disease prevention and health promotion activities, programs, and policies. Their work provides information to interior design practitioners on the health-related characteristics of subsets of the public.

President Obama and Vice President Biden's (Organizing for America, n.d.a) *Plan to Lower Health Care Costs and Ensure Affordable, Accessible Health Coverage for All* promotes disease prevention and improving people's health. The plan will allow Americans to benefit from healthy environments that allow them to pursue healthy choices and behaviors to help ward off chronic and preventable diseases. The design of healthy environments includes inclusion of sidewalks, biking paths, and walking trails, addition of or use of space in local grocery stores for fruits and vegetables, and wellness and educational campaigns that might relate design and health.

The National Institute for Occupational Safety and Health (NIOSH) (n.d.) provides leadership to prevent work-related illness, injury, disability, and death by gathering information, conducting scientific research, and translating the knowledge gained into products

and services and recommendations for improving safety and health in the workplace. NIOSH is the national gatekeeper that assures the public that work environments are safe and healthy.

The Occupational Safety and Health Association (OSHA) (U.S. Department of Labor Occupational Safety & Health Administration, 1970) is directly linked to the workplace, its design, and the health of employees. It encourages management and business owners to use well designed environments to reduce injuries and disease arising out of employment.

The U.S. Green Building Council (USGBC) (n.d.) is a non-governmental entity that is dedicated to transforming ways buildings and communities are designed, built, and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life. They have developed a sustainable design program, Leadership in Energy and Environmental Design (LEED®) that provides designers of the built environment with design standards for quality, healthy interior environments. They also sponsor a professional accreditation program, including examinations, to document designers' knowledge of sustainable design. Many interior designers have passed LEED examinations and are LEED Accredited Professionals (LEED APs).

The American Association of Retired Persons (AARP) (2008) is a public organization for those who are 55 years or older. They state that part of their work is to provide information and education to keep people healthy by preventing illnesses through the collection and dissemination of information to their members. Several of their publications are on healthy and safe environments.

### ***Interior Design and Design-Related Entities' Definitions of Health***

Professional interior design/design-related organizations and practitioners provide few definitions of health as related to interior design practice. However, their literature often includes descriptions of health-related design factors under the purview of interior designers. The following is a summary of organizational literature on designing for people's health.

Carson Guest (2008), then President of ASID, gave several examples of designing for health and uses words that begin to describe factors that contribute to health such as proper ventilation, lighting, ergonomically correct furnishings, and sustainable design including specifying low-VOC paints, glues, wallpaper pastes, and other adhesives.

Design researcher and author Kopec (2006) ties physical health to psychological health, which reflects several of the dictionary definitions. He states,

People who are in good psychological health are considered to have well developed ego strength, adjustment capabilities, and self-confidence; they seem better equipped to handle environmental stressors and, as such, are prone to making better choices regarding their environments...positive psychology attempts to look beyond the causes of disease and disorders to identify sources that bring about psychological health. This paradigm is well suited for the design fields because many designers already build on the positive by following trends and styles that please their clients...Poor psychological health seems to be perpetuated most by environments in which people are forced to surrender control, such as hospitals, prisons, workplaces, or schools. (p. 60)

Those related to design of the built environment are concerned about designing for health. The *Whole Building Design Guide* (Heerwagen, 2008) suggests that survival needs deal with aspects of the environment that directly affect human health, such as clean air and water, lack of pathogens or toxins, and opportunity for rest and sleep, which are tied to the interior design profession's BOK. ASID (2010) states in *Design Services: Health and Safety Issues*, that in addition to designing environments that reduce stress, promote healing, and are safe, interior designers need to apply their knowledge to create spaces that foster self-realization and unleash human potential, which also speaks to welfare.

IIDA (n.d.) is a member-based professional interior design organization that provides a forum (member group) that focuses on demonstrating design professionals' impact on health, safety, and well-being. ARIDO (n.d.a) is legislating for regulation of practice and says that they will "protect public health and safety by limiting the practice of interior design to those persons having specific interior design education, experience, examination, and other regulatory requirements." (See ARIDO's further discussion of health under their comments on safety in the next segment.)

The Business and Institutional Furniture Manufacturer's Association (BIFMA) (2008) screens all manufacturing facilities for compliance with environmental, health, and safety requirements that are related to products and processes. They also evaluate compliance with applicable environmental, health, and safety regulations that govern toxic and hazardous substance use and risk management associated with human and ecosystem health.

The Environmental Design Research Association (EDRA) (n.d.a), has a network of members who consider how to design communities and develop policies to encourage walking, biking, and other forms of daily physical activity. Their research focuses on creating walkable pathways and destinations, encouraging safe and inviting public housing green areas, and reducing automobile dependency. The American Institute of Architects (AIA) (n.d.) suggests

that the architecture profession is committed to providing healthy and safe environments for people and is dedicated to preserving the earth's capability of sustaining a shared high quality of life.

The American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) (2009) focuses on environmental health as it pertains to the indoor environment. They know that designers contribute to supplying clean, appropriately conditioned air and removing contaminants and recognize that some knowledge of the indoor environmental health is helpful. They support the collaboration of all design and design-related professionals to encourage decisions and features that create a healthy environment.

The Building Owners and Managers Association (BOMA), the Interior Designers of Canada (IDC), and the International Facility Management Association (IFMA) have no definition, information, or discussion related to health.

### **New Definition of Health as Related to Interior Design Practice**

Based on an analysis of the previous literature, a new definition of health was developed to reflect interior design practitioners' knowledge.

**Definition of Health as Related to Interior Design Practice: Interior designers create interior environments that support people's soundness of body and mind; protect their physical, mental, and social well-being; and prevent disease, injury, illness, or pain that could be caused by occupancy of interior environments.**

This definition of health supports the interior design profession's contribution to protecting people's health. This is where the profession's BOK intersects with health and describes the knowledge needed to design healthy interior environments. Health is actualized in design by the contributions of numerous abstract knowledge factors represented by KAs in the BOK. The next segment highlights several of these factors that reflect the health outcomes or relationships to interior environments.

### **Evidence of Protecting People's Health via the Interior Design BOK**

This section provides evidence of how specific abstract knowledge is used by interior designers to protect people's health as they design interior spaces. This discussion relates the

words in the definition of health to the abstract knowledge factors or KAs in the BOK. A sample of the literature documents four abstract knowledge factors contained within KAs of the BOK and their effect on health: ergonomics, IAQ, light, and acoustics. The relationship between these factors and the BOK places designing for positive health squarely on responsible practice by the interior design profession. It is important to note that many of these studies cite the effect of design on more than one factor at a time, which supports the inter-relationship among HSW factors.

### *Ergonomics*

Musculoskeletal disorders are becoming more prevalent among school-aged children. Ergonomically designed furniture has been incorporated in the workplace to decrease the occurrence of these disorders, and this needs to occur in schools. A good fit between school furniture and the anthropometric measurements of students may result in improved learning environments and increased comfort and health for students (Informedesign, 2007h).

As office workers spend more time in task chairs, reports of lower back pain are increasing. Often the employers' response is to provide backrests for the task chairs. Although it has been found that a small lumbar pad (3 cm) or a supplementary backrest added to a standard chair increased user comfort while seated, it may not be ideal from a biomechanical perspective (Informedesign 2007i). This modification is a 'fix,' not a design-based solution, which would use ergonomics to specify the correct chair size and adjustment based on the person's anthropometric, i.e., physical and task assessment.

### *IAQ*

One of the most influential and far-reaching organizations to tackle IAQ is the USGBC. They developed the LEED® Green Buildings Rating System, which includes sets of sustainable design guides and rating systems for various building types. Several of those building types include the design of interior environments, e.g., LEED for Commercial Interiors (LEED-CI), LEED for Existing Buildings: Operations and Maintenance, and LEED for New Construction. The LEED rating system is just one example of the interior design profession's capability to be involved in designing for good IAQ.

"Green buildings...are healthier and more comfortable for the occupants because they reduce carbon emission, improve energy efficiency and indoor environmental quality, and

provide their occupants with a healthier place to live, work and play” (U.S. Green Building Council, 2008).

The U.S. Environmental Protection Agency (EPA) (2007) addresses poor IAQ and its effects on people’s health. “Lung effects are a major health concern from asbestos, as chronic (long-term) exposure to asbestos in humans via inhalation can result in a lung disease termed asbestosis” (p. 1). The EPA suggests, “The main uses of asbestos are in building materials, paper products, asbestos-cement products, friction products, *textiles*, packings and gaskets, and asbestos-reinforced plastics” (pp. 3-4). Several of these are the responsibility of interior designers.

The USGBC and the International Code Council (ICC) signed a Memorandum of Understanding to further green building practices. By working together, the two organizations believe they will be able to improve people’s quality of life as “human health and well-being is a cornerstone of green building practices and of ICC’s work,” said Fedrizzi, President, CEO & Founding Chair of the USGBC (U.S. Green Building Council, 2007). The organizations will share ideas, education, and opportunities to protect the HSW of people by creating environmentally responsible, healthy, and prosperous environments that improve quality of life. Interior designers abide by the ICC’s building codes as adopted by the various jurisdictions to protect people’s health as well as use the USGBC’s rating systems such as LEED-CI. Interior designers’ ability to comply with health codes and provide healthy, sustainable environments supports their contribution to healthy lives.

Environmental protection policies are encouraging the use of new, high-technology flame retardant materials in consumer furniture and electronics. Previous flame-retardant materials released chemical compounds that may have caused negative health effects such as disruption of human thyroid hormone function (InformeDesign, 2009a). Interior designers can specify materials embodying new technological advancements, e.g., smolder resistant covers and Kevlar barrier materials, as alternatives to harmful brominated fire retardants, which may release potentially harmful neurotoxicants upon combustion.

Most schools contain some building or design defect that contributes to poor IAQ. One of these factors is the use of carpeting in classrooms, halls, and special-use rooms. Carpeting may be a source of bioaerosols because it is a ‘toxin-sink’ that collects and absorbs VOCs that are off-gassed from other building or interior materials. Carpeting needs to be monitored and cleaned frequently to limit these negative effects (InformeDesign, 2007g).

IAQ affects not only people's health, but their well-being too. "IAQ and toxic components of materials can affect the safety and physical well-being of the occupants..." (Roberts & Guenther, 2006, p. 86). Designers can prevent IAQ problems for occupants of interior spaces, but often IAQ problems erupt during the construction process as well. Employed during and after construction, an IAQ Management Plan prevents IAQ problems resulting from the construction process. It helps sustain the comfort and well-being of construction workers and employees. Such a plan can include protecting stored on-site absorptive materials from moisture damage, sealing and protecting ductwork, and installing filtration media for air handlers to remove dust and particles from the air stream (U.S. Green Building Council, 2008a).

### *Light*

Researchers have found that problems with excessive light and sound in intensive care units (ICUs) can lead to employee anxiety and stress, adult patient suffering, and may result in a general decline in the health of growing infants. When sound and light were decreased, quieter, more productive work environments were produced (InformeDesign, 2003a). Interior designers assess the sound and light systems and develop them to be functional and user-friendly for the staff without compromising patient welfare.

Lighting affects biochemical processes that regulate sleep and wakefulness, body temperature, and heart rate. Dynamic lighting may promote health and well-being. Dynamic lighting includes incorporation of natural light, use of adaptable illuminance at both eye and task levels, distribution of light throughout the space, and provision of accurate color rendering (InformeDesign, 2007b). Interior designers can design lighting systems so they can change illuminance levels and color temperature in accordance with visual and task needs and body rhythms.

The ambient environment is made up of such factors as lighting, temperature, and personal space characteristics and has been the subject of a significant amount of research in healthcare environments. Personal control of the ambient environment seems to relieve stress (Devlin & Arneill, 2003). An early study by Baker (1984) showed that several ambient conditions affect patient health and outcomes: lighting that alters circadian rhythms, the perception of crowding brought on by the presence of people who are unfamiliar, smells and tactile sensations that may be unwelcome, and noise from a number of sources. These ambient conditions are all under the purview of the interior designer.

The Netherlands Board for Healthcare Institutions (2008) identified key environmental factors that can be considered in the design of a healthcare building. These factors are highly likely to make a positive contribution to patients' healing process or promote the well-being of users and quality of the spatial environment. The environmental factors include light (daylight and artificial light); windows and views; noise level; type of patient room; orientation and routing; air quality (temperature and ventilation); nature; and interior environment factors including ambiance, color, materials, furnishings, art, lighting, stimuli, coherency, affordances, and crowding/density. The influence of these factors is supported by numerous other research findings identified in Ulrich's and Zimring's (2004) analysis of healthcare studies. All of these environmental variables are within the purview of the interior designer.

### *Acoustics*

Noise is one of the most common environmental stressors. Identification of personal tasks is included in stress studies because they are critical to an individual's daily experiences, generate stress, and may sensitize individuals to noise. Interior designers provide spaces within the work environment or home where people can recover from noise fatigue. Coping with one stressor may decrease a person's ability to deal with another stressor by depleting cognitive resources or inhibiting recovery from stress and fatigue. A study by Wallenius (InformeDesign, 2006b) showed combined noise stress and personal project stress negatively affected health.

Office location, layout, and use affect workers' health and performance (InformeDesign 2008c). Workplaces can be improved through design. Interior designers can involve office workers in the design of office location, layout, and use. Integration of innovative office elements may be more successful with worker input and participation. Research has shown that workers in open-layout and high-density workplaces may have less privacy and job satisfaction than workers in cubicle office layouts, and that close proximity of workstations may stress workers, distract them from job tasks, and cause immediate negative reactions, e.g., fatigue and increased blood pressure level. Interior designers provide acoustic and visual protection in open plan offices to reduce stress among employees, such as enclosed, sound-insulated workstations, sound-insulating partitions between open workspaces, textile floor covering, acoustic ceiling tiles, and printer cabinets. Interior designers consult with other experts to effectively minimize negative acoustic and visual effects of open plan offices and enhance workers' work autonomy, psychological privacy, and well-being. Some workers, e.g., those

doing complex tasks, may require more privacy and less noise, which is considered by interior designers when designing the office layout. Desk-sharing may be beneficial for certain workers as it may encourage communication among workers (Danielsson & Bodin, 2008).

Open plan offices require less square footage but may not be optimal for tasks requiring concentration or for worker health and comfort. Office workers in closed offices report more noise, dry and stuffy air, thermal discomfort, and various physical symptoms, e.g., mucous membrane irritation, headache, and fatigue, than workers in open plan offices. However, open plan offices may prove counterproductive to concentration and health, which affects satisfaction and performance (InformeDesign, 2007c).

The next segment of this report will focus on the definitions of safety and how interior designers protect people's safety. It will be presented in a similar format.

## Safety Defined

### Dictionary Definitions of Safety

Table 3.3 provides definitions of safety that have been published in various public domain dictionaries for each decade since 1950. Although the 1940s were a starting point in the search, the term was not included in dictionaries until the 1950s. Also, several definitions are provided from the first decade of the 21<sup>st</sup>-century to include a broader search for the term.

Table 3.3. Dictionary Definitions of Safety.

Term	Definition	Reference
1953	The state of being safe; freedom from hurt or injury, or from danger or risk; the quality of insuring against hurt or injury, of affording freedom from danger or risk	Safety. (1953). <i>The New Century Dictionary of the English Language</i> . New York: Appleton-Century-Crofts.
1965	The condition of being safe from undergoing or causing hurt, injury, or loss	Safety. (1965). <i>Webster's Seventh New Collegiate Dictionary</i> . Springfield, MA: G. & C. Merriam.
1971	The state or quality of being safe; freedom from danger or injury; the state or quality of not causing danger	Safety. (1971). <i>The Lexicon Webster Dictionary</i> . Columbia University, NY: The English-Language Institute of America.
1973	The state or quality of being safe; freedom from danger or injury; the state or quality of not causing danger	Safety. (1973). <i>Webster's Collegiate Dictionary</i> . Springfield, MA: G. & C. Merriam.
1989	The state of being safe; exemption from hurt or injury; freedom from danger	Safety. (1989). <i>The Oxford English Dictionary</i> . Oxford: Clarendon Press.
1993	The state of being safe; freedom from the occurrence or risk of injury, danger, or loss	Safety. (1993). <i>The Random House Unabridged Dictionary</i> . New York: Random House.
2004-2008	The condition or state of being safe; freedom from danger or hazard; exemption from hurt, injury, or loss	Safety. (2004-2008). In <i>Accurate &amp; Reliable Dictionary</i> . Retrieved March 24, 2008 from <a href="http://ardictionary.com/Safety">http://ardictionary.com/Safety</a>
2009a	The condition of being safe from undergoing or causing hurt, injury, or loss	Safety. (2009a). <i>Merriam-Webster's Online Dictionary</i> . Retrieved March 24, 2008, from <a href="http://www.merriam-webster.com/dictionary/safety">http://www.merriam-webster.com/dictionary/safety</a>
2009b	The state of being certain that adverse effects will not be caused by some agent under defined conditions	Safety. (2009b). Retrieved September 8, 2009, from <a href="http://wordnet.princeton.edu/perl/webwn">http://wordnet.princeton.edu/perl/webwn</a>
2009c	A state in which or a place where you are safe and not in danger or at risk	Safety. (2009c). <i>Cambridge advanced learner's dictionary</i> . Cambridge, UK: Cambridge University Press.

Overall, these definitions address the freedom or right people have to not be exposed to physical danger or risk; conditions must exist so that people will not be put in harm's way. Safety in the built environment is related to avoidance of risk and accidents. Synthesizing the key terms noted in each dictionary over decades, phrases that reoccur include:

- Freedom from hurt or injury; exemption from hurt, injury, or loss;
- Freedom from danger or risk;
- State or condition of being safe; and
- No adverse conditions.

The authors of *Wikipedia's* safety definition (Safety, 2009d) state that safety is the condition of being protected against failure, damage, error, accidents, or harm. Another set of definitions from the same Web site refers to safety as:

The state of being 'safe' (from French *sauf*); the condition of being protected against physical, social, spiritual, financial, political, emotional, occupations, psychological, education or other types of consequences of failure, damage, error, accidents, harm or any other event which [sic] could be considered non-desirable. This can take the form of being protected from the event or from exposure to something that causes health or economical losses. It can include protection of people or of possessions. (Safety, 2009d)

This broad definition takes into account the protection of both people and their possessions.

### ***Government and Public Entities' Definitions of Safety***

The following is a review of government and public entities' publications authored by committees, commissions, departments, or other entities. As was true for definitions of health, many of these entities do not specifically define safety, but address influences of safety or lack thereof. These are included as part of the discussion of definitions of safety.

As is increasingly well known, people spend about 90% of their time indoors, and because of this, the built environment has become the location of many safety-related concerns. The National Safety Council (NSC) has over 80 Fact Sheets in their library that offer statistics, tips, and suggestions for making people's lives safer. Of these 80 Fact Sheets, 17 are related to indoor safety and 13 are related to IAQ contaminants; the balance reflects safety in agriculture, outdoor activities, and on school busses (National Safety Council, n.d.). Often people who are more vulnerable to risk and accidents are those who are not developmentally aware of risks such as children or those whose senses are diminished such as the elderly or disabled (Kopec, 2006); those who are incarcerated; and people in nursing homes or healthcare facilities who cannot get themselves out in an emergency.

Personal safety is important to people in all environments; however, some careers place people at greater risk. Probation staff in a detention center perceived their work to be dangerous; 51% were fearful while in the office due to several factors including lack of emergency exits and physical obstacles to communication (Thornton, 2003). Some of these

design issues are addressed through planning of both perimeter and interior security systems. Interior security addresses personnel security, security of property and documents, control of access to interior spaces, personnel movement and circulation controls, security aspects of spatial arrangement, biohazard control, and coordination of security and fire safety requirements. In particular, probation staff found decreased risk if offender and visitor movements were controlled, escape routes were designed for employees, and access was provided to safety equipment (Thornton, 2003). The following discussion provides insight into safety from several professions in the public eye.

The medical profession has defined safety for situations, processes, and legal interpretation related to patient safety. It suggests that safety is:

- Freedom from accidental injury; ensuring patient safety involves the establishment of operational systems and processes that minimize the likelihood of errors and maximize the likelihood of intercepting them before they occur (Kohn, Corrigan, & Donaldson, 1999);
- The avoidance, prevention, and amelioration of adverse outcomes or injuries stemming from the processes of healthcare. These events include errors, deviations, and accidents. Safety emerges from the interaction of the components of the system; it does not reside in a person, device, or department. Improving safety depends on learning how safety emerges from the interactions of the components. Patient safety is a subset of healthcare quality (Cooper, Gaba, Liang, Woods, & Blum, 2000);
- Actions undertaken by individuals and organizations to protect healthcare recipients from being harmed by the effects of healthcare services (Spath, 2000);
- Protocols, procedures, products, or equipment that are problem-prone or risk-generating processes that may degrade our ability to provide optimal patient care (End Stage Renal Disease, Patient Safety Initiative, 2001)

The healthcare industry also has defined the five attributes of working conditions that are referred to as a “safety culture” and suggest that these attributes are operationalized through the implementation of a strong safety management in the work culture. A safety culture:

- Accepts responsibility for the safety of themselves, their co-workers, patients, and visitors;
- Prioritizes safety above financial and operational goals;
- Encourages and rewards the identification, communication, and resolution of safety issues;
- Provides for organizational learning from accidents; and
- Provides appropriate resources, structure, and accountability to maintain effective safety systems (End Stage Renal Disease, 2001).

Business organizations refer to a systems approach to safety and have developed a program that is being adopted by businesses around the United States called the Total Safety Culture (TSC). Its goals are to continually improve safety performance and:

...promote a work environment based on employee involvement, ownership, team work, education, training, and leadership; build self-esteem, empowerment, pride, enthusiasm, optimism, and encourage innovation; reinforce the need for employees to actively care about their fellow coworkers; promote the philosophy that safety is not a priority that can be reordered, but is a value associated with every priority; and recognize group and individual achievement. (Geller, 2001, p. 16)

This safety culture approach requires the commitment and involvement of all levels of ownership and management in addition to the staff. This systems approach attends to three domains of the interior environment:

...environmental factors (including equipment, tools, physical layout, procedures, standards, and temperature); human factors (including people's attitudes, beliefs, and personalities); and behavioral factors (including safe and at risk work practices, as well as going beyond the call of duty to intervene on behalf of another person's safety). (Geller, 2001, p. 19)

Other adjectives that precede the word "safety" have still different meanings. For example, building safety can mean that the building keeps people safe from external harm or that its internal components such as stairs and equipment are not harmful (Meanings of Safety, 2008). Some organizations and authors discuss prevention of harm via safety or safe design.

Safety is about preventing harm via accident or injury from befalling a person. Prevention is thought to be one of the best ways to achieve safety in the designed environment. Prevention of injuries, illnesses, and fatalities can be approached from the earliest stages of the design process by "designing out or minimizing hazards and risks early in the design process" (National Institute for Occupational Safety and Health, 2007). NIOSH is leading a national initiative called Prevention through Design (PtD) to promote this concept and highlight its importance in business decisions. The concept of PtD can be defined as "Addressing occupational safety and health needs in the design process to prevent or minimize the work-related hazards and risks associated with the construction, manufacture, use, maintenance, and disposal of facilities, materials, and equipment" (National Institute for Occupational Safety and Health, 2007). Figure 3.1 shows four inputs that PtD suggests are likely implementation strategies for this initiative: research, education, practice, and policy. NIOSH has over 10

partner groups that support this initiative ranging from private-sector insurance to the National Safety Council.

Figure 3.1 Prevention through Design (National Institute for Occupational Safety and Health, 2007).



Many government and public entities have included discussions of safety in their literature. Unfortunately, actual definitions of safety are not given, but entities will state their support of or relation to research, education, or design for safety. Several examples of these government entities follow.

The U.S. Consumer Product Safety Commission (n.d.) is charged with protecting the public from unreasonable risks of serious injury or death from thousands of types of consumer products under the agency's jurisdiction. The Home Safety Council (n.d.) is a national nonprofit organization dedicated to preventing home related injuries that result in nearly 20,000 deaths and an average of 21 million medical visits each year. Through national programs, partnerships, and the support of volunteers, they educate people of all ages to be safer in and around their homes.

NIOSH (National Institute for Occupational Safety and Health, n.d.) provides leadership to prevent work-related illness, injury, disability, and death; they focus on safety, as well as health. OSHA (U. S. Department of Labor Occupational Safety and Health Administration, 1970) goes a step further by providing medical criteria that will assure that no employees will suffer diminished health, functional capacity, or life expectancy as a result of their work experiences. The NSF (National Science Foundation, n.d.) continues to develop standards based on research that focus on people's safety.

### *Interior Design and Design-Related Entities' Definitions of Safety*

Professional interior design/design-related organizations and practitioners provide few definitions of safety as related to interior design practice. However, their literature often includes descriptions of safety-related design factors under the purview of interior designers. The following is a summary of design organizational literature on designing for people's safety.

Carson Guest (2008), then President of ASID, gave several examples of designing for safety:

- Classification of finishes to meet codes to protect safety of occupants;
- Flammability ratings and smoke development;
- Specifying wall and ceiling finishes that are Class A, B, or C;
- Flame spread ratings of materials;
- Smoke development ratings in exit passages; and
- Egress without dead-end corridors that can trap someone during an emergency.

Kopec (2006) discusses "risk of safety" as individuals' perceptions of danger from crime, accidents, or physical hazards within an environment (p. 61). However, Hoist (2004) suggests that for interior designers, the meaning of "safety" in the phrase "public health, safety and welfare" has changed since September 11, 2001. He states,

Previously, professional interior designers associated the term [safety] with specifying slip-resistant flooring, using non-flammable materials, and creating interior layouts that meet building and fire codes...A safe design now takes into account protection against a host of natural and unnatural hazards, including explosives and biological toxins such as anthrax. (p. 58)

Joint Commission Resources (JCR) is a not-for-profit organization dedicated to improving quality of care and patient safety in healthcare environments. They released a book in 2007 entitled *Safe by Design: Designing Safety in Healthcare Facilities, Processes, and Culture*. JCR suggests that businesses and organizations can design safety into their facilities by knowing safety design principles; by involving caregivers, architects, interior designers, engineers, and patients in the design and construction of safe care environments; and by learning from best practices of successful healthcare designs (NewsNotes, 2008).

Professions external to interior design, but that interface with interior designers, have their own specific definitions of safety. For example, according to the National Business Institute, the retail industry specifies safety as: "The degree of immunity from physical danger in the workplace" (Safety, 2005). In the bio-hazard field, safety is defined as "the practical

certainty that injury will not result from exposure to hard, undefined conditions; in other words, the high probability that injury will not result” (Safety, 2008a). The Department of Civil and Environmental Engineering at the University of South Wales, Sydney, Australia, suggests that safety is “freedom from those conditions that can cause death or injury to personnel, damage to or loss of equipment or property, or damage to the environment” (Safety, 2007). They state safety is “the provision and control of work environment systems and human behavior which together give relative freedom from those conditions and circumstances which can cause personal injury, disease or death, or property damage” (n.p.).

Those related to design of the built environment are concerned about designing for safety. The *Whole Building Design Guide* (WBDG Secure/Safe Committee, 2009) takes a proactive approach that anticipates—and then protects—the building occupants, resources, structure, and continuity of operations from multiple hazards. Protection or prevention of harm reflects the goal of interior design practice.

ASID (American Society of Interior Designers, 2010) states that protecting people’s HSW is the professional responsibility of every interior designer. The decisions interior designers make are inter-related and may include specifying furniture, fabrics, and carpeting that meet or exceed fire codes, and space planning that provides proper means of egress, all of which impact HSW. IIDA (International Interior Design, n.d.) provides a forum for its members to demonstrate design professionals’ impact on HSW.

The Association of Registered Interior Designers of Ontario (Association of Registered Interior Designers of Ontario, ARIDO) (n.d.b.) says that interior designers develop design solutions that are functional, support the health and safety of the users, enhance the quality of life and culture of the occupants, and are aesthetically attractive. Designs must satisfy the needs and resources of the client, adhere to code and regulatory requirements, and encourage the principles of environmental sustainability. This organization supports health, safety, and welfare all in one statement.

In addition to developing voluntary product and industry standards that support safe, healthy, and sustainable environments, BIFMA (Business and Institutional Furniture Manufacturer’s Association, n.d.a) publishes key industry statistics and advocates for legislation and government regulation that have a direct impact on the health and safety of the industry.

IFMA (International Facility Management Association, 2007) works with their members to prepare them to weather natural disasters or business crises caused by the physical

environment such as fire. They support advanced planning and preparation to minimize the effect of natural or built environment events to keep employees and businesses safe.

AIA's (American Institute of Architects, n.d.) discussion on safety is the same as it was for health; the profession is committed to providing healthy and safe environments for people and is dedicated to preserving the earth's capability of sustaining a shared high quality of life. The American Society of Landscape Architects (ASLA) (n.d.) supports the fulfillment of the need for good quality, comfortable, safe, affordable, and accessible housing that protects the public's HSW and the health of the environment.

ASHRAE's (American Society of Heating, Refrigerating, and Air-Conditioning Engineers, n.d.) concern with safety is related to Vision 2020, which requires that Net Zero Energy Buildings (NZEBS) must be comprised of systems to provide safe water and air to at least the same extent as that which is acceptable today. They further suggest that safe building water and air must be defined to establish that indoor environmental quality has not been sacrificed in the pursuit of NZEBs.

A review of literature for IDC, EDRA, and BOMA found no definition, information, or discussion related to safety.

### **New Definition of Safety as Related to Interior Design Practice**

Based on an analysis of the previous literature, a new definition of safety was developed to reflect interior design practitioners' knowledge.

**Definition of Safety as Related to Interior Design Practice: Interior designers create interior environments that protect people against actual or perceived danger; protect against risk from crime, accidents, or physical hazards; and prevent injury, loss, or death that could be caused by occupancy of interior environments.**

This definition of safety supports the interior design profession's contribution to protecting people's safety. This is where the profession's BOK intersects with safety and describes the knowledge needed to design safe interior environments. Safety is actualized in

design by the contributions of numerous factors represented by KAs in the BOK. The next segment highlights several of these factors that reflect the safety outcomes from or relationships to interior environments. Once again, it is important to note that many of these studies cite the effect of design on more than one factor at a time, which supports the inter-relationship among HSW factors.

### **Evidence of Protecting People's Safety via the Interior Design BOK**

This section provides evidence of how specific abstract knowledge is used by interior designers to protect people's safety as they design interior spaces. This discussion relates the words in the definition of safety to the abstract knowledge factors or KAs in the BOK. A sample of the literature documents three abstract knowledge factors contained within KAs of the BOK and their effect on safety: building systems; space planning; and specification of equipment, materials, and products. The relationship between these factors and the BOK places designing for safety squarely on responsible practice by the interior design profession. It is important to note that many of these studies cite the effect of design on more than one factor at a time, which supports the inter-relationship among HSW.

#### ***Building Systems***

A building can be designed to reduce risk and enhance safety. Healthcare facilities design and improvements can save lives, money, and institutional reputations (Blum, 2006). Safety-related building improvements include:

...improved air filtration systems, better separation of clean and dirty areas on patient floors, transportation modalities that separate patients from potentially infectious materials and wastes, standardization and consistency of layout, and glare-free lighting. Three of the most promising facility design investments to enhance patient safety are readily available hand-hygiene stations, single-occupancy patient rooms, and acuity-adaptable patient rooms. (Berry et al., 2004, p. 11)

Harm could have been prevented through involvement of interior designers in the case of the formaldehyde plagued Federal Emergency Management Agency (FEMA) trailers in the aftermath of Hurricane Katrina. The role of interior designers in providing for sustainable interior environments is recognized; the subject of off-gassing and air pollution is a factor of sustainability. Powell (2008), editor of *officeinsight*, stated:

...that that fact that FEMA is clueless on this issue [the potential for contribution by interior designers] is not surprising, given the prevalent lack of regard for the scope of

knowledge and expertise of interior designers...few experienced designers, especially those in the commercial area and LEED qualified, would omit attention to indoor air quality, and would certainly note the greater similarity of a trailer to an enclosed chamber with restricted ventilation than to well-ventilated modern buildings. (pp. 14-15)

Ulrich and Zimring (2004) reviewed over 600 studies of healthcare research published in peer-reviewed journals. They found rigorous studies that link the physical environment of the building system to patient and staff outcomes in four areas, which fall within the purview of qualified interior design practitioners:

- Reduce staff stress and fatigue and increase effectiveness in delivering care,
- Improve patient safety,
- Reduce stress and improve outcomes, and
- Improve overall healthcare quality. (p. 3)

Several factors are converging in the healthcare industry that present healthcare interior designers with a unique opportunity to “get it right.” First, medical errors and hospital-acquired infections are among the leading causes of death in the United States (Institute of Medicine, 1999). These negative outcomes also cause decreased morale in hospital staff and increased turnover. Second, the focus is now on single-patient rooms to decrease spread of infectious disease. Third, the hospital building stock is uniformly old; most were built between 1950 and 1970 and must be updated or replaced. Fourth, the change in technology means many of these older buildings are simply not equipped to handle the physical infrastructure required for the new technology, not to mention the change this could require in space planning for patient care. Finally, the aging of the baby boomers means there will be more people who need healthcare, often for longer periods of time. This all comes together to bring about what Ulrich and Zimring (2004) call, “a once-in-a-lifetime opportunity” (p. 2). Regardless of economic conditions, they say that the United States will be spending more than \$20 billion per year in healthcare construction by 2011.

### ***Specification of Equipment, Materials, and Products***

Interior designers are educated and examined on the proper selection of interior content i.e., specification, arrangement, and/or installation of interior finish materials and interior space content such as furniture, fixtures, and equipment (Setser, 2010). Interior content is a primary determinant of whether accidents become tragedies (National Fire Protection Association, 1997). There is overwhelming evidence that the fire and death rates in

North America are among the deadliest in the industrialized world (International Association for the Study of Insurance Economics, 2008). A specially commissioned Task Force on Fire and the Built Environment (Federal Emergency Management Agency, 2002) determined that two of the most significant reasons for the high fire mortality rate in the United States fell precisely within the interior designer's domain—interior content. These reasons were:

- 1) A failure of standards to control building content presents serious dangers, particularly when incremental occupancy or use changes occur; and
- 2) Most interior content modifications in existing buildings are governed by superseded codes until significant alterations trigger implementation of current standards (Federal Emergency Management Agency & U.S. Fire Administration, 1987).

Setser (2010), a forensic designers states, “Both issues underscore weaknesses in comprehensive life safety code enforcement over a building's life. Regulation of a building's interior content often slips through the cracks and, as a result, compromises the public's safety” (p. 251).

Safety can be designed into a project by knowledge of and specification of appropriate equipment. For example, in healthcare facilities, e.g., nursing home, assisted-care, and hospitals, the need for nursing staff to lift or transfer patients or residents contributed to the 211,000 occupational injuries suffered by caregivers in 2003 (Hoskins, 2006). But, the implementation of a safe patient/resident lifting program that includes mechanical lifting equipment, worker training on the use of the lifts, and a written lifting policy provides:

- Improved patient/resident safety and comfort;
- Reduced risk of patient/resident falls, being dropped, friction burns, dislocated shoulders; and
- Reduced risk of injury to caregivers (Collins, Nelson, & Sublet, 2006).

Moreover, a lifting program reduces overall business costs, i.e., costs associated with employee injuries far exceed the cost of the lift equipment and training.

As a result of Hurricane Katrina, interior designers and other design professionals have an opportunity to apply new knowledge to other disaster sites such as those affected by wildfires or earthquakes. Interior designers can contribute to redesigning and rebuilding disaster areas by addressing life safety requirements in their designs, promoting building code improvements, and designing for peoples' relationship to their natural environment. In the aftermath of Katrina, it was found that interior designers advocated for and used materials, e.g., shatterproof glass and mold resistant finishes, that improved life-safety, integrity, and usability

and ensured better public safety and worked with architects and engineers to update code and construction requirements (InformeDesign, 2007j). One result of natural disasters is that stricter safety regulations are created to protect the public from highly dreaded events, e.g., catastrophic loss of life in a high occupancy building fire (InformeDesign, 2007e).

Design has been able to deter injury through the design of an adolescent psychiatric unit in Kelowna General Hospital, Kelowna, British Columbia. The design team provided staff protection via installation of custom security glass around the care center and kept appropriate sight lines and a warm atmosphere to prevent injury by patients who previously had jumped over the reception desk and into the care station and assaulted staff members (Gamble, Fowler, Duncan, & Evans, 2008). Patients, their families, and staff accepted this design feature. In post-occupancy reviews, most thought that it was an interior design feature and did not realize the glass was placed there for security reasons.

Also in the Kelowna facility, the design team included doors to patient rooms with dual swing capacity so patients could not barricade themselves in the rooms and injure themselves. This design feature limited the potential for patient and/or staff entrapment in high-risk areas, such as patient, seclusion, interview, and treatment rooms. Door hardware that allowed doors to swing in both directions made a substantial contribution to staff and patient safety at a relatively low cost (\$200/door) (Gamble et al., 2008). Other safety features included by the design team for staff and patient safety included ceilings constructed of inaccessible solid gypsum board with lockable access panels to eliminate hiding of drugs and weapons and specification of ceiling light fixtures, sprinklers, and smoke detectors that deter vandalism and use as weapons.

Falls are one of the leading causes of death in older adults (Best, 2006; Federal Interagency Forum, 2008). They are a major concern of interior designers because falls can be caused by the physical environments in which the elderly live or visit. Recognition is growing that the design of the physical environment can prevent falls and enhance the independence and mobility of older adults. Specifically, interior designers can increase the number of multiple sensory cues provided within interior environments so that elderly people have a greater opportunity to be cognizant of a change in the flooring, textures, or materials.

### *Space Planning/Organization*

Unsatisfactory workplaces harm both employees and employers, however many managers are unaware of the range of the costs associated with unsafe or inefficient workplaces (InformeDesign, 2006c). Unsafe or inefficient workplace designs may produce adverse workplace effects, e.g., injury, employee avoidance of certain work areas or tasks, absences, or turnover leading to additional costs such as compensation, training replacement, overtime, and extra staffing. Some workplace design factors, e.g., inadequate supervision, lighting, or ventilation; uncomfortable seating; and presence of dust or fumes, may decrease employee productivity. Payback periods for most interventions may be less than six months.

Post-occupancy evaluations (POEs) are performed by interior designers and may be an efficient way for large public hospitals to diagnose space planning problems, prioritize interventions, and allocate financial resources in a unified, streamlined manner (InformeDesign, 2007d). Interior designers create preliminary solutions based on POE results to analyze design solutions and communicate with the client and user groups.

Single-patient rooms in hospitals meet patients' privacy, safety, and dignity needs (InformeDesign, 2008a). Interior designers know to include sleeping arrangements for family members to increase family communication and patient comfort, private bathrooms to reduce spread of infection, and ease of staff access to increase efficiency of clinical care. Single-patient rooms are easier to clean and disinfect than multi-bed rooms, and when combined with other infection control measures, decrease nosocomial infection rates.

The next section will focus on the definitions of welfare and how interior designers protect the people's welfare.

## Welfare/Well-Being Defined

### Dictionary Definitions of Welfare/Well-Being

Following the same format as the two previous term definitions, Table 3.4 provides definitions of welfare that have been published in various public domain dictionaries for each decade since 1950. Although the 1940s were a starting point in the search, welfare was not included in dictionaries until the 1950s. Also, several definitions are provided from the first decade of the 21<sup>st</sup>-century to include a broader search for the term. It should be noted here that only the term *welfare* was searched in the dictionaries; *well-being* was not. However, well-being is used frequently within the definition of welfare. In subsequent literature searches, the terms were found to be nearly interchangeable.

Table 3.4. Dictionary Definitions of Welfare.

Year	Definition	Reference
1953	The state of fairing well; well-being (as to have one's welfare at heart); also condition with respect to well-being	Welfare. (1953). <i>The New Century Dictionary of the English Language</i> . New York, Appleton-Century-Crofts.
1965	The state of doing well especially in respect to good fortune, happiness, well-being, or prosperity	Welfare. (1965). <i>Webster's Seventh New Collegiate Dictionary</i> . Springfield, MA: G. & C. Merriam.
1973	The state of doing well especially in respect to good fortune, happiness, well-being, or prosperity	Welfare. (1973). <i>Webster's New Collegiate Dictionary</i> . Springfield, MA: G. & C. Merriam.
1989	The state or condition of doing or being well; good fortune, happiness, or well-being (of a person, community, or thing); thriving or successful progress in life, prosperity	Welfare. (1989). <i>The Oxford English Dictionary</i> . Oxford: Clarendon Press.
1995	A state of health, happiness, and prospering; prosperity, weal, well-being	Welfare. (1995). <i>American Heritage Dictionary</i> . New York: Houghton Mifflin.
2001	A flourishing condition; the state of doing well especially in relation to good fortune, well-being, or happiness	Welfare. (2001). <i>Webster's Dictionary</i> . Springfield, MA: G. & G. Merriam.
2004-2008	Well-doing or well-being in any respect; the enjoyment of health and the common blessings of life; exemption from any evil or calamity; prosperity; happiness	Welfare. (2004-2008). In <i>Accurate &amp; Reliable Dictionary</i> . Retrieved March 24, 2008 from <a href="http://ardictionary.com/Welfare">http://ardictionary.com/Welfare</a>
2009a	The state of doing well especially in respect to good fortune, happiness, well-being, or prosperity	Welfare. (2009a). <i>Merriam-Webster's Online Dictionary</i> . Retrieved March 24, 2008, from <a href="http://www.merriam-webster.com/dictionary/welfare">http://www.merriam-webster.com/dictionary/welfare</a>
2009b	Physical and mental health and happiness, especially of a person	Welfare. (2009b). <i>Cambridge advanced learner's dictionary</i> . Cambridge, UK: Cambridge University Press.

Overall, these definitions address people's emotional state that signals their overall well-being. Welfare and well-being are used to define a person's social, psychological, and emotional quality of life. Synthesizing the key terms noted in each dictionary over decades, phrases that reoccur include:

- Doing well;
- Physical and mental well-being;
- Good fortune, prosperity; and
- Happiness.

The majority of information relating to the term welfare in *Wikipedia* (Welfare, 2009c) referred to government or institutional actions or procedures to promote the basic well-being of individuals in need of financial assistance, employment, or other aspects of their lives, sometimes including their mental health. In a more general sense, welfare also means the well-being of individuals or a group; in other words their health, happiness, safety, prosperity, and fortunes. Other *Wikipedia* authors suggest that well-being is related to life satisfaction, which is an individual's perceived level of well-being and happiness; well-being is a broader term than life satisfaction (Subjective Life Satisfaction, 2006). Additionally, welfare includes a person's economic condition.

### ***Government and Public Entities' Definitions of Welfare***

The following is a review of government and public entities' publications authored by committees, commissions, departments, or other entities. As was true for definitions of health and safety, many of these entities do not specifically define welfare, but address influences of welfare and well-being, once again, using welfare and well-being interchangeably. These are included as part of the discussion of definitions of welfare.

HHS (U.S. Department of Health and Human Services, 2000) suggests that "regular physical activity throughout life is important for maintaining a healthy body, enhancing psychological well-being, and preventing premature death....[and] may even reduce the risk of developing depression" (pp. 26-27). The U.S. National Research Council (2001) concurs with several of these statements and further asserts, "Most people would agree that gains in life expectancy and material goods and services, important as they are, are not all we mean when we use terms such as *well-being* and *quality of life*" (p. 251).

The *Well-being Spot*, a Web site about health and well-being, says that "well-being describes a state of wellness of body, mind, and soul where all are in a state of health and an

individual is happy and prospering. Well-being is not available by prescription, and there is no one path, and many different roads can be taken to arrive there” (Welcome to the Well-Being Spot, 2009).

The *Stanford Encyclopedia of Philosophy* (Well-Being, 2008) describes well-being (welfare not found) as what is non-instrumentally or ultimately good for a person; well-being, in some theories, should be maximized. It further states that well-being is about self-interest, that is, how well is a person's life going for him or her. Raz (2004) suggests that “well-being consists in a wholehearted and successful pursuit of valuable relationships and goals” (p. 269).

AARP (American Association of Retired Persons, n.d.) supports welfare with its mission to enhance the quality of life for all people as they age. They do this by legislating for positive social change and delivering information and services to their members. Likewise, NIOSH (National Institute for Occupational Safety and Health, n.d.) will continue to generate new knowledge in occupational safety and health and to transfer that knowledge into practice for the betterment of workers.

The USGBC (U.S. Green Building Council, n.d.) is transforming the way buildings and communities are designed, built, and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life. Several LEED standards directly impact occupant welfare.

Another definition of welfare is important to consider related to interior design practice, economic welfare of individuals or businesses. Individual or household welfare/well-being are often considered a lack of poverty. The terms well-being and welfare are commonly used as a definition of economic utility (Strengmann-Kuhn, 2002). Although welfare differs among individuals, it often is assumed to be based on economic conditions that are characterized by “a bundle of goods...and also on age, health, employment status and other factors” (Strengmann-Kuhn, 2002, p. 6-7).

In the residential sector, economists assume that the goal of most households is to maximize their welfare or to maximize the individual welfare of the household members. “Satisfaction and utility are two terms economists use to describe this household goal. Well-being is a term more commonly used by sociologists and home economists but it refers to the same goal” (Bryant, 1990, p. 1; Strengmann-Kuhn, 2002, p. 2).

Several government entities focus on welfare. Obama and Biden's plan called Organizing for America (n.d.b) focuses on the need to support people's economic welfare by building a

lasting foundation for America's economic prosperity and security. The NIH (National Institutes of Health, n.d.) is expanding its medical- and science-related knowledge base to enhance the nation's economic well-being. The U.S. Congress has declared that OSHA's (U. S. Department of Labor Occupational Safety and Health Administration, 1970) purpose is to provide for general economic welfare, to assure people a safe and healthful working environment.

### *Interior Design and Design-Related Entities' Definitions of Welfare*

Professional interior design and design-related organizations and practitioners provide few definitions of welfare as related to interior design practice. However, their literature often includes descriptions of welfare-related design factors under the purview of interior designers. The following is a summary of organizational literature on designing for people's welfare/well-being.

Carson Guest (2008), then President of ASID, provided a definition of welfare and gave several examples of designing for welfare. She stated that welfare refers to "the many choices we [interior designers] make to ensure the physical, emotional, and spiritual well-being of the people who may use a particular space" (p. 8). Her examples include:

- Doors and access to such areas as restrooms designed for universal access, not just to comply with codes and
- Appropriately specific hardware and fixtures to provide access to all.

Heerwagen's research (cited in Kolleeny, 2003), suggests that exposure to nature and daylight, air quality, temperature, noise, ergonomics, and opportunities for social gathering relaxation and exercise affect occupants' performance and well-being. Other design organizations that are concerned about welfare suggest that indoor environments also have strong effects on occupant well-being and functioning, especially attributes such as the amount and quality of light, color, the sense of enclosure, the sense of privacy, access to window views, connection to nature, sensory variety, and personal control over environmental conditions (Promote Health and Well-Being, 2009). These are all factors of welfare found in the KAs of the interior design profession's BOK.

ASID (2010) discusses the issue of public welfare within the realm of professional interior design. They suggest:

[It] includes the responsibility of considering the greater whole, which involves, among other things, employing "environmentally friendly" materials and practices to ensure a sustainable environment for future generations. In addition to designing environments

that reduce stress, promote healing and are safe, interior designers need to apply their skills to create spaces that foster self-realization and unleash human potential. Designers also must ensure the ecological soundness of the interior environment and the “ripple” effect on the external environment. (n.p.)

IIDA (n.d.) provides a forum for members to “demonstrate design professionals’ impact on the health, safety, well-being and virtual soul of the public, balancing passion for good design and strategy for best business practices” (n.p.). This reflects their support for the economic well-being of clients.

Enhancing the quality of life and culture of the occupants is within interior designers’ purview, states ARIDO (n.d.b). Further, they support welfare by stating that interior designers must encourage the principles of environmental sustainability. BIFMA (n.d.b) stands for human rights, social responsibility, and inclusiveness. IFMA (2010) is working with partners to heighten awareness and inform policymakers about the major impact buildings have on people’s health, safety, and welfare and the opportunities to design, construct, and operate high-performance buildings that reflect concern for these impacts.

Supporting welfare and well-being, EDRA (Environmental Design Research Association, n.d.b) supports research that improves understanding of the interrelationships among people and their built and natural surroundings so environments can be created that are responsive to human needs. The AIA (American Institute of Architects, n.d.) and the ASLA (American Society of Landscape Architects, n.d.) literature supports human welfare in the same way that they support health and safety. Both organizations support quality of life and health of biological and natural systems, both of which are essential to human life.

### **New Definition of Welfare as Related to Interior Design Practice**

Based on an analysis of the previous literature, a new definition of welfare was developed to reflect interior design practitioners’ knowledge.

**Definition of Welfare as Related to Interior Design Practice: Interior designers create interior environments that support people's physical, psychological, social, and spiritual well-being; and assist with or contribute to their financial or economic management, success, and responsibility.**

This definition of welfare supports the interior design profession's contribution to protecting people's welfare/well-being. This is where the profession's BOK intersects with welfare/well-being and describes the knowledge needed to design interior environments that provide for people's welfare/well-being. Welfare is actualized in design by the contributions of numerous factors represented by KAs in the BOK. The next segment highlights several of these factors that reflect the welfare outcomes from or relationships to interior environments. Once again, it is important to note that several of these factors are interrelated and also affect a person's physical health and safety.

#### **Evidence of Protecting People's Welfare via the Interior Design BOK**

This section provides evidence of how specific abstract knowledge is used by interior designers to protect people's welfare as they design interior spaces. This discussion relates the words in the definition of welfare to the abstract knowledge factors or KAs in the BOK. A sample of the literature documents six abstract knowledge factors contained within KAs of the BOK and their effect on welfare: occupant well-being and performance, human factors and human behavior, cultural context, social context, natural light and nature, and color principles. The relationship between these factors and the BOK places designing for people's welfare squarely on responsible practice by the interior design profession. It is important to note that many of these studies cite the effect of design on more than one factor at a time, which supports the inter-relationship among HSW.

#### ***Occupant Well-Being and Performance***

The need for privacy can vary among individuals; sometimes lack of privacy can affect people's performance in the workplace. "If privacy is considered to be an important workplace need, the person's performance and stress levels may be negatively affected in a workplace that does not offer individual privacy" (Rashid & Zimring, 2008, p. 152).

People spend a significant amount of time in the workplace, and many design elements of the work environment that may affect worker satisfaction and performance have been studied. A study about the effect of windows, sunlight, and view on stress in the workplace found that sufficient sun exposure can increase workers' satisfaction, lower their intention to quit, and reduce fatigue (InformeDesign, 2002). Designers must provide users with effective ways to control the amount of sunlight to avoid overexposure. Angle and strength of saturation are important considerations. Natural views can increase user satisfaction, especially in high-stress work environments. If this is not possible, views of small areas of natural elements should be provided to reduce stress (InformeDesign 2002).

Lerner (1997) defined mental health as the presence of well-being rather than the absence of illness. In the same study, Lerner developed a new model for employee well-being and suggested that well-being consists of three core factors: 1) subjective well-being; 2) workplace well-being; and 3) psychological well-being.

When comparing various office types in multiple office buildings, researchers found differences that contribute to workers' health and job satisfaction (Danielsson & Bodin, 2008). Lowest health status was found in medium-sized and small, open-plan offices. Best health was among employees in cubicle offices and flex offices. Workers in these offices and in shared-room offices also related the highest job satisfaction. Lowest satisfaction was in combination offices followed by medium-sized open plan offices. While other factors, including variations in architectural and functional features, may also influence employee outcomes, interior designers use this research knowledge to create design solutions that contribute to job satisfaction, a component of well-being.

### ***Human Factors and Human Behavior***

Three decades ago, Altman (1973) found that personalization may guard against the negative physical, physiological, and psychological consequences of inadequate privacy regulation, such as illness, stress, and anxiety. "Personalization is generally considered a form of territorial behavior in which people use their personal belongings to mark and defend their territories and to regulate their social interactions" (Wells, 2000, p. 240). Wells' (2000) study showed that there is an indirect relationship between personalization and employee well-being regarding satisfaction with the physical work environment and job satisfaction. The study also found that gender differences exist in personalization: "...women personalized more than men,

and men and women personalized with different items and for different reasons” (p. 239). Personalization is also related to patients’ stress level in healthcare environments (Rashid & Zimring, 2008).

Studies showed that some cognitive, psychological, and psychosocial factors are affected by physical factors. High ambient temperature has several negative effects on social relations, such as insensitivity to social cues, increased sense of crowding, and negative reactions to others (Rashid & Zimring, 2008, p. 168). Simplicity of physical settings reduces a sense of crowding (Edwards, 2006). Sense of control is an important factor related to stress in healthcare environments because patients’ physical reliance on their families and healthcare staff already makes the patients vulnerable to stress (Rashid & Zimring, 2008).

Children from higher density homes (number of persons/room) in both rural and urban areas and children living in poverty are less likely to persist in an achievement, problem-solving context (Evans, Saegert, & Harris, 2001). Furthermore, impoverished children and their families are living in higher density, urban, low-income neighborhoods. “Research evidence demonstrates that living in these neighborhoods affects family well-being in several key areas: economic and employment opportunity, health and mental health condition, crime and safety, and children’s behavioral and educational outcomes” (Chow, Johnson, & Austin, 2005, p. 1).

A sense of safety is one of the factors that affects stress level and sense of well-being (Nova, 2005; Rashid & Zimring, 2008). This research ties together safety and welfare. Familiarity based on people’s understanding of physical settings reduces their concern about crime (Nova, 2005).

Conflict at work acts as a major stressor and responding to this stressor in passive non-confronting ways is not only likely to occur, but will also put into operation a negative spiral. The initial increase in the experience of organizational stress, that is the diminished, actual, or perceived loss of control will, in the end, result in reduced well-being. Dijkstra, Dierendonck, and Evers (2004) suggested that “the deterioration of well-being may weaken the tendency to respond to conflict in a cooperative way, e.g., problem-solving behavior” (p. 19).

Cognition level of environmental cues and wayfinding affects people’s sense of well-being (Fischer, Tarquinio, & Vischer, 2004; Nova, 2005). Cognitive mechanisms affect spatial orientation, place identification, work, and feeling secure. These reactions may be positive or negative and may translate into satisfaction or dissatisfaction with one’s workplace. The experience of workplace, therefore, causes people to attribute meaning and feelings towards

what they do at work, as well as about who they are (Fischer, Tarquinio, & Vischer, 2004; Stokols, 1978).

### *Cultural Context*

General Motors is renovating a portion of one of their research facilities. They recognize that each research facility and/or team has different work cultures that allow them to perform in optimal ways. Meerwarth, Trotter, and Briody (2008) analyzed the work cultures of the teams prior to beginning any spatial design to determine the effect that reconfiguring the work environment would have on team effectiveness. Frequently, workspace culture is ignored in design projects; yet interior designers who collect and analyze user data during pre-design are cognizant of the importance employees place on their established workplace culture and how it affects their well-being through their comfort, satisfaction, and job performance (Meerwarth et al., 2008).

Some researchers suggest the importance of user individuality and the role of culture and race in place experience and meaning. People can have either positive or negative feelings toward place, which can be manifest in the interior environment (InformeDesign, 2006a). Non-residential settings and areas may provide a greater feeling of “at home-ness” than residential settings for many users. Experiences in a place may be more important than features of the physical environment in establishing the meaning of a place; places where users form their identity, feel safety or threat, experience conflict, or have opportunities for introspection and solitude may be likely to become significant places. For example, memories connect people to a place and provide subjects with emotional continuity that connect experiences of the past and the present. New places can help people with negative place experiences break away from a painful past.

### *Social Context*

Social activity and interaction with others are constructs of well-being, and they can take place anywhere. Social interaction also provides older people with a meaningful social role, which then confers a sense of value, purpose, identity, and attachment to one's community (Berkman & Glass, 2000). These, too, are factors of well-being because the process of aging is often characterized as the gradual loss of social roles. Enhanced social ties with neighbors, family, and friends, even within shared living environments such as assisted-care facilities, may

provide older people with new social roles, which can have a positive effect on their well-being (Bowling, 1994). All of these factors contribute to a person's welfare.

Designing facilities for people with dementia has been researched for ways to address their well-being. It has been found that music may support positive feelings, activities, and social interactions among people with dementia (InformeDesign, 2008b). Interior designers can plan spaces and their adjacencies to facilitate access to music for people with dementia living at home or in care facilities. Spatial layouts and lighting designs that ease the task of using music-playing devices for people with dementia can be designed. Music and music-related activities influence people's feelings of well-being. They have been found to increase happiness and decrease agitation (InformeDesign, 2008b). Participation in valued activities such as cleaning improves interaction at mealtimes. Increased social interaction such as dancing with others, leads to improved non-verbal communication, empowerment, and self-control.

Noise level is related to people's sense of well-being in office and healthcare environments; and it is related to satisfaction, control, social interaction, social support, and insensitivity to social cues (Edwards, 2006; Rashid & Zimring, 2008). Research has shown that high noise levels in healthcare settings can have significant negative effects on stress—experienced as annoyance, sleep disruption, increased blood pressure, increased heart rate, and discomfort (Rashid & Zimring, 2008). Noise level affects task performance in office settings, and women in general are more sensitive to noise than men, although noise sensitivity depends on the nature of tasks and individual characteristics (Rashid & Zimring, 2008).

### ***Natural Light and Nature***

It has been known for many years that if people have insufficient exposure to sunlight, it can result in Seasonal Affective Disorder (SAD) (Rosenthal et al., 1985). Research continues on this phenomenon. More recently, it has been found that the amount of sunlight or daylight exposure can also affect a person's circadian rhythm, which can influence satisfaction with the work environment (InformeDesign, 2003b).

Use of nature in healthcare environments is considered a well-being factor that provides relaxing and health-improving effects (Ulrich & Zimring, 2004). User well-being is a benefit of offices that have natural features such as atriums and water cooling systems (Edwards, 2006). Absenteeism can be decreased when personal well-being is achieved by a healthy, natural, and stimulating workplace (Edwards, 2006).

Outdoor activities and social engagement can be supported by the use of open space, which can enhance an elderly person's well-being (Sugiyama & Thompson, 2007). Exposure to natural environments through visual contact with nature, exposure to natural daylight, and activity in natural settings is known to have psychological and physical restorative effects. Social interaction with neighbors in green spaces reduces effects of stress, increases a sense of safety, provides older people with a sense of providing a meaningful social role, and enhances overall quality of life and well-being (Sugiyama & Thompson, 2007).

Research has shown the restorative effects of the natural environment (Kaplan, 1995). A study by Ulrich (1991) is a classic example of the restorative effects that may be obtained through visual contact with nature and activity in natural green areas. The view of natural elements (garden or landscaped areas) from home contributes substantially to residents' satisfaction and well-being (Kaplan, 2001). With regard to activity in natural environments, recent research has found that the amount of time people spend in open green spaces is associated with a reduced risk of developing stress-related illnesses (Grahn & Stigdotter, 2003). Similarly, Hartig et al. (2003) demonstrated that those who walked in a natural setting exhibited an increase in positive affect, decreased anger, and higher attention performance compared with those who walked in a built-up, urban environment. Exposure to natural daylight is another health benefit from contact with nature. The right temporal cues, i.e., reinforcing the cycle of day and night, are important to maintain the quality of night-time sleep. Research has shown that increased exposure to natural light, independent of the effect of physical activity, can alleviate the symptoms of insomnia (Hood, Heath, Phelps, & Lin, 2004).

### ***Color Principles***

Individual differences in environmental sensitivity can be influenced by emotional responses, i.e., stress, arousal, and cognitive appraisal toward different colors in a simulated hospital room (InformeDesign, 2009b). People have the ability to screen or focus on different environmental stimuli, which might explain color preferences and different reactions. Screening ability refers to differences in individuals' abilities to screen out irrelevant information in their environment (Mehrabian, 1977). Some individuals are able to screen out unnecessary visual complexity of their surroundings (high-screeners) whereas others are not (low-screeners). Low-screeners are more easily aroused by unnecessary visual stimuli than high-screeners.

Van Rompay and Hekkert (2004) state that color has the ability to impact the emotional well-being of humans by stimulating, tranquilizing, exciting, depressing, provoking, or antagonizing. However, Park and Guerin (2002) found that it is not a single color that generates emotional responses; it is the contrast between colors, their transparency, and their context that allows them to generate an emotional response or preference. These are the issues that interior designers work with to apply color to interior spaces that contribute to health and healing, satisfaction, comfort, and even safety.

### Summary

A comprehensive study of the terms HSW resulted in new definitions that are directly related to the interior design profession's BOK, that is, the abstract knowledge interior designers master and apply to practice their profession and thereby prevent harm from coming to the public through the interiors they design.

The terms health and safety seem to be relatively straightforward and easy to understand compared to welfare. Interior designers are prepared by education, examination, and experience to discover and assess risk, then design to prevent risk. They discover hazards that are related to a design deficiency, maintenance, or use. Health and safety seem to be more measurable, that is, the outcomes of causing harm via ignorance of health and safety issues are more measurable in terms of loss of life, limb, or senses; increased disease; or increased injury. Although the implementation of health and safety investments may be hampered by the inability of interior designers to demonstrate the financial value of these investments to decision-makers, it is currently possible to estimate the costs and returns of proposed health, safety, and environmental investments and decisions (InformedDesign, 2007a).

Welfare, on the other hand, is less easily measured because of the myriad of human characteristics and behaviors that contribute to one's well-being, and their measurement is often subjective or self-report. However, welfare may be the most critical as it is the term that embodies the issues that enrich and support life and human experience. Adding to the confusion, not only are the terms welfare and well-being used interchangeably by many professions, the term "quality of life" is also a synonym. Interior designers focus on human-centered design where the products and services have to be a good fit for occupants. They design for inclusivity so that all users of interior environments have an equal opportunity to use

the environment and find it to be not only supportive and no-risk, but perhaps inspiring or transformative.

Human welfare/well-being consists of factors that influence the quality of the interior environment and affect the people who use it. Yet, measurable outcomes must be better defined so welfare is more highly valued by built environment professions and clients. Abstract knowledge that enables interior designers to create satisfaction and reduce stress is the manifestation of the term well-being. As a result, interior design practice can be a strategic prevention tool used in design projects to prevent harm, which is one of the core values of the profession.

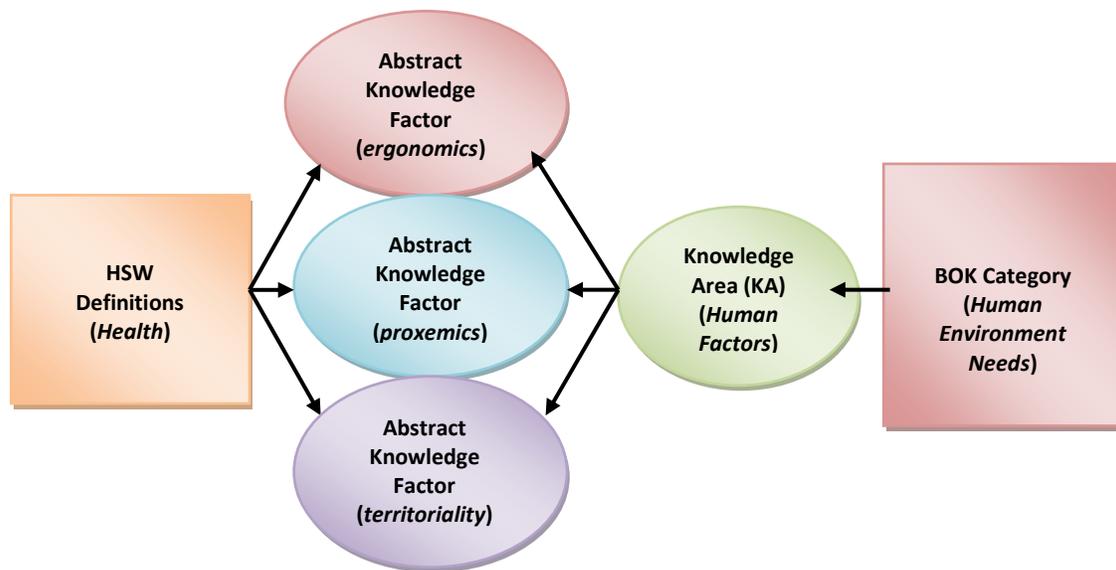
One overarching conclusion is readily apparent; there is an interrelatedness of the conditions that result in HSW. Roberts and Guenther (2006) say it well, "...numerous studies have shown that buildings designed for good IAQ, have many benefits, including increased production, safety, morale, and general well-being of the occupants, not to mention extended life and value of the building" (p. 88). Interior designers specify the products, materials, finishes, and textiles, all of which can be selected to reduce off-gassing of toxins and create positive health issues for users. Interior designers also influence a person's safety through the specification of room exiting and people's egress paths. Finally, an interior environment that has good IAQ reduces fatigue, which can contribute to increased productivity and employee satisfaction—all of which reflect on how well a person functions in the interior environment.

People's lives are being affected by living, working, and playing in interior environments. Technological, environmental, cultural, and economic changes have provided new challenges for interior designers; hence the continued development of abstract knowledge that is transforming the profession's BOK. Design is affected by these changes and also by the social, environmental, and the consumer-oriented impact of these changes. The outcome is the need to design for people's experiences and emotional well-being (Demirbilek & Sener, 2003). Paul Hekkert (2002), the chairman of the Design and Emotions Society, says: "It is no longer sufficient to design good products or services; we all want to design experiences and generate pleasurable or exciting sensations" (n.p.). Further, it seems that function and usability, although important, are not sufficient to convey pleasure and happiness to users. These seem to be the goals that underlie human well-being.

Finally, there is a need for interior design practitioners to link the words in the new HSW definitions developed in this study to their specialized knowledge required to practice.

Modification of Figure 2.1 helps illustrate this linkage in Figure 3.2 below, by showing how a specific term definition (*health*) relates to a KA (*human factors*) as a specific abstract knowledge factor (*ergonomics*). Please note that the factors of ergonomics, proxemics, and territoriality are taken from Table 3.8, which identified the abstract knowledge factors within the Human Environment Needs Category.

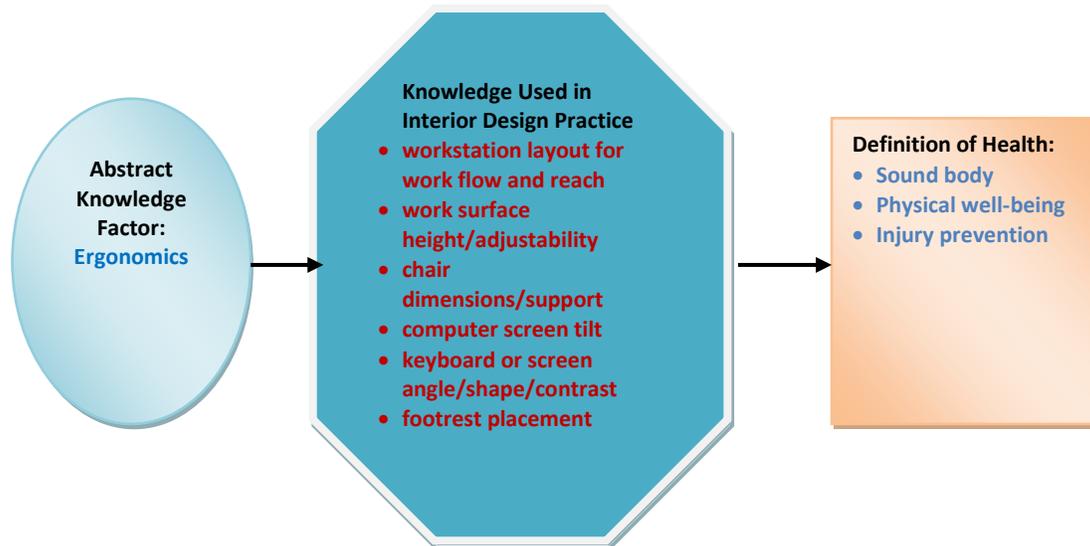
Figure 3.2 Relationship of HSW Definition to Abstract Knowledge Factors and KA in the BOK.



To further clarify the relationship demonstrated in Figure 3.2 above, the specific linkage of the definition of health to ergonomics is shown in Figure 3.3 below. Beginning with the left box, the specific abstract knowledge factor of ergonomics knowledge used in interior design practice, is indicated. This is one of many factors that have been identified in Goal 4's findings within this study. The large center box identifies how ergonomics knowledge is used in interior design practice. And finally, the definition of health, described by words that relate to physical health, i.e., sound body, physical well-being, and injury prevention, is noted in the box on the right as they contribute to the interior design profession's BOK category Human Environment Needs. Interior designers' knowledge of ergonomics, by which they protect people's health, is presented as an example of how the connection between practice and the HSW definitions can be concretely documented. For example, several types of knowledge are used: height and

adjustability of work surfaces, whether in an office, retail store, or other interior environment; seating dimensions for support and reach; and placement of keyboard for computer work.

Figure 3.3. Linkage of Ergonomics Knowledge Used in Practice to Definition of Health.



Figures 3.2 and 3.3 together indicate that the KAs include the abstract knowledge factors that are then coalesced through words in the HSW definition. This relationship, shown through these findings and those of Goals 4 and 5 of this study, exists via interior design practice. Practitioners must now begin the serious work of documenting this relationship relative to their specific design practice.

It is the responsibility of interior design practitioners to review their areas of practice and document their **work** as it relates to the definitions of health, safety, and welfare. Only by involving practitioners from all building types, specializations, or ways of working will we begin to fully understand and appreciate the value and responsibilities of practice

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## Goal 4: Results of Updating the BOK

### Discussion of BOK Categories and Knowledge Areas

The interior design profession's BOK was updated by a content analysis method. Results of the BOK content analysis are discussed in this segment of the report. Included are the description of the categories and KAs within each category and identification of abstract knowledge in each KA.

The raters found 65 KAs, which they placed into six categories. Each category has 7-16 KAs; each KA has from 1-30 terms that are identified as abstract knowledge and assigned to a KA. The categories are titled:

- Communication;
- Design Theory and Process;
- Human Environment Needs: Research and Application (hereafter cited as Human Environment Needs);
- Interior Construction, Codes, and Regulations;
- Products and Materials: Evaluation, Installation, Specifications, and Inspection (hereafter cited as Products and Materials); and
- Professional Practice: Principles, Methods, and Tools (hereafter cited as Professional Practice).

Table 3.5 presents the BOK categories and number of KAs in each category.

Table 3.5. Categories with Number of KAs per Category.

<b>Category</b>	<b>Number of KAs</b>
<b>Communication</b>	7 KAs
<b>Design Theory and Process</b>	16 KAs
<b>Human Environment Needs: Research and Application</b>	10 KAs
<b>Interior Construction, Codes, and Regulations</b>	10 KAs
<b>Products and Materials: Evaluation, Installation, Specifications, and Inspection</b>	8 KAs
<b>Professional Practice: Principles, Methods, and Tools</b>	14 KAs

Categories were named to reflect the overall content of the KAs in each category. Category names used in this study were based on those established in the 2005 study (Martin & Guerin, 2006). However, because of the specificity of the KAs and their abstract knowledge identified in the source documents, it became apparent that category names needed to be

revised to clarify the category content. For example, “Professional Practice” from the 2005 study became “Professional Practice: Principles, Methods, and Tools.” This change meant aspects of the design process that relate to the business of interior design, i.e., “project scope and size” within “project management,” could be contained within this category, yet remain distinct from the design aspects of the design process, i.e., “detailed space plans” within “design development,” that were contained within “Design Theory and Process,” which had formerly been named “Design.” The increase in specificity of KAs and their abstract knowledge may also have influenced the assignment of abstract knowledge to KAs and the assignment of KAs to categories. This specificity is also discussed below relative to how this issue influenced the groupings of KAs within categories.

It should be noted that in this study frequencies for KAs are not given, and KAs were not weighted for importance or contribution to their category or the BOK. This decision to not weight the KAs was, in part, a response to the dialogue raised resulting from the earlier studies. Weighting allows a number to be attached to a KA, which can be used to artificially evaluate and assign a level of importance of a KA to the overall BOK. As the BOK only represents the three stages of the first phase of the career cycle, i.e., education, experience, and examination, this level of importance could erroneously underpin decisions made by educators, practitioners, and researchers. It was determined that it is more important to identify *what* knowledge interior design practitioners attain in the first phase of their careers, a strength of content analysis (Stemler, 2001). Attaching a number to the KAs does not consider the quality, depth, or duration of learning the specific abstract knowledge.

### **Abstract Knowledge that Comprise KAs in Categories**

Tables 3.6–3.11 show each category followed by a list of its KAs and a list of the abstract knowledge contained in that KA. The categories, KAs, and abstract knowledge are all listed in alphabetical order within the KA to help readers find certain content.

The quantity of KAs and their abstract knowledge within categories varies. This is evidenced by the two largest categories, Design Theory and Process (16 KAs) and Professional Practice (14 KAs) versus the category with the fewest KAs, Communication (7 KAs). In many cases, the source documents contained abstract knowledge that was not identical but closely related to other abstract knowledge, and so the quantity of abstract knowledge within a KA

increases such as within the KA “project management” (contains 13 abstract knowledge terms) within Professional Practice.

In other cases, abstract knowledge seemed to separate into smaller subgroups within a KA, and so the researchers assigned them as such. An example would be the subgroup contained within the KA “design process” in the Design Theory and Process Category. Subgroups of abstract knowledge within “design process” include “programming,” “schematic design,” “design development,” “contract documents,” and “contract administration,” and each of them have their own abstract knowledge. Subgroups were simply a way to organize the content and make it manageable. However, it was also discovered that in certain cases, the specificity of the abstract knowledge identified did not allow it to be part of another KA. For example, “evidence-based design” and “wayfinding” were unique within the KAs. Also, in these cases, the KA may or may not contain additional abstract knowledge beyond that which is noted in the KA.

Table 3.6. Communication Category with KAs and Abstract Knowledge.

<b>Communication Category (7 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
communication	client and contractor meetings; client meetings; client/user interviews; collaboration; communication techniques and technologies; consensus building; discussions with the client; effective communicators; facilitation/negotiation; interviewing clients and users; liaison between the client and contractors; negotiation strategies; project team dynamics
construction documents	coordinated drawings, schedules, and specifications; general conditions; general notes - construction drawings and documents; as-built plan; construction drawings; demolition plan; detail drawings; detail page; drawings; drawings for interior construction; electrical plans and preliminary specs; elevation plan; floor plans; lighting plans and preliminary specs; reflected ceiling plan; working drawings; working drawings for all details; working drawings-custom cabinets and furniture; working drawings-interior construction - specifications and schedules for construction and materials; prescriptive, performance, and proprietary specifications; schedules; spec writing; specifications; specifications and related schedules; technical specifications
critical listening	critical listening skills; evaluate what they are hearing from several points of view, including but not limited to speaker credibility, logic and meaning of the message, underlying assumptions of the message
presentation(s)	color rendering; color use effectively in all aspects of visual communications, e.g., presentations, models, etc.; integrate oral and visual material to present ideas clearly; material and color boards; presentation of the conceptual drawings; presentation drawings across a range of appropriate media; presentations—oral, written, and graphic; presentation techniques and skills; presentation of a variety of ideas, approaches, and concepts; presentation materials; presenting the complete design to the client for approval; rendering, e.g., 3-D and 2-D
sketching	preliminary drawings; sketches as a design and communication tool (ideation drawings); three-dimensional sketches that explore the image of the concept
visual, written, and verbal design communication methods and techniques	digital media; graphic software; measuring, drafting, and technical drawing conventions; models; oral and written communication; visual design communication methods and techniques; written design communication methods and techniques
written form of agreement	bid forms/tender forms; bonds; bulletins; change orders; charts; contracts; contractual agreements; form(s); invoices; minutes and field reports; proposals; punch/deficiency list; purchase documents; purchase orders; records for tax purposes; tenant work letter requirements; transmittals

Table 3.7. Design Theory and Process Category with KAs and Abstract Knowledge.

<b>Design Theory and Process Category (16 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
acoustical design principles	no additional abstract knowledge
color and light principles and theories	color and light; interaction of light and color and their impact on one another and interior environments
color principles, theories, and systems	apply color effectively; color(s); color concept; color with regard to its multiple purposes
creative thinking	creative solutions that support human behavior within the interior environment; creative thinking and originality; innovation
design concept	concept(s); concept models; design concept statement; functional parti diagrams
design process	<p>phases of a project</p> <ul style="list-style-type: none"> <li>-programming [design problem (goals, objectives, performance criteria); goals; design research; project context; programmatic information; clients' and users' needs, goals, and special requirements; client requirements; gathering and analyzing information about the client's and user's needs; compiling and evaluating data; writing the program; matrices; adjacency matrices; square footage allocations]</li> <li>-schematic design [multiple design responses to programmatic requirements; design issues and implications; design application; bubble diagrams; block plans; stacking/zoning diagrams; preliminary plans, furniture layouts, materials choices, and other components; preliminary space and furniture plans that are appropriate to the budget and reflect the character, function and aesthetic concept; furniture, fixture, and equipment (layouts)]</li> <li>-design development [detailed space plans; mock-ups and prototypes; final recommendations for the complete project; procedures necessary to obtain approval of design; client approval for production of working drawings]</li> <li>-contract documents (note: see Communication category, "construction documents" for additional KAs) [interior design documentation; coordinating design drawings for these components (lighting, electrical, plumbing, and HVAC)]</li> <li>-contract administration [construction mock-ups; shop drawings; substitutions; inspection of the completed premises with review of deficiencies; inspection of final design solutions; project close-out]</li> </ul>
design theory	elements, principles, and theories of design; theories of two- and three-dimensional design, and spatial definition and organization; three-dimensional design solutions; two-dimensional design solutions
evaluating existing premises including space allocation, furnishings, equipment, and other attributes of the existing environment	existing conditions; field administration; inventory of furniture; measure and record all site conditions; site analysis; site analysis procedures; site inspection, survey, and documentation; space and conditions analysis
evidence-based design	evaluate, select, and apply information and research findings to design
historical precedent to inform design solutions	history; interiors, architecture, art and the decorative arts within a historical and cultural context; movements and periods in interior design and furniture; movements and traditions in architecture; social, political, and physical influences affecting historical changes in design of the built environment; stylistic movements and periods of art
natural and electrical lighting design principles	daylighting; lighting: color, quality, sources, use control; select and apply luminaires and light sources
principles of thermal design	no additional abstract knowledge
<b>CONTINUED ON NEXT PAGE</b>	

Table 3.7. Design Theory and Process Category with KAs and Abstract Knowledge (Continued).

<b>Design Theory and Process Category (16 KAs) CONTINUED</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
problem solving	creative problem solving; critical thinking; design responses/solutions; identify and explore complex problems; multiple design responses to programmatic requirements; problem solving methods; strategic planning; synthesize information
space planning	space and form; space relationships; spatial definition and organization
sustainability concepts, principles, and theories	renewable resources; sustainable design practices; sustainability; sustainability guidelines
wayfinding	signage

Table 3.8. Human Environment Needs Category with KAs and Abstract Knowledge.

<b>Human Environment Needs Category (10 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
business, organizational, and familial structures	client organization structure and facility type; familial structures (co-housing, nuclear, extended family, or others)
ecological, socio-economic, and cultural contexts	cultural contexts; ecological (issues); economic factors; environmental, social, psychological, cultural, aesthetic, global influences; external considerations; functional, behavioral, aesthetic, perceptual, cultural, and economic; functional, behavioral, and cultural needs; other cultures; social and cultural norms; social, political, economic, ecological issues; varied needs for different socio-economic populations
globalization	geography; global context for design; global view to weigh design decisions; implications of conducting interior practice within a world market; location; surroundings
human factors	anthropometrics; ergonomics; ergonomic and anthropometric data; physiological responses, e.g., visual acuity; proxemics, e.g., territoriality
lighting, acoustics, thermal comfort, and indoor air quality principles	acoustics; acoustical control; indoor air quality; indoor air quality principles; noise control, sound distribution, speech privacy; white noise
occupant well-being and performance	aging in place; children; elderly; health, safety, welfare; illness or injury; performance of building occupants; special needs - physical, cognitive, or emotional
post-occupancy evaluation research	validity of design decisions and original programs analysis of user satisfaction; development and execution of surveys and questionnaires; qualitative analysis tools, e.g., characteristics, special needs, image; quantitative analysis tools, e.g., functional program; research findings; research methods, e.g., interviewing, surveying, case studies, benchmarking/precedent; research special requirements and needs of a project
theories about the relationship between human behavior and the designed environment	behavioral science; human behavior; human behavior theories; relationship between human behavior and the built environment; relationship of object to body
universal design	design for all people including those with special needs – physical, cognitive, or emotional; universal/accessible design; universal design concepts

Table 3.9. Interior Construction, Codes, and Regulations Category with KAs and Abstract Knowledge.

<b>Interior Construction, Codes, and Regulations Category (10 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
building construction	building construction types; building methods; construction and installation standards; construction standards; construction types, e.g., wood, steel, concrete
building systems	-acoustical systems -distribution systems including power, mechanical, HVAC, data/voice telecommunications, and plumbing -energy management including HVAC, safety, and security [energy, security, and building control systems; environmental system and controls; mechanical systems; mechanical system design, airflow, occupant reaction to thermal variables; plumbing; plumbing plans and preliminary specs; plumbing systems] -lighting; electrical systems; light distribution, e.g., ambient lighting and task lighting; light source(s); lighting systems; low voltage systems; luminaires; sources (i.e., lamping, illumination) -pollutant source control, filtration, ventilation variables [CO <sub>2</sub> monitoring; mold prevention; thermal systems impact interior design solutions] -structural systems [structural systems and methods; wood-frame; wood-frame and steel-frame] -vertical circulation systems [elevators and stairways]
calculations	calculating requirements for numbers and sizes of stairs and exits, stair and corridor dimensions, ramps and public washrooms; foot candle requirements, energy efficiency, codes, lease requirements; square footage measurement standards
code requirements, laws, standards, regulations, accessibility, and sustainability	accessibility guidelines; codes; code requirements; energy conservation, energy efficiency; federal, state/provincial, and local codes; health codes; law(s); laws, codes, standards, and guidelines that impact fire and life safety; plans for barrier free design
critical path	critical path for construction and installation; design milestones, sequencing
interior construction	components, e.g., doors, windows, studs; non-structural systems including ceilings, flooring, and interior walls; relationship of design solutions and interior construction; sequencing of work, e.g., plumbing before dry walling
laws, codes, standards, and guidelines that impact the design of interior spaces	American National Standards Institute (ANSI); California 01350; CHPS; Energy Policy Act 2005; International Building Code (IBC); LEED; National Building Code of Canada
life safety	compartmentalization: fire separation and smoke containment; detection; devices that alert occupants including smoke/heat detectors and alarm systems; egress plan; fire and life safety; fire protection systems; life safety and code requirements; fire separation; movement: access to the means of egress including stairwells, corridors, exitways, egress; suppression: devices used to extinguish flames including sprinklers, standpipes, fire hose cabinets, extinguishers
regulations and ordinances	industry-specific regulations; regulations; regulations for education projects including daycare; regulations for government projects; regulations governing work in historic districts or on historic properties
researching life safety and code requirements, project type location, and access	permit requirements; searching and documenting codes, regulations, and ordinances; variances for particular requirements

Table 3.10. Products and Materials Category with KAs and Abstract Knowledge.

<b>Products and Materials Category (8 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
building materials and finishes	finish materials; maintenance requirements; materials; materials and finish selection; materials and products; material selection; selection, specification, use, and care of interior finishes, materials, and lighting
custom work	architectural woodwork; custom cabinetry, furniture, and millwork; details; detailing of custom cabinetry, furniture, and millwork; fabrication and installation methods; product assembly; product development; production time
floor, wall, and ceiling systems	ceiling treatments; floor coverings; wall treatments; window treatments
furniture, fixtures, equipment, and finish materials	furniture, fixtures, and equipment (selection; furnishing and textile selection; textiles; flammability); select and specify furniture, fixtures, equipment, and finish materials; selection of furnishings, textiles, materials, finishes, and colors
installation	installation scheduling; furniture delivery; schedules for installation of furniture, fixtures, and equipment; scheduling; installation supervision; supervising the installation of furniture, fixtures and equipment
interface of furniture with distribution and construction systems	integration with building systems and construction
performance criteria	quality control; quality control and performance; select and apply appropriate materials and products on the basis of their properties and performance criteria, including environmental attributes and life cycle cost; technical knowledge
selection and application of products and systems impact indoor air quality	Toxicity

Table 3.11. Professional Practice: Principles, Methods, and Tools Category with KAs and Abstract Knowledge.

<b>Professional Practice Category (14 KAs)</b>	
<b>Knowledge Areas (KAs)</b>	<b>Abstract Knowledge</b>
budgeting and estimating costs	budget; budgeting; budget control; budgeting of time; budgeting principles and practices; control of expenses; cost estimating; preliminary budget and cost; time and fee estimation/proposals; use of manpower; use of resources; value engineering
business development	bringing in new clients; market sectors and client types; marketing the services of the firm; marketing tools; public image; public relations; public speaking
business practice	business and organizational structures; business licenses required by local jurisdictions; human relations; lease requirements; legal considerations (e.g., liabilities and forms of business); maintaining an efficient and effective practice; organization, structure, and goals; sole proprietor, partnerships; strategic planning (internal); types of design practices
consultations with consultants	specialized consultants including: acoustical consultants; audiovisual consultants; architects; contractors/construction managers; decorators; developers; electrical, structural mechanical, civil engineers; food service consultants; graphics/signage designer; landscape architects; leasing agents; lighting consultants; lighting, electrical, plumbing, and HVAC consultants; real estate professionals
contributions of interior design to contemporary society	community service; contemporary issues affecting interior design; public and community service; value of interior designers' contribution to the built environment
ethical and accepted standards of practice	leadership; practice of interior design; professional ethics; professionalism; professional practice; professional values
financial management	accounting principles; accounting; billing and design compensation; contract fee systems; fee for services/fee systems; financial aspects; financial limitations; income; methods of compensation; payouts
legal aspects of the contracts	awarding of contracts; contracts between clients and designers; contract negotiation; contracts with consultants and sub-consultants; prepayment requirements
legal recognition for the profession	certification; professional licensure; registration
liabilities	errors and omissions insurance; insurance contracts; insurance coverage; insurance issues; insurance; legal responsibility for all documents and drawings; professional exposure and liability
multi-disciplinary collaboration	determine other disciplines/specialized skills needed; good relations with contractors and suppliers; integrated design practice; integration of disciplines; integration of the work of consultants; interaction with multiple disciplines; multi-disciplinary team projects; team work structures and dynamics; team work
office procedures and regulations	office management; office procedures and technology; operating a design business; operations
professional development	professional organizations; professional activities; life-long learning; continuing education
project management	bidding process; bidding; close-out procedures; coordinate the tasks and scheduling; coordination of program requirements with consultants; determine scope of work; job observation; on-site observation; project accounting; project budget/budget review/progress and tracking; project budget; project budgeting/tracking during design phases; project coordination procedures and the roles of related design professionals; project coordination; project management of consultants; project management, project communication, and project delivery methods; project meetings/meeting management/meeting protocol; project planning; project schedule/schedule review/progress and tracking; project size and scope; scheduling; site visits

### Summary

The abstract knowledge and KAs identified by the raters were organized into categories, thus becoming the 2010 BOK. There are six categories, which bear somewhat modified names from the 2005 study, due to the increased specificity of the abstract knowledge identified in the current study.

The purpose of updating the BOK was to identify the current KAs so they could be used in an empirical study to determine the level of contribution each KA makes to people's HSW through the practice of interior design. Therefore, weighting of the KAs did not occur. The content analysis of abstract knowledge provided the researchers with the content for the practitioner survey conducted to accomplish the next goal, Goal 5. In that way, it was critical to determining the current BOK, but that is the extent of the importance of the content analysis.

One other way to compare the previous studies (2001, 2005) with this one is to simply identify abstract knowledge that was not in evidence in previous studies. For example, sustainable design in 2005 was weighted a very low abstract knowledge. In this study, however, sustainable design abstract knowledge related to sustainability and the environment was found many times and inherently was included in several categories. This level of analysis shows two things. First, that abstract knowledge does change over time so the profession is updating, developing, and responding to societal needs. Second, it shows the value of the previous studies wherein the profession was concerned that certain abstract knowledge was not in evidence. Between the 2005 study and this one, changes have been made to the source documents and thereby to education curriculum, experience requirements, and examination content. These changes reflect the impact, importance, and fluidity of a BOK that documents a point-in-time.

### References for Goal 4: Results of Updating the BOK

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### Goal 5: Results of Examining the Relationship of HSW to the Interior Design BOK

A survey of interior design practitioners was conducted to identify their perceptions of the contribution each KA made to “health,” “safety,” and “welfare.” A questionnaire was developed and sent to 10,040 interior design practitioners who are NCIDQ certificate holders in Canada and the United States. The response rate was 17% (N=1578). The method for conducting this part of the study was fully discussed in *Section 2. Method*. Results of this survey follow.

#### Descriptive Analysis Results

All respondents were asked to rate KAs on their contributions to health, safety, and welfare, independently. That is, they assigned a score or rating to each KA for each term; one score for health, a second score for safety, and a third score for welfare. They rated the extent of contribution on a scale of 1-7 where “1” meant “no contribution” and “7” meant “extensive contribution.”

Descriptive analyses were completed and are given here in the form of a mean score and standard deviation (SD) of all respondents to one KA for each term. The mean is a calculated average of all responses for each question. The SD is the calculated measure of the dispersion of responses around the mean, i.e., the smaller the SD, the closer all responses were to the mean, exhibiting a smaller, i.e., tighter, range of responses.

It also is helpful for the reader to be able to attach meaning to contribution mean scores. Table 3.12 shows an interpretation of the mean ranges. The 1–7 point scale was divided into equal 1.2 point intervals, with each interval assigned a meaning by the researchers.

Table 3.12 Interpretation of Mean Range.

Mean Range	Level of Contribution to HSW
1.00 - 2.2	No contribution
2.21 - 3.4	Minimal contribution
3.41 - 4.6	Moderate contribution
4.61 - 5.8	Substantial contribution
5.81 - 7.0	Extensive contribution

For example, if the mean response from all respondents was 4.1, the interpretation would be “moderate contribution.” Interior designers were not given these interpretations; they responded only to the number range. These meanings are given in this report to assist readers in interpreting the results. Also, the selection of intervals and interpretation of meaning

were completed by the researchers after the survey was completed and prior to reviewing any results.

### Overall Contribution of BOK Categories to HSW

The first results discussed are the contribution level of each BOK category to HSW. The Human Environment Needs Category was found to have the highest contribution level of all categories to health and welfare. It also had the highest grand mean, which implies it contributes the most of all categories to HSW, combined (see Table 3.13). The grand mean is the average of all means for each term and is calculated by averaging the means of responses for each term. It does not reflect a question asked of respondents; it is an analysis tool that helps describe responses.

Table 3.13 Contributions of Interior Design BOK Categories to HSW.

Category		Health	Safety	Welfare	Grand Mean
Human Environment Needs: Research and Application Category	Mean	5.85	5.38	5.84	5.69
	SD	1.28	1.45	1.21	1.31
Interior Construction, Codes, and Regulations	Mean	5.52	5.92	5.42	5.62
	SD	1.49	1.37	1.47	1.44
Products and Materials: Evaluation, Installation, Specifications, and Inspection	Mean	5.59	5.79	5.32	5.57
	SD	1.47	1.34	1.47	1.43
Design Theory and Process	Mean	4.85	4.47	5.09	4.80
	SD	1.36	1.44	1.39	1.40
Communication	Mean	4.32	4.44	5.22	4.66
	SD	1.87	1.91	1.68	1.82
Professional Practice: Principles, Methods, and Tools Category	Mean	3.86	3.90	4.86	4.21
	SD	1.59	1.56	1.47	1.54
Total	Grand Mean	5.00	4.98	5.29	5.09
	SD	1.05	1.03	1.08	1.05

There is a tight range of grand means among the top three categories relative to the highest contributions to HSW: Human Environment Needs Category at 5.69; Interior Construction, Codes, and Regulations Category at 5.62; and the Products and Materials Category at 5.57. Both the Design Theory and Process Category (grand mean of 4.80) and the Communication Category (grand mean of 4.66) contribute at the substantial level.

The means for the Human Environment Needs Category are at the extensive contribution level for health (5.85) and welfare (5.84) and the substantial contribution level for safety (5.38). The Interior Construction, Codes, and Regulation Category contributes the most of

all categories to safety, which is also at the extensive (5.92) level. The Professional Practice Category contributes the least of all categories to HSW, independently, as well as to HSW combined. However, the KAs in this category still contribute at the moderate level for health (3.86) and safety (3.90) and at the substantial level for welfare (4.86). All categories, except Professional Practice are perceived as contributing substantially to the BOK.

Also shown in Table 3.13, the grand mean of all categories (reading down the columns) of the BOK contribute at the substantial level to health (5.0), safety (4.98), and welfare (5.29). Moreover, it is interesting to note that KA categories' contributions to welfare (5.29) are higher than health and safety.

The category contributing most to HSW combined, and highest in contribution to both health and welfare independently, is Human Environment Needs. It contains KAs that are the heart of interior design practice. KAs such as universal design; human factors; occupant well-being; lighting, acoustics, thermal comfort and IAQ; and human behavior theories directly impact people's health by application of knowledge that prevents disease or pain and enhances people's emotional and spiritual well-being.

The Interior Construction, Codes, and Regulations Category contributes the most of any category to safety. KAs in this category include code requirements, laws, and standards; life safety; and interior and building construction. These KAs directly protect people from physical hazards within an environment.

The Products and Materials Category also contributes at the substantial level across HSW. Abstract knowledge such as building materials and finishes; performance criteria; and selection and application of products and systems impact indoor air quality are representative of the importance of this category's KAs.

The Communication Category contributes at the substantial level to welfare, which is higher than its contribution to health or safety. The Professional Practice Category contributes at the moderate level (grand mean of 4.21) to overall HSW. The category has lower means than other categories but still contributes at the substantial level to welfare, which reflects the category's KAs of legal, ethical, financial, and business operations issues. These KAs focus on the internal factors of practice that directly affect people's financial stability and success.

### Inter-Relationship of Categories

To better understand the inter-relationship among the six BOK categories, inter-category and category-total correlation analyses were conducted (see Table 3.14). The findings show that all six categories are significantly ( $p < .001$ ) related to one another.

Table 3.14 Inter-Relationship of Categories.

	Communication	Design Theory and Process	Human Environment Needs	Interior Construction, Codes, and Regulations	Products and Materials	Professional Practice
Communication	--					
Design Theory and Process	.53*	--				
Human Environment Needs	.42*	.41*	--			
Interior Construction, Codes, and Regulations	.46*	.44*	.48*	--		
Products and Materials	.47*	.50*	.49*	.68*	--	
Professional Practice	.48*	.67*	.30*	.42*	.41*	--
Total	.62*	.68*	.54*	.64*	.67*	.59*

\* $p < .001$ .

The Human Environment Needs Category has the smallest item-total correlation coefficient ( $\gamma = .54$ ) of all categories. This finding indicates that the Human Environment Needs Category is not highly related to the rest of BOK categories, and it is least related to the Professional Practice Category ( $\gamma = .30$ ). Its relationship to the other BOK categories may seem contrary to the previous finding that the Human Environment Needs Category had the highest grand mean relative to HSW, combined. However, this also may indicate that this category truly stands alone in level of contribution to the BOK as a whole. Its more distant relationship to Professional Practice can be understood as this category is about business and the profession, i.e., KAs internal to the profession. All other categories are closely clustered to one another, indicating stronger relationships. The Design Theory and Process Category is found to be most highly correlated to all other categories, followed by the Products and Materials Category. As this study focuses on the interior design profession's BOK, it is interesting to explore these category-to-category relationships in context of the concept of parts equaling a whole, i.e., a BOK.

### Contributions of KAs to HSW

#### *Contribution of all KAs to Health*

Next, the contribution level of each KA, independent of category, was analyzed relative to HSW (see Table 3.15). Descriptive analysis shows that “selection and application of products/systems and their impact indoor air quality” is the KA that contributes most to health at the extensive level (6.63), whereas “business development [e.g., marketing services of the firm]” is the KA that contributes least to health at the minimal level (2.54). Overall, respondents found that 15 (23%) KAs contribute to health at the extensive level and are disbursed across all categories except Communication and Professional Practice. Twenty-eight (43%) KAs contribute to health at the substantial level, and 17 (26%) KAs contribute to health at the moderate level. Only five KAs (8%) contribute to health at the minimal level; four of these KAs are in the Professional Practice Category and one is in the Communication Category.

Table 3.15 Contribution of all KAs to Health.

	<b>KAs to Health (by Rank Order)</b>	<b>Mean</b>	<b>SD</b>
<b>Extensive (15 KAs; 23%)</b>	Selection and application of products/systems and their impact indoor air quality	6.63	0.81
	Universal design [e.g., design for all people]	6.62	0.76
	Code requirements, laws, standards, regulations, accessibility, and sustainability	6.60	0.91
	Human factors [anthropometrics, ergonomics, proxemics, physiological responses]	6.51	0.91
	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.50	0.93
	Life safety [e.g., fire, egress]	6.48	1.04
	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	6.40	0.95
	Lighting, acoustics, thermal comfort, and indoor air quality principles	6.38	0.95
	Building materials and finishes	6.37	0.98
	Furniture, fixtures, equipment, and finish materials	6.23	1.12
	Natural and electrical lighting design principles	6.05	1.09
	Laws, codes, standards, and guidelines that impact the design of interior spaces	5.99	1.27
	Calculations [e.g. footcandles, energy efficiency, codes, lease requirements]	5.92	1.38
	Floor, wall, and ceiling systems	5.89	1.24
	Performance criteria [e.g., materials and products, attributes, life cycle cost]	5.85	1.26
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Table 3.15 Contribution of all KAs to Health (Continued).

	<b>KAs to Health (by Rank Order) CONTINUED</b>	<b>Mean</b>	<b>SD</b>
<b>Substantial (28 KAs; 43%)</b>	Theories about the relationship between human behavior and the designed environment	5.80	1.29
	Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.79	1.42
	Researching life safety and code requirements, project type location, and access	5.66	1.46
	Regulations and ordinances [e.g., industry specific regulations]	5.56	1.57
	Color and light principles and theories	5.54	1.38
	Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	5.53	1.66
	Consultations with consultants	5.44	1.51
	Sustainability concepts, principles, and theories	5.40	1.40
	Wayfinding	5.36	1.55
	Evidence-based design	5.33	1.42
	Critical listening	5.31	1.47
	Construction documents	5.27	1.66
	Building construction [e.g., construction types, building methods, standards]	5.22	1.50
	Ecological, socio-economic, and cultural contexts	5.20	1.53
	Interior construction [e.g., non-structural systems, sequencing of work]	5.07	1.55
	Evaluating existing premises [e.g., site, existing conditions, space, furnishings]	4.99	1.56
	Acoustical design principles	4.98	1.51
	Interface of furniture with distribution and construction systems	4.98	1.58
	Post-occupancy evaluation	4.97	1.51
	Business, organizational, and familial structures	4.95	1.37
	Space planning	4.90	1.57
	Creative thinking	4.86	1.47
	Custom work [e.g., cabinetry, furniture, millwork, details]	4.81	1.59
	Professional development	4.78	1.65
	Multi-disciplinary collaborations	4.74	1.69
	Principles of thermal design	4.74	1.62
	Communication [e.g., consensus building, collaboration, facilitation/negotiation]	4.72	1.71
	Color principles, theories, and systems	4.66	1.52
<b>Moderate (17 KAs; 26%)</b>	Problem solving [e.g., creative, critical thinking, strategic planning]	4.58	1.64
	Globalization [e.g., global context for design, practice within a world market]	4.52	1.60
	Installation [e.g., scheduling, supervision]	4.49	1.87
	Ethical and accepted standards of practice	4.36	1.68
	Contributions of interior design to contemporary society	4.25	1.51
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Table 3.15 Contribution of all KAs to Health (Continued).

	<b>KAs to Health (by Rank Order) CONTINUED</b>	<b>Mean</b>	<b>SD</b>
<b>Moderate (17 KAs; 26%) (CONTINUED)</b>	Critical path	4.14	1.73
	Legal recognition for the profession [e.g., licensure, certification, registration]	4.10	2.15
	Design theory [e.g., theories of two- and three- dimensional design]	4.00	1.78
	Budgeting and estimating costs	3.89	1.79
	Design concept	3.67	1.77
	Project management	3.66	1.80
	Sketching [e.g., ideation, preliminary drawings]	3.60	1.74
	Visual, written, and verbal design communication methods and techniques	3.56	1.86
	Presentation(s) [e.g., oral, written, graphic]	3.54	1.79
	Liabilities [e.g., legal responsibility, insurance]	3.52	1.89
	Historical precedent to inform design solutions	3.46	1.65
Office procedures and regulations	3.45	1.65	
<b>Minimal (5 KAs; 8%)</b>	Written forms of agreement [e.g., proposals, contract, change orders]	3.23	1.85
	Legal aspects of contracts	3.13	1.79
	Business practice	2.97	1.68
	Financial management	2.93	1.77
	Business development [e.g., marketing services of the firm]	2.54	1.61

These findings reflect the idea that four categories: Design Theory and Process; Human Environment Needs; Interior Construction, Codes, and Regulations; and Products and Materials contain KAs that are the inputs and outcomes of interior design practice. For example, interior design practitioners are known for their knowledge of products and materials to protect people's HSW; their application of codes and regulations to specify and design; and their knowledge of human behavior to understand for whom they design. The other two categories, Communication and Professional Practice, are the business operations and processes by which design practice is expressed and accomplished, which are more internally focused.

### *Contribution of all KAs to Safety*

Descriptive analysis, as shown in Table 3.16, indicates that "life safety [e.g., fire, egress]" is the KA that contributes most to safety at the extensive level (6.76), whereas "business development [e.g., marketing services of the firm]" is the KA that contributes least to safety at the minimal level (2.39). Overall, respondents found that 19 (29%) KAs contribute to safety at the extensive level and are distributed across all categories except Professional Practice. Eighteen (28%) KAs contribute to safety at the substantial level, and 21 (32%) KAs at the moderate level. Only 7 KAs (11%) contribute to safety at the minimal level; five of the seven of these KAs fall into the Professional Practice Category.

Table 3.16 Contribution of all KAs to Safety.

	KAs to Safety (by Rank)	Mean	SD
Extensive (19 KAs; 29%)	Life safety [e.g., fire, egress]	6.76	0.70
	Code requirements, laws, standards, regulations, accessibility, and sustainability	6.73	0.69
	Universal design [e.g., design for all people]	6.48	0.91
	Laws, codes, standards, and guidelines that impact the design of interior spaces	6.44	0.96
	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.37	0.95
	Wayfinding	6.35	0.98
	Furniture, fixtures, equipment, and finish materials	6.33	0.95
	Calculations (e.g., footcandles, energy efficiency, codes, lease requirements)	6.30	1.08
	Building materials and finishes	6.29	0.99
	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	6.18	1.11
	Regulations and ordinances [e.g., industry-specific regulations]	6.18	1.21
	Researching life safety and code requirements, project type location, and access	6.15	1.14
	Building construction [e.g., construction types, building methods, standards]	6.05	1.25
	Construction documents	6.04	1.28
	Performance criteria [e.g., materials and products, attributes, life cycle cost]	6.04	1.20
	Human factors [anthropometrics, ergonomics, proxemics, physiological responses]	6.00	1.29
	Floor, wall, and ceiling systems	5.99	1.24
	Selection and application of products and systems impact indoor air quality	5.98	1.39
	Interior construction [e.g., non-structural systems, sequencing of work]	5.85	1.37
Substantial (18 KAs; 28%)	Consultations with consultants	5.73	1.36
	Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.60	1.35
	Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	5.57	1.58
	Lighting, acoustics, thermal comfort, and indoor air quality principles	5.51	1.47
	Interface of furniture with distribution and construction systems	5.45	1.46
	Natural and electrical lighting design principles	5.38	1.45
	Custom work [e.g., cabinetry, furniture, millwork, details]	5.36	1.48
	Evaluating existing premises [e.g., site, existing conditions, space, furnishings]	5.25	1.49
	Space planning	5.21	1.49
	Theories about the relationship between human behavior and the designed environment	5.14	1.50
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Table 3.16 Contribution of all KAs to Safety (Continued).

	KAs to Safety (by Rank)	Mean	SD
<b>Substantial (18 KAs; 28%) CONTINUED</b>	Critical listening	5.09	1.60
	Evidence-based design	5.08	1.47
	Installation [e.g., scheduling, supervision]	5.06	1.69
	Multi-disciplinary collaboration	4.96	1.71
	Post-occupancy evaluation	4.81	1.59
	Color and light principles and theories	4.80	1.49
	Professional development	4.76	1.71
	Legal recognition for the profession [e.g., licensure, certification, registration]	4.71	2.00
<b>Moderate (21 KAs; 32%)</b>	Communication [e.g., consensus building, collaboration, facilitation/negotiation]	4.52	1.79
	Problem solving [e.g., creative, critical thinking, strategic planning]	4.49	1.74
	Business, organizational, and familial structures	4.44	1.58
	Liabilities [e.g., legal responsibility, insurance]	4.40	1.94
	Ecological, socio-economic, and cultural contexts	4.33	1.67
	Sustainability concepts, principles, and theories	4.33	1.65
	Ethical and accepted standards of practice	4.31	1.76
	Critical path	4.27	1.70
	Globalization [e.g., global context for design, practice within a world market]	4.13	1.65
	Acoustical design principles	4.08	1.76
	Contributions of interior design to contemporary society	4.08	1.70
	Visual, written, and verbal design communication methods and techniques	4.07	1.87
	Creative thinking	4.06	1.69
	Project management	4.02	1.84
	Written form of agreement [e.g., proposals, contracts, change orders]	3.98	1.83
	Color principles, theories, and systems	3.90	1.72
	Principles of thermal design	3.83	1.79
	Sketching [e.g., ideation, preliminary drawings]	3.81	1.74
	Design theory [e.g., theories of two- and three- dimensional design]	3.76	1.83
	Design concept	3.71	1.74
Budgeting and estimating costs	3.51	1.63	
<b>Minimal (7 KAs; 11%)</b>	Legal aspects of contracts	3.38	1.85
	Office procedures and regulations	3.38	1.70
	Business practice	3.32	1.75
	Presentation(s) [e.g., oral, written, graphic]	3.17	1.85
	Historical precedent to inform design solutions	3.11	1.63
	Financial management	2.48	1.57
	Business development [e.g., marketing services of the firm]	2.39	1.54

There are nine KAs that contribute extensively to safety from the Interior Construction, Codes, and Regulations Category and five from the Products and Materials Category. There is a greater number of KAs that contribute at the extensive level to safety (19 KAs) versus health (15 KAs), which are contained in the Interior Construction, Codes, and Regulations Category.

Nine of the 19 KAs are in this category, confirming the importance of these KAs to safety by interior design practitioners.

### *Contribution of all KAs to Welfare*

Descriptive analysis, as shown in Table 3.17, indicates that “universal design [e.g., design for all people]” and “occupant well-being and performance [e.g., physical, cognitive, emotional]” are the KAs that contribute most to welfare at the extensive level (6.27), whereas “business development [e.g., marketing services of the firm]” is the KA that contributes least to welfare at the moderate level (3.66). Overall, respondents found that 11 (17%) KAs contribute to welfare at the extensive level and are distributed across all categories except Professional Practice. The majority of KAs, 46 (71%), contribute to welfare at the substantial level. This is the highest number of KAs at this extensive level in any category for any of the three terms (HSW). At the moderate level, 8 (12%) KAs are from three categories: Communication; Design Theory and Process; and Professional Practice.

Table 3.17 Contribution of all KAs to Welfare.

	Welfare (by Rank)	Mean	SD
Extensive (11 KAs; 17%)	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.27	1.00
	Universal design [e.g., design for all people]	6.27	1.07
	Human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]	6.14	1.13
	Lighting, acoustics, thermal comfort, and indoor air quality principles	6.05	1.16
	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	5.98	1.21
	Code requirements, laws, standards, regulations, accessibility, and sustainability	5.94	1.31
	Selection and application of products and systems impact indoor air quality	5.91	1.31
	Communication [e.g., consensus building, collaboration, facilitation/negotiation]	5.89	1.28
	Critical listening	5.89	1.28
	Natural and electrical lighting design principles	5.89	1.22
	Theories about the relationship between human behavior and the designed environment	5.89	1.27
Substantial (46 KAs; 71%)	Performance criteria [e.g., materials and products, attributes, life cycle cost]	5.78	1.29
	Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.77	1.28
	Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	5.74	1.42
	Ecological, socio-economic, and cultural contexts	5.72	1.38
	Life safety [e.g., fire, egress]	5.71	1.49
	Building materials and finishes	5.67	1.44
	Furniture, fixtures, equipment, and finish materials	5.66	1.36
	Laws, codes, standards, and guidelines that impact the design of interior spaces	5.64	1.49
	Color and light principles and theories	5.59	1.33
	Regulations and ordinances [e.g., industry-specific regulations]	5.56	1.50
	Space planning	5.55	1.38
	Consultations with consultants	5.50	1.34
	Researching life safety and code requirements, project type location, and access	5.46	1.46
	Business, organizational, and familial structures	5.44	1.39
	Wayfinding	5.44	1.46
	Ethical and accepted standards of practice	5.43	1.42
	Sustainability concepts, principles, and theories	5.42	1.37
Post-occupancy evaluation	5.37	1.37	
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Table 3.17 Contribution of all KAs to Welfare (Continued).

	<b>Welfare (by Rank) CONTINUED</b>	<b>Mean</b>	<b>SD</b>
<b>Substantial (46 KAs; 71%) CONTINUED</b>	Problem solving [e.g., creative, critical thinking, strategic planning]	5.36	1.55
	Calculations (e.g., footcandles, energy efficiency, codes, lease requirements)	5.34	1.56
	Evidence-based design	5.34	1.36
	Interior construction [e.g., non-structural systems, sequencing of work]	5.34	1.53
	Building construction [e.g., construction types, building methods, standards]	5.27	1.57
	Written form of agreement [e.g., proposals, contracts, change orders]	5.26	1.72
	Evaluating existing premises [e.g., site, existing conditions, space, furnishings]	5.25	1.47
	Multi-disciplinary collaboration	5.25	1.51
	Construction documents	5.24	1.59
	Budgeting and estimating costs	5.23	1.60
	Creative thinking	5.21	1.49
	Floor, wall, and ceiling systems	5.19	1.54
	Project management	5.19	1.71
	Legal aspects of contracts	5.18	1.67
	Interface of furniture with distribution and construction systems	5.17	1.58
	Visual, written, and verbal design communication methods and techniques	5.15	1.73
	Acoustical design principles	5.11	1.54
	Color principles, theories, and systems	5.06	1.61
	Liabilities [e.g., legal responsibility, insurance]	5.06	1.77
	Legal recognition for the profession [e.g., licensure, certification, registration]	5.03	1.88
	Globalization [e.g., global context for design, practice within a world market]	4.85	1.55
	Custom work [e.g., cabinetry, furniture, millwork, details]	4.80	1.64
	Contributions of interior design to contemporary society	4.79	1.60
	Installation [e.g., scheduling, supervision]	4.75	1.58
	Professional development	4.73	1.57
	Critical path	4.72	1.65
Design theory [e.g., theories of two- and three- dimensional design]	4.72	1.78	
Business practice	4.63	1.81	
<b>Moderate (8 KAs; 12%)</b>	Financial management	4.50	1.91
	Sketching [e.g., ideation, preliminary drawings]	4.49	1.80
	Presentation(s) [e.g., oral, written, graphic]	4.47	1.82
	Historical precedent to inform design solutions	4.44	1.76
	Design concept	4.35	1.65
	Principles of thermal design	4.34	1.77
	Office procedures and regulations	4.29	1.68
	Business development [e.g., marketing services of the firm]	3.66	1.93

All of the 65 KAs are distributed among the three highest levels of contribution, that is, KAs in the BOK contribute to welfare at the extensive, substantial, and moderate level. None are at the lower levels of minimal or no contribution, unlike contributions by KAs to health (5 KAs, 8%, at the minimal level) or safety (7 KAs, 11%, at the minimal level). Five of eleven KAs that contribute extensively to welfare are from the Human Environment Needs Category. The four highest contributors are from this category confirming the importance of KAs such as “universal design [e.g., design for all people],” “occupant well-being and performance [e.g., physical, cognitive, emotional],” and “human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]” to protecting people’s welfare.

### **Comparison of KAs Within Categories as They Relate to HSW**

The following segment of findings from descriptive analysis reports the contributions of KAs to HSW within the six categories. Category results are being reported in the order of the KAs’ contributions, highest grand mean to lowest: Human Environment Needs (5.69); Interior Construction, Codes, and Regulations (5.62); Products and Materials (5.57); Design Theory and Process (4.80); Communication (4.66); and Professional Practice (4.21). For a review of these categories’ means as an indication of their contributions to HSW see Table 3.13 earlier in this section.

#### ***Human Environment Needs Category***

Overall, of the 10 KAs within the Human Environment Needs Category, nine of 10 KAs contribute to health at the extensive (4 KAs) or substantial level (5 KAs); seven of 10 KAs contribute to safety at the extensive (3 KAs) or substantial level (4 KAs); and all KAs contribute to welfare at either the extensive (5 KAs) or substantial (5 KAs) levels. In the Human Environment Needs Category (see Table 3.18), “universal design [e.g., design for all people]” is the highest contributor to HSW. This KA includes abstract knowledge such as universal/accessible design and design for people with special needs – physical, cognitive, or emotional.

Table 3.18 Human Environment Needs Category Across HSW.

<b>Health</b>	Mean	SD	<b>Safety</b>	Mean	SD	<b>Welfare</b>	Mean	SD
Universal design [e.g., design for all people]	6.62	0.76	Universal design [e.g., design for all people]	6.48	0.91	Universal design [e.g., design for all people]	6.27	1.07
Human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]	6.51	0.91	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.37	0.95	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.27	1.00
Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.50	0.93	Human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]	6.00	1.29	Human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]	6.14	1.13
Lighting, acoustics, thermal comfort, and indoor air quality principles	6.38	0.95	Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.60	1.35	Lighting, acoustics, thermal comfort, and indoor air quality principles	6.05	1.16
Theories about the relationship between human behavior and the designed environment	5.80	1.29	Lighting, acoustics, thermal comfort, and indoor air quality principles	5.51	1.47	Theories about the relationship between human behavior and the designed environment	5.89	1.27
Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.79	1.42	Theories about the relationship between human behavior and the designed environment	5.14	1.50	Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.77	1.28
Ecological, socio-economic, and cultural contexts	5.20	1.53	Post-occupancy evaluation	4.81	1.59	Ecological, socio-economic, and cultural contexts	5.72	1.38
Post-occupancy evaluation	4.97	1.51	Business, organizational, and familial structures	4.44	1.58	Business, organizational, and familial structures	5.44	1.39
Business, organizational, and familial structures	4.95	1.37	Ecological, socio-economic, and cultural contexts	4.33	1.67	Post-occupancy evaluation	5.37	1.37
Globalization [e.g., global context for design, practice within a world market]	4.52	1.60	Globalization [e.g., global context for design, practice within a world market]	4.13	1.65	Globalization [e.g., global context for design, practice within a world market]	4.85	1.55

“Occupant well-being and performance [e.g., physical, cognitive, emotional]” is the second highest KA contributor to safety and welfare and the third highest contributor to health.

This KA includes abstract knowledge for HSW. “Human factors [anthropometrics, ergonomics, proxemics, physiological responses]” is the second highest KA contributor to health and the third highest contributor to safety and welfare. This KA is often considered foundational to interior design practice. It is interesting to note that these contribution rankings are separated by a small mean range (6.00-6.48), indicating that the KAs all contribute at a similar (and high) level.

“Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]” is ranked at the top range of substantial contributions across all three terms: health (5.79), safety (5.60), and welfare (5.77) in terms of contributions of KAs in this category. Also, “globalization [e.g., global context for design, practice within a world market]” is at the lowest level of contribution to health (4.52), safety (4.13), and welfare (4.85) among all KAs within this category; however, it should be noted that these means represent the moderate level of contribution to health and safety and a substantial level of contribution to welfare. None of the KAs within this category are at the minimum level of contribution and only four of 10 KAs are at the moderate level of contribution.

### *Interior Construction, Codes, and Regulations Category*

As was noted previously, the KAs of the Human Environment Needs Category contribute to HSW at the highest level of all categories (grand mean of 5.69). However, though the Interior Construction, Codes, and Regulations Category presents the second highest contribution to HSW (grand mean of 5.62), its KAs contributions to safety are the highest among all categories (mean of 5.92), as shown in Table 3.19.

Table 3.19 Interior Construction, Codes, and Regulations Across HSW

<b>Health</b>	Mean	SD	<b>Safety</b>	Mean	SD	<b>Welfare</b>	Mean	SD
Code requirements, laws, standards, regulations, accessibility, and sustainability	6.60	0.91	Life safety [e.g., fire, egress]	6.76	0.70	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	5.98	1.21
Life safety [e.g., fire, egress]	6.48	1.04	Code requirements, laws, standards, regulations, accessibility, and sustainability	6.73	0.69	Code requirements, laws, standards, regulations, accessibility, and sustainability	5.94	1.31
Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	6.40	0.95	Laws, codes, standards, and guidelines that impact the design of interior spaces	6.44	0.96	Life safety [e.g., fire, egress]	5.71	1.49
Laws, codes, standards, and guidelines that impact the design of interior spaces	5.99	1.27	Calculations, i.e., foot candles requirements, energy efficiency, codes, lease requirements	6.30	1.08	Laws, codes, standards, and guidelines that impact the design of interior spaces	5.64	1.49
Calculations, i.e., foot candles requirements, energy efficiency, codes, lease requirements	5.92	1.38	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	6.18	1.11	Regulations and ordinances [e.g., industry-specific regulations]	5.56	1.50
Researching life safety and code requirements, project type location, and access	5.66	1.46	Regulations and ordinances [e.g., industry-specific regulations]	6.18	1.21	Researching life safety and code requirements, project type location, and access	5.46	1.46
Regulations and ordinances [e.g., industry-specific regulations]	5.56	1.57	Researching life safety and code requirements, project type location, and access	6.15	1.14	Interior construction	5.34	1.53
Building construction [e.g., construction types, building methods, standards]	5.22	1.50	Building construction [e.g., construction types, building methods, standards]	6.05	1.25	Calculations, i.e., foot candles requirements, energy efficiency, codes, lease requirements	5.34	1.56
Interior construction [e.g., non-structural systems, sequencing of work]	5.07	1.55	Interior construction [e.g., non-structural systems, sequencing of work]	5.85	1.37	Building construction [e.g., construction types, building methods, standards]	5.27	1.57
Critical path	4.14	1.73	Critical path	4.27	1.70	Critical path	4.72	1.65

This analysis details the contributions of this category's KAs. Overall, of the 10 KAs within the Interior Construction, Codes, and Regulations Category nine of 10 KAs contribute to health at the extensive (5 KAs) or substantial (4 KAs) level; all KAs contribute to safety at the extensive (9 KAs) or substantial (1 KAs) level; and all KAs contribute to welfare at either the extensive (2 KAs) or substantial (8 KAs) level.

In the Interior Construction, Codes, and Regulations Category, "code requirements, laws, standards, regulations, accessibility, and sustainability" is the highest KA contributor to health and the second highest contributor to both safety and welfare. This KA includes "laws, codes, standards, and guidelines that impact fire and life safety; accessibility guidelines; health codes; and energy conservation and efficiency."

"Life safety [e.g., fire, egress]" is the highest KA contributor to safety, second highest contributor to health, and third highest contributor to welfare. This KA includes critical abstract knowledge pertaining to safety including "compartmentalization for fire separation and smoke containment; access to the means of egress including stairwells, corridors, exitways; detection; and suppression devices such as sprinklers, standpipes, fire hose cabinets, and extinguishers."

"Building systems [e.g., distribution and structural systems, lighting, energy management including HVAC, safety, security, pollutant source control]" is the highest KA contributor to welfare, third highest contributor to health, and fifth highest contributor to safety. This KA includes distribution systems such as "power, mechanical, HVAC, data/voice telecommunications, and plumbing; acoustical systems; energy management; lighting; pollutant source control, filtration, ventilation; structural systems; and vertical circulation systems."

In this category, all KAs contribute to safety at the extensive level, except for "critical path," which contributes to safety at the moderate level. Also, the KAs contributing to safety are contributing at a high level; of the nine KAs at the extensive level of contribution, eight have scores ranging between 6.05-6.76—greater than any other KA's contribution to safety in the BOK.

### ***Products and Materials Category***

Overall, of the eight KAs within the Products and Materials Category, seven contribute to health at the extensive (5 KAs) or substantial (2 KAs) level; all eight KAs contribute to safety at the extensive (5 KAs) or substantial (3 KAs) level; and all eight KAs contribute to welfare at

either the extensive (1 KA) or substantial (7 KAs) level, as shown in Table 3.20.

Table 3.20. Products and Materials Category Across HSW

<b>Health</b>	Mean	SD	<b>Safety</b>	Mean	SD	<b>Welfare</b>	Mean	SD
Selection and application of products/systems and their impact indoor air quality	6.63	0.81	Furniture, fixtures, equipment, and finish materials	6.33	0.95	Selection and application of products/systems and their impact indoor air quality	5.91	1.31
Building materials and finishes	6.37	0.98	Building materials and finishes	6.29	0.99	Performance criteria [e.g., material and product attributes, life cycle cost]	5.78	1.29
Furniture, fixtures, equipment, and finish materials	6.23	1.12	Performance criteria [e.g., material and product attributes, life cycle cost]	6.04	1.20	Building materials and finishes	5.67	1.44
Floor, wall, and ceiling systems	5.89	1.24	Floor, wall, and ceiling systems	5.99	1.24	Furniture, fixtures, equipment, and finish materials	5.66	1.36
Performance criteria [e.g., material and product attributes, life cycle cost]	5.85	1.26	Selection and application of products/systems and their impact indoor air quality	5.98	1.39	Floor, wall, and ceiling systems	5.19	1.54
Interface of furniture with distribution and construction systems	4.98	1.58	Interface of furniture with distribution and construction systems	5.45	1.46	Interface of furniture with distribution and construction systems	5.17	1.58
Custom work [e.g., cabinetry, furniture, millwork, details]	4.81	1.59	Custom work [e.g., cabinetry, furniture, millwork, details]	5.36	1.48	Custom work [e.g., cabinetry, furniture, millwork, details]	4.80	1.64
Installation [e.g., scheduling, supervision]	4.49	1.87	Installation [e.g., scheduling, supervision]	5.06	1.69	Installation [e.g., scheduling, supervision]	4.75	1.58

In the Products and Materials Category, “selection and application of products/systems and their impact indoor air quality” is the highest KA contributor to health and welfare, but is fifth in level of contribution to safety. This KA includes toxicity. “Furniture, fixtures, equipment, and finish materials” is the highest KA contributor to safety, third highest contributor to health, and fourth highest contributor to welfare—but at the extensive level for safety and health and at the moderate level for welfare. This KA includes knowledge of “selection of furnishings, textiles, materials, finishes, and colors; specification of furniture, fixtures, equipment, and finish materials; and knowing their flammability.”

“Building materials and finishes” is the second highest KA contributor to health and safety and the third highest contributor to welfare, but at the extensive level for health and safety and the substantial level for welfare. This KA includes “specification of interior finishes, materials, and lighting and their maintenance requirements.” Within this category, all KAs contribute to HSW at the extensive or substantial level, except for “installation,” which contributes to health at the moderate level. This KA contributes the least to HSW in this category.

### *Design Theory and Process Category*

Overall, of the 16 KAs within the Design Theory and Process Category, which is the category with the highest number of KAs of all six categories, 12 of 16 KAs contribute to health at the extensive (1 KA) or substantial (11 KAs) level; seven of 16 KAs contribute to safety at the extensive (1 KA) or substantial (6 KAs) level; and 13 of 16 KAs contribute to welfare at either the extensive (1 KA) or substantial (12 KAs) level, as shown in Table 3.21.

Table 3.21. Design Theory and Process Category Across HSW

<b>Health</b>	Mean	SD	<b>Safety</b>	Mean	SD	<b>Welfare</b>	Mean	SD
Natural and electrical lighting design principles	6.05	1.09	Wayfinding	6.35	0.98	Natural and electrical lighting design principles	5.89	1.22
Color and light principles and theories	5.54	1.38	Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	5.57	1.58	Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	5.74	1.42
Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	5.53	1.66	Natural and electrical lighting design principles	5.38	1.45	Color and light principles and theories	5.59	1.33
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Table 3.21. Design Theory and Process Category Across HSW (Continued)

<b>Health (Cont'd)</b>	Mean	SD	<b>Safety (Cont'd)</b>	Mean	SD	<b>Welfare (Cont'd)</b>	Mean	SD
Sustainability concepts, principles, and theories	5.40	1.40	Evaluating existing premises [e.g., site, existing conditions, space, furnishings]	5.25	1.49	Space planning	5.55	1.38
Wayfinding	5.36	1.55	Space planning	5.21	1.49	Wayfinding	5.44	1.46
Evidence-based design	5.33	1.42	Evidence-based design	5.08	1.47	Sustainability concepts, principles, and theories	5.42	1.37
Evaluating existing premises [e.g., site, existing conditions, space, furnishings]	4.99	1.56	Color and light principles and theories	4.80	1.49	Problem solving [e.g., creative, critical thinking, strategic planning]	5.36	1.55
Acoustical design principles	4.98	1.51	Problem solving [e.g., creative, critical thinking, strategic planning]	4.49	1.74	Evidence-based design	5.34	1.36
Space planning	4.90	1.57	Sustainability concepts, principles, and theories	4.33	1.65	Evaluating existing premises [e.g., site, existing conditions, space, furnishings]	5.25	1.47
Creative thinking	4.86	1.47	Acoustical design principles	4.08	1.76	Creative thinking	5.21	1.49
Principles of thermal design	4.74	1.62	Creative thinking	4.06	1.69	Acoustical design principles	5.11	1.54
Color principles, theories, and systems	4.66	1.52	Color principles, theories, and systems	3.90	1.72	Color principles, theories, and systems	5.06	1.61
Problem solving [e.g., creative, critical thinking, strategic planning]	4.58	1.64	Principles of thermal design	3.83	1.79	Design theory [e.g., theories of two- and three-dimensional design]	4.72	1.78
Design theory [e.g., theories of two- and three-dimensional design]	4.00	1.78	Design theory [e.g., theories of two- and three-dimensional design]	3.76	1.83	Historical precedent to inform design solutions	4.44	1.76
Design concept	3.67	1.77	Design concept	3.71	1.74	Design concept	4.35	1.65
Historical precedent to inform design solutions	3.46	1.65	Historical precedent to inform design solutions	3.11	1.63	Principles of thermal design	4.34	1.77

In the Design Theory and Process Category, “natural and electrical lighting design principles” is the highest contributor to health and welfare and third highest contributor to safety. This KA includes knowledge of “daylighting; lighting: color, quality, sources, controls; and the selection and application of luminaires and light sources.”

“Design process [e.g., programming, schematic design, design development, contract documents, contract administration]” is the second highest contributor to safety and welfare and third highest contributor to health. This KA contains a significant amount of abstract knowledge that is the foundation of responsible design. “Wayfinding” is the highest contributor to safety and the fourth highest contributor to both health and welfare. This KA includes concepts of “signage and designing for clear exiting or functional pathways.” Finally, “color and light principles and theory” is the second highest contributor to health. It falls to seventh highest contributor to safety, and third highest contributor to welfare. However, the abstract knowledge, “color,” falls into at least three different KAs depending on the specific knowledge. Therefore, it is contributing to HSW in several ways.

### *Communication Category*

Overall, of the seven KAs within the Communication Category, two of seven KAs contribute to health at the substantial level; two of seven KAs contribute to safety at the extensive level; and five of seven KAs contribute to welfare at either the extensive (2 KAs) or substantial (3 KAs) level, as shown in Table 3.22.

Table 3.22 Communication Category Across HSW.

<b>Health</b>	Mean	SD	<b>Safety</b>	Mean	SD	<b>Welfare</b>	Mean	SD
Critical listening	5.31	1.47	Construction documents	6.04	1.28	Communication [e.g., consensus building, collaboration, facilitation/negotiation]	5.89	1.28
Construction documents	5.27	1.66	Critical listening	5.09	1.60	Critical listening	5.89	1.28
Communication [e.g., consensus building, collaboration, facilitation/negotiation]	4.72	1.71	Communication [e.g., consensus building, collaboration, facilitation/negotiation]	4.52	1.79	Written forms of agreement [e.g., proposals, contract, change orders]	5.26	1.72
Sketching [e.g., ideation, preliminary drawings]	3.60	1.74	Visual, written, and verbal design communication methods and techniques	4.07	1.87	Construction documents	5.24	1.59
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Table 3.22 Communication Category Across HSW (Continued).

<b>Health (Cont'd)</b>	Mean	SD	<b>Safety (Cont'd)</b>	Mean	SD	<b>Welfare (Cont'd)</b>	Mean	SD
Visual, written, and verbal design communication methods and techniques	3.56	1.86	Written forms of agreement [e.g., proposals, contract, change orders]	3.98	1.83	Visual, written, and verbal design communication methods and techniques	5.15	1.73
Presentation(s) [e.g., oral, written, graphic]	3.54	1.79	Sketching [e.g., ideation, preliminary drawings]	3.81	1.74	Sketching [e.g., ideation, preliminary drawings]	4.49	1.80
Written forms of agreement [e.g., proposals, contract, change orders]	3.23	1.85	Presentation(s) [e.g., oral, written, graphic]	3.17	1.85	Presentation(s) [e.g., oral, written, graphic]	4.47	1.82

In the Communication Category, “critical listening” is the highest contributor to health and second highest contributor to safety and welfare; “communication [e.g., consensus building, collaboration, facilitation/negotiation]” is the highest contributor to welfare and the third highest contributor to health and safety. “Construction documents” is the highest contributor to safety, second highest contributor to health, and the fourth highest contributor to welfare.

These findings indicate that “critical listening,” which includes the “ability to evaluate what is heard from several points of view, including but not limited to speaker credibility, logic and meaning of the message, and underlying assumptions of the message,” are very important to practice. “Construction documents” include “knowledge of coordinated drawings, schedules, and specifications; construction drawings and documents; floor plans; reflected ceiling plans; and working drawings for cabinets and furniture.” The importance of being able to communicate a design solution through appropriate drawings that demonstrate the knowledge that protects the public cannot be overstated, and is indicative of this KA’s extensive level of contribution to safety. “Communication [e.g., consensus building, collaboration, facilitation/negotiation]” as a KA within the Communication category includes such knowledge as interviewing clients and users and project team dynamics, in addition to the abstract knowledge represented by the KA.

### ***Professional Practice Category***

Overall, of the 14 KAs within the Professional Practice Category, three of 14 KAs contribute to health at the substantial level, with the majority of KAs (seven) contributing at the moderate level; four of 14 KAs contribute to safety at the substantial level, with equal numbers (5 KAs) contributing at the moderate or minimal levels. Regarding welfare, the majority (11

KAs) of the 14 KAs contribute at the substantial level, with the remainder (3 KAs) contributing at the moderate level, as shown in Table 3.23.

Table 3.23 Professional Practice Category Across HSW.

<b>Health</b>	Mean	SD	<b>Safety</b>	Mean	SD	<b>Welfare</b>	Mean	SD
Consultations with consultants	5.44	1.51	Consultations with consultants	5.73	1.36	Consultations with consultants	5.50	1.34
Professional development	4.78	1.65	Multi-disciplinary collaborations	4.96	1.71	Ethical and accepted standards of practice	5.43	1.42
Multi-disciplinary collaborations	4.74	1.69	Professional development	4.76	1.71	Multi-disciplinary collaborations	5.25	1.51
Ethical and accepted standards of practice	4.36	1.68	Legal recognition for the profession [e.g., licensure, certification, registration]	4.71	2.00	Budgeting and cost estimation	5.23	1.60
Contributions of interior design to contemporary society	4.25	1.51	Liabilities [e.g., legal responsibility, insurance]	4.40	1.94	Project management	5.19	1.71
Legal recognition for the profession [e.g., licensure, certification, registration]	4.10	2.15	Ethical and accepted standards of practice	4.31	1.76	Legal aspects of contracts	5.18	1.67
Budgeting and cost estimation	3.89	1.79	Contributions of interior design to contemporary society	4.08	1.70	Liabilities [e.g., legal responsibility, insurance]	5.06	1.77
Project management	3.66	1.80	Project management	4.02	1.84	Legal recognition for the profession [e.g., licensure, certification, registration]	5.03	1.88
Liabilities [e.g., legal responsibility, insurance]	3.52	1.89	Budgeting and cost estimation	3.51	1.63	Contributions of interior design to contemporary society	4.79	1.60
Office procedures and regulations	3.45	1.65	Office procedures and regulations	3.38	1.70	Professional development	4.73	1.57
Legal aspects of contracts	3.13	1.79	Legal aspects of contracts	3.38	1.85	Business practice	4.63	1.81
Business practice	2.97	1.68	Business practice	3.32	1.75	Financial management	4.50	1.91
Financial management	2.93	1.77	Financial management	2.48	1.57	Office procedures and regulations	4.29	1.68
Business development [e.g., marketing services of the firm]	2.54	1.61	Business development [e.g., marketing services of the firm]	2.39	1.54	Business development [e.g., marketing services of the firm]	3.66	1.93

In the Professional Practice Category, “consultation with consultants” is the highest KA contributor in all three areas of HSW, at the substantial level. Perhaps this KA contributes at the highest level as it includes all consultants in areas of design that cross over interior design practice and with whom an interior designer works depending on project scope, part of which may require knowledge outside the interior design BOK. Consultants are not limited, to but can include, acoustical and audiovisual consultants; architects; contractors/construction managers; decorators; electrical, structural mechanical, civil engineers; graphics/signage designers; and lighting, electrical, plumbing, and HVAC consultants.

“Multi-disciplinary collaboration” is the second highest KA contributor to safety and third highest contributor to health and welfare. “Ethical and accepted standards of practice” is the second highest KA contributor to welfare at the substantial level, but the fourth highest contributor to health and sixth highest contributor to safety, both at the moderate level. This KA that includes knowledge of how to determine if/when multi-disciplinary collaboration is needed. Therefore, this KA includes interaction with multiple disciplines, integration of disciplines, integrated design practice, and team work. The “ethical and accepted standards of practice” KA includes professional ethics and values and leadership.

“Professional development” is the second highest KA contributor to health and the third highest KA contributor to safety. This KA includes knowledge of and participation in professional organizations and life-long learning. It contributes to all three terms (HSW) at the substantial level, but in rank order, is lower in its contribution to welfare (10<sup>th</sup>) than either health (2<sup>nd</sup>) or safety (3<sup>rd</sup>). This could perhaps be reflecting the emphasis of continuing education requirements for health and safety and not for welfare.

Though this category includes the second highest number of KAs in the BOK, it is unique in that it contains abstract knowledge that is basically inward in its focus, which may be contributing to its grand mean (4.21), the lowest among all six categories (see Table 3.13). However, KAs contained within this category are essential to the development and maintenance of the interior design profession.

### **Statistical Analysis Results**

A series of ANOVAs was conducted to examine if there is a significant difference between demographic groups in terms of the extent of contributions of BOK categories to HSW. The demographics investigated were professional practice type, location where interior

designers lived by region, and years of practice. Significant findings are summarized in the next segment.

### Category Contribution to HSW by Professional Practice Type

Interior designers were asked to identify the type of interior design they practiced, “nearly 100% commercial,” “nearly 100% residential,” or “about an even mix of commercial and residential.” Results from these three groups, i.e., different practice types, were then tested for any differences in their responses to the contribution levels of KAs to HSW. Differences were found for health and welfare, but not for safety.

Among interior design BOK categories, there is a statistically significant mean difference in the contribution of the Interior Construction, Codes, and Regulations Category to health among the three practice types [ $F(2, 1, 575) = 3.99, p < .05$ ]. As shown in Table 3.24, the mean score for those who practiced a mix of commercial and residential interior design is significantly higher than for those who practiced residential interior design. In other words, interior designers who practice a mix of commercial and residential interior design are more likely to rate more highly the contribution of Interior Construction, Codes, and Regulations Category to health than those who practice residential design only.

Table 3.24 Interior Construction, Codes, and Regulations Category Contribution to Health by Professional Practice Types.

Category		Professional Practice Group			Post-hoc Test
		Commercial (C)	Residential (R)	Commercial & Residential (C & R)	
Interior Construction, Codes, and Regulations	Mean	5.52	5.33	5.70	C & R > R
	SD	1.53	1.44	1.37	
	N	1,055	252	271	
F (2, 1, 575) = 3.99*					

\*  $p < .05$

An explanation for this finding could be that interior designers who engage in both types must be cognizant of all codes, regulations, and standards applicable across all building types, so are more mindful of their differences. Additionally, it is unknown in which building types and interior designers are involved. For example, there are many codes, regulations, and standards that must be met by residential interior designers who are involved in the entire building design and construction, but not for those who may only be involved in furnishings,

finishes, and materials. However, despite significant differences between these practice types, all three practice type groups rated the contribution of the Interior Construction, Codes, and Regulations Category's KAs at the substantial level.

There are also statistically significant mean differences for two categories as they relate to welfare: Interior Construction, Codes, and Regulations Category [ $F(2, 1, 575) = 4.00, p < .05$ ] and Products and Materials Category [ $F(2, 1, 575) = 3.81, p < .05$ ]. As shown in Table 3.25, the mean score for those who practice a mix of commercial and residential interior design is significantly higher than the means for those who practice commercial interior design relative to their rating of the Interior Construction, Codes, and Regulations Category or the Products and Materials Category KA contributions to welfare (see Table 3.25 below).

Table 3.25 Interior Construction, Codes, and Regulations Category and Products and Materials Category Contribution to Welfare by Professional Practice Type.

Category		Professional Practice Group			Post-hoc Test
		Commercial (C)	Residential (R)	Commercial & Residential (C & R)	
Interior Construction, Codes, and Regulations	Mean	5.35	5.49	5.61	C & R > C
	SD	1.49	1.42	1.43	
	N	1,055	252	271	
F (2, 1, 575) = 4.00*					
Products and Materials	Mean	5.25	5.41	5.50	C & R > C
	SD	1.49	1.42	1.42	
	N	1,055	1,055	271	
F (2, 1, 575) = 3.81*					

\*  $p < .05$

There is no significant difference between the ratings of the contributions of the Interior Construction, Codes and Regulations Category or the Products and Materials Category KAs by interior designers who practice a mix of residential and commercial interior design as compared to those who practice residential interior design only or between those who only practice commercial interior design versus residential interior design. Though all interior designers across KAs from both categories rated their contributions at a substantial level, the results warrant further investigation. These findings might reflect the knowledge residential interior designers have of clients' needs that guide their concerns around the KAs of these categories in more intimate environments—balanced with the criticality and liability of decisions in public spaces addressed by commercial interior designers.

### BOK Category Contributions to HSW by Region

Analysis was also conducted to determine if there were any differences among interior designers' rating of the contributions of KAs to HSW based on the regions where they lived. There were differences found for HSW across specific categories.

#### *Category Contributions to Health by Region*

There is a statistically significant mean difference in the rating by interior designers of the level of contribution of the Design Theory and Process Category to health across different regions [F (4, 1, 566) = 2.47,  $p < .05$ ]. As shown in Table 3.26, interior designers practicing in Southern, Northeastern, or Western United States are more likely to highly rate the contribution of Design Theory and Process Category to health than Midwest interior designers, though all rated the contributions of the Design Theory and Process Category KAs at the substantial level. The researchers also identify this finding as one that will require further investigation.

Table 3.26 Design Theory and Practice Category Contribution to Health by Region.

Category		Region and Country					Post-hoc Test
		USA, South (S)	USA, Northeast (NE)	USA, Midwest (MW)	USA, West (W)	Canada (CAN)	
Design Theory and Process	Mean	4.89	5.00	4.69	4.93	4.74	S = NE = W > MW
	SD	1.40	1.40	1.36	1.31	1.26	
	N	528	204	361	338	140	
F (4, 1, 566) = 2.47*							

\*  $p < .05$

#### *Category Contributions to Safety by Region*

There are also statistically significant mean differences in interior designers' rating of the level of contribution to safety by the Human Environment Needs Category [F (4, 1, 566) = 2.54,  $p < .05$ ] and the Products and Materials Category [F(4, 1, 566) = 2.77,  $p < .05$ ] as show in Table 3.27, below.

Table 3.27 Human Environment Needs Category and Products and Materials Category Contribution to Safety by Region.

Category		Region and Country					Post-hoc Test
		USA, South (S)	USA, Northeast (NE)	USA, Midwest (MW)	USA, West (W)	Canada (CAN)	
Human Environment Needs	Mean	5.45	5.49	5.34	5.40	5.04	S = NE = MW = W > CAN
	SD	1.47	1.34	1.49	1.42	1.52	
	N	528	204	361	338	140	
F (4, 1, 566) = 2.54*							
Products and Materials	Mean	5.87	5.82	5.69	5.88	5.52	S = NE = MW > CAN
	SD	1.31	1.38	1.31	1.34	1.45	
	N	528	204	361	338	140	
F (4, 1, 566) = 2.54*							

\*  $p < .05$ 

Overall, Canadian interior designers are less likely to highly rate the contribution of the Human Environment Needs Category and the Products and Materials Category to safety than U.S. interior designers. However, the contribution level to safety by the Human Environment Needs Category is at the substantial level. Also, the level of the Products and Materials Category contributions to safety by interior designers in the South, Northeast, and West United States were at the extensive level, and at the substantial level for respondents in the Midwest United States and Canada. Once again, the researchers believe that additional investigation is warranted to determine the basis for these findings. It is noted here that there was no separate analyses done of the regions within Canada. This, too, can be further studied.

### *Category Contributions to Welfare by Region*

There are statistically significant mean differences in interior designers' rating of the level of contribution to welfare in three categories: Interior Construction, Codes, and Regulations [F(4, 1, 566) = 4.50,  $p < .01$ ], Products and Materials [F(4, 1, 566) = 3.09,  $p < .05$ ], and Professional Practice [F(4, 1, 566) = 3.09,  $p < .05$ ] as show in Table 3.28.

Table 3.28 Interior Construction, Codes, and Regulations Category; Products and Materials Category; and Professional Practice Category Contribution to Welfare by Region.

Category		Region and Country					Post-hoc Test
		USA, South (S)	USA, Northeast (NE)	USA, Midwest (MW)	USA, West (W)	Canada (CAN)	
Interior Construction, Codes, and Regulations	Mean	5.47	5.52	5.21	5.60	5.17	S = NE > MW >W > CAN
	SD	1.44	1.52	1.49	1.40	1.56	
	N	528	204	361	338	140	
F (4, 1, 566) = 4.50**							
Products and Materials	Mean	5.42	5.33	5.14	5.44	5.13	S = W > MW = CAN
	SD	1.42	1.52	1.50	1.48	1.43	
	N	528	204	361	338	140	
F (4, 1, 566) = 3.09*							
Professional Practice	Mean	4.98	4.83	4.74	4.96	4.59	S = W > MW = CAN
	SD	1.45	1.50	1.48	1.42	1.52	
	N	528	204	361	338	140	
F (4, 1, 566) = 3.09*							

\*  $p < .05$ , \*\*  $p < .01$

Overall, Canadian interior designers are less likely to highly rate the contribution of each of these three categories to welfare than U.S. interior designers. Ratings of the contributions of welfare within all three categories (see above) by interior designers in the South and West United States rated contributions of the Products and Materials Category and the Professional Practice Category most highly to welfare. Interior designers in the South and Northeast United States rate the Interior Construction, Codes, and Regulations Category most highly to welfare. Again, additional research is needed to determine the underlying basis for these findings.

### **BOK Category Contributions to HSW by Years of Practice**

In this study's sample, over two-thirds of the interior designers had practiced eight years or more; differences based on years of interior design practice were compared. Years of practice were examined in three ranges: "1-7 years," "8-15 years," or "16+ years." Findings relevant to HSW are discussed below.

### **Category Contributions to Health by Years of Practice**

There is a statistically significant mean difference in the rating by interior designers who have practiced less than eight years on the level of contribution by three categories to health: Communication; Design Theory and Practice; and Interior Construction, Codes, and Regulations (see Table 3.29, below). In other words, the contributions of these categories to

health are rated significantly higher by more experienced interior designers (8+ years of practice). However, relative to the Interior Construction, Codes, and Regulations Category, there is no statistically significant difference of means regarding the rating of contribution by this category to health between those interior designers with 1-7 years versus 8-15 years of practice.

Table 3.29 BOK Categories Contribution to Health by Years of Practice.

Category		Years of Practice			Post-hoc Test
		1-7 (Group 1)	8-15 (Group 2)	16+ (Group 3)	
Communication	Mean	3.97	4.36	4.46	2 = 3 > 1
	SD	1.81	1.82	1.90	
	N	351	469	758	
F(2, 1, 575) = 8.69***					
Design Theory and Process	Mean	4.51	4.92	4.97	2 = 3 > 1
	SD	1.34	1.28	1.40	
	N	351	469	758	
F(2, 1, 575) = 14.98***					
Interior Construction, Codes, and Regulations	Mean	5.37	5.49	5.61	3 > 1
	SD	1.48	1.50	1.49	
	N	351	469	758	
F(2, 1, 575) = 3.12*					

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

### Category Contributions to Safety by Years of Practice

There is a statistically significant mean difference in the rating by interior designers who have practiced more than 16 years on the level of contribution by two categories to safety: Design Theory and Process and Professional Practice (see Table 3.30, below). In other words, with more experience, interior designers' rating of the contributions of these categories to safety continues to grow.

Table 3.30 BOK Categories Contribution to Safety by Years of Practice.

Category		Years of Practice			Post-hoc Test
		1-7 (1)	8-15 (2)	16 or over (3)	
Design Theory and Process	Mean	4.13	4.42	4.65	3 > 2 > 1
	SD	1.35	1.40	1.47	
	N	351	469	758	
F(2, 1, 575) = 16.13***					
Professional Practice	Mean	3.51	3.84	4.12	3 > 2 > 1
	SD	1.51	1.52	1.58	
	N	351	469	758	
F(2, 1, 575) = 18.98***					

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

### Category Contributions to Welfare by Years of Practice

There is a statistically significant mean difference between the rating by interior designers with more than 16 years of practice and those who have practiced 1-7 years on the level of contribution of five of six categories to welfare (see Table 3.31, below). In other words, findings indicate that with more experience, interior designers' rating of the contributions of these categories to welfare increases. More specifically, the mean differences between Group 1 (those who have practiced 1-7 years) and Group 3 (interior designers with more than 16 years of practice) are statistically significant in interior designers' rating of level of contribution of each of the five categories. In those findings, Group 3 rated the level of contribution higher than Group 1. There was no significant mean difference between Group 2 and Group 3 or between Group 1 and Group 2.

Table 3.31 BOK Categories Contribution to Welfare by Years of Practice.

Category		Years of Practice			Post-hoc Test
		1-7 (1)	8-15 (2)	16 or over (3)	
Communication	Mean	5.01	5.20	5.32	3 > 1
	SD	1.74	1.61	1.68	
	N	351	469	758	
F(2, 1, 575) = 4.29*					
Design Theory and Process	Mean	4.88	5.07	5.19	3 > 1
	SD	1.39	1.33	1.40	
	N	351	469	758	
F(2, 1, 575) = 6.04**					
Interior Construction, Codes, and Regulations	Mean	5.18	5.38	5.55	3 > 1
	SD	1.50	1.39	1.49	
	N	351	469	758	
F(2, 1, 575) = 7.51**					
Products and Materials	Mean	5.15	5.30	5.41	3 > 1
	SD	1.52	1.40	1.48	
	N	351	469	758	
F(2, 1, 575) = 4.06*					
Professional Practice	Mean	4.76	4.78	4.98	3 > 1
	SD	1.48	1.44	1.48	
	N	351	469	758	
F(2, 1, 575) = 4.88**					

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Interior designers with the most years of practice rated the KAs in these categories higher. It is likely that business experience and the impact of embedded knowledge gained via practice and continuing education are contributing to these findings. Based on these results, a

closer look at KAs was warranted to determine if years of practice have any significant effect on the study results.

### **KAs Contributions to HSW as Influenced by Years of Practice**

Descriptive analysis was used to determine differences and similarities between years of practice on KA contributions to HSW. Only those KAs that were significantly different are shown. For this analysis two groups were used. Group 1 includes interior designers with 1-7 years of practice; Group 2 includes interior designers with 8 or more years of practice.

### **KAs Contributions to Health by Years of Practice**

Table 3.32 shows that Group 1 (1-7 years) and Group 2 (8 years or more) rated the contributions of the same 12 KAs to health with the highest rating, and all were at the extensive level. (For clarity, Group 1 is listed first; Group 2 KAs are not in the exact same order as their means and SDs will show. Only the KAs that are rated in the extensive level of contribution are shown.) Results indicate that the means are closely grouped. From the lowest (5.94) to the highest (6.66) mean there is less than a 0.7 point range. The highest rated 12 KAs are distributed across three categories: Interior Construction, Codes and Regulations; Products and Materials; and Human Environment Needs.

Table 3.32 KAs Contributions to Health by Years of Practice.

Category	Knowledge Area [e.g., abstract knowledge]	Less than 8 years		8 years +	
		Mean	SD	Mean	SD
Interior Construction, Codes, and Regulations	Life safety [e.g., fire, egress]	6.66	0.87	6.44	1.07
Products and Materials	Selection and application of products/systems and their impact indoor air quality	6.65	0.62	6.62	0.78
Human Environment Needs	Universal design [e.g., design for all people]	6.62	0.68	6.62	0.78
	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.58	0.71	6.47	0.98
	Human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]	6.58	0.84	6.49	0.93
Interior Construction, Codes, and Regulations	Code requirements, laws, standards, regulations, accessibility, and sustainability	6.56	0.92	6.61	0.91
	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	6.45	0.83	6.38	0.99
Products and Materials	Building materials and finishes	6.33	0.89	6.38	1.01

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Table 3.32 KAs Contributions to Health by Years of Practice (Continued).

Category	Knowledge Area [e.g., abstract knowledge] CONTINUED	Less than 8 years		8 years +	
		Mean	SD	Mean	SD
Human Environment Needs	Lighting, acoustics, thermal comfort, and indoor air quality principles	6.29	1.11	6.41	0.89
Products and Materials	Furniture, fixtures, equipment, and finish materials	6.10	1.11	6.28	1.12
Interior Construction, Codes, and Regulations	Laws, codes, standards, and guidelines that impact the design of interior spaces	6.05	1.17	5.97	1.30
Design Theory and Process	Natural and electrical lighting design principles	5.97	1.17	6.07	1.06
Interior Construction, Codes, and Regulations	Calculations, i.e., foot candle requirements, energy efficiency, codes, lease requirements	5.94	1.48	5.91	1.35
Products and Materials	Performance criteria	5.63	1.22	5.92	1.27
	Floor, wall, and ceiling systems	5.76	1.33	5.92	1.22
Human Environment Needs	Theories about the relationship between human behavior and the designed environment	5.68	1.11	5.84	1.35
	Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.64	1.52	5.83	1.39

### *KAs Contributions to Safety by Years of Practice*

Descriptive analysis of the two practice groups comparing contributions of KAs to safety is shown in Table 3.33. There are 18 KAs rated at the extensive level (5.81-7.0) by interior designers in both Group 1 and Group 2. Of these, 16 KAs are the same and their means are closely grouped. The highest rated KA contributions to safety are distributed across all six categories.

Table 3.33 KAs Contributions to Safety by Years of Practice.

Category	Knowledge Area [e.g., abstract knowledge examples]	Less than 8 years		8 years +	
		Mean	SD	Mean	SD
Interior Construction, Codes, and Regulations	Life safety [e.g., fire, egress]	6.96	0.20	6.72	0.76
	Code requirements, laws, standards, regulations, accessibility, and sustainability	6.71	0.71	6.74	0.68
	Calculations [e.g., footcandles, energy efficiency, codes, lease requirements]	6.56	0.91	6.24	1.11
	Laws, codes, standards, and guidelines that impact the design of interior spaces	6.51	0.95	6.42	0.96
Human Environment Needs	Universal design [e.g., design for all people]	6.47	0.81	6.48	0.93
	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.40	0.78	6.36	0.99
Products and Materials	Floor, wall, and ceiling systems	6.34	0.87	5.90	1.30
	Furniture, fixtures, equipment, and finish materials	6.23	1.01	6.37	0.93
Design Theory and Process	Wayfinding	6.21	1.24	6.40	0.87
Products and Materials	Building materials and finishes	6.19	1.16	6.33	0.93
Interior Construction, Codes, and Regulations	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	6.18	0.90	6.19	1.16
	Researching life safety and code requirements, project type location, and access	6.18	1.07	6.14	1.17
	Building construction [e.g., construction types, building methods, standards]	6.01	1.37	6.06	1.21
	Interior construction [e.g., non-structural systems, sequencing of work]	6.00	1.21	5.82	1.41
Products and Materials	Selection and application of products/systems and their impact indoor air quality	5.98	1.27	5.98	1.42
Interior Construction, Codes, and Regulations	Regulations and ordinances [e.g., industry-specific regulations]	5.94	1.28	6.26	1.19
Communication	Construction documents	5.85	1.28	6.09	1.28
Products and Materials	Performance criteria [e.g., materials and products, attributes, life cycle cost]	5.85	1.31	6.10	1.16
Human Environment Needs	Human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]	5.78	1.43	6.04	1.26
Professional Practice	Consultations with consultants	5.24	1.59	5.89	1.24

### *KAs Contributions to Welfare by Years of Practice*

Descriptive analysis of the two practice groups comparing contributions of KAs to welfare are shown in Table 3.34. Welfare results are more diverse than health and safety. Group 1 (1-7 years) has seven KAs rated at the extensive level (range of ratings: 5.81-7.0), and Group 2 (8+ years) has 14 KAs at the same level. Of the seven KAs from Group 1, all are also rated at the extensive level of contribution to welfare in Group 2. Additionally, four of the first five KAs across both groups of interior designers are exactly the same. The KAs at this extensive level of

contribution to welfare are distributed across all categories with the exception of Professional Practice.

Table 3.34. KAs Contributions to Welfare by Years of Practice.

Category	Knowledge Area [e.g., abstract knowledge examples]	Less than 8 years		8 years +	
		Mean	SD	Mean	SD
Human Environment Needs	Occupant well-being and performance [e.g., physical, cognitive, emotional]	6.33	0.75	6.25	1.06
	Universal design [e.g., design for all people]	6.31	0.92	6.26	1.10
	Human factors [e.g., anthropometrics, ergonomics, proxemics, physiological responses]	6.16	1.21	6.13	1.12
Communication	Critical listening	5.92	1.18	5.88	1.30
Human Environment Needs	Lighting, acoustics, thermal comfort, and indoor air quality principles	5.89	1.38	6.10	1.08
Interior Construction, Codes, and Regulations	Building systems [e.g., distribution, structural, lighting, HVAC, acoustical systems; energy management]	5.84	1.26	6.02	1.20
Design Theory and Process	Natural and electrical lighting design principles	5.83	1.22	5.91	1.23
Interior Construction, Codes, and Regulations	Code requirements, laws, standards, regulations, accessibility, and sustainability	5.76	1.22	6.00	1.33
Products and Materials	Selection and application of products/systems and their impact indoor air quality	5.80	1.28	5.94	1.31
Communication	Communication [e.g., consensus building, collaboration, facilitation/negotiation]	5.77	1.42	5.93	1.23
Human Environment Needs	Theories about the relationship between human behavior and the designed environment	5.79	1.23	5.92	1.28
	Research [e.g., interviewing, surveying, case studies, benchmarking/precedent]	5.55	1.36	5.85	1.25
Design Theory and Process	Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	5.42	1.56	5.85	1.35
Products and Materials	Performance criteria [e.g., material and product attributes, life cycle cost]	5.64	1.38	5.82	1.26

### Inferential Analysis Results

Many of the descriptive analysis results previously presented raised additional questions. When possible, descriptive findings were further examined via inferential statistical analysis. As a result higher degree of validity could be assigned to the findings. The results of this analysis follow.

#### Contribution of BOK Categories to HSW by Years of Practice

Analysis was conducted to determine any differences between the two groups of years of practice (Group 1 who practiced 0-7 years vs. Group 2 who practiced 8 years or more) and

the contribution each BOK category made to HSW, independently. To do this, *t*-test comparisons were conducted to examine if rated contributions of BOK categories to HSW significantly differed between the two groups. Results for analysis follow.

### *Category Contributions to Health by Years of Practice*

Results from a *t*-test that examined category contributions to health across both groups, i.e., Group 1 and Group 2, are shown in Table 3.35. Group 2 has a higher mean score than Group 1 in all six categories; however, there are significant differences in only four categories: Communication; Design Theory and Process; Interior Construction, Codes, and Regulations; and Professional Practice. This finding may indicate that the more experienced interior designers put a greater emphasis on these four categories to achieve the goal of designing to protect people's health in their design practices or that embedded knowledge contributes more significantly to KAs found in these categories. There are no significant mean differences in Human Environment Needs or Products and Materials, which may indicate that each group rates the categories' contributions to the BOK quite similarly when making design decisions related to people's health.

Table 3.35. Significant Differences: Years of Practice, Categories, and Health.

Category		Years of Practice		<i>t</i> -value
		Less than 8 years (N = 351)	8 years + (N = 1227)	
Communication	Mean	3.97	4.42	-4.06***
	SD	1.81	1.87	
Design Theory and Process	Mean	4.51	4.95	-5.43***
	SD	1.34	1.35	
Human Environment Needs	Mean	5.75	5.88	-1.64
	SD	1.28	1.28	
Interior Construction, Codes, and Regulations	Mean	5.37	5.56	-2.08*
	SD	1.48	1.49	
Products and Materials	Mean	5.46	5.62	-1.79
	SD	1.43	1.48	
Professional Practice	Mean	3.51	3.96	-4.70***
	SD	1.45	1.62	

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001.

### *Category Contributions to Safety by Years of Practice*

Results from a *t*-test that examined category contributions to safety across both groups, i.e., Group 1 and Group 2, are shown in Table 3.36. Group 2 has higher mean scores than Group 1 in five categories and is the same in one category. The five categories that indicate significant differences are: Communication; Design Theory and Process; Human Environment Needs;

Interior Construction, Codes, and Regulations; and Professional Practice. This finding may indicate that the more experienced interior designers put a greater emphasis on these five categories to achieve the goal of designing to protect people's safety in their design practices. There is no significant mean difference in Products and Materials, which may indicate that each group rates the category's contribution to the BOK quite similarly when making design decisions related to people's safety.

Table 3.36. Significant Differences: Years of Practice, Categories, and Safety.

Category		Years of Practice		t-value
		Less than 8 years (N = 351)	8 years + (N = 1227)	
Communication	Mean	4.02	4.56	-4.68***
	SD	1.92	1.89	
Design Theory and Process	Mean	4.13	4.56	-4.98***
	SD	1.35	1.44	
Human Environment Needs	Mean	5.16	5.45	-3.28***
	SD	1.50	1.43	
Interior Construction, Codes, and Regulations	Mean	5.87	5.94	-0.80*
	SD	1.40	1.36	
Products and Materials	Mean	5.79	5.79	-0.01
	SD	1.28	1.36	
Professional Practice	Mean	3.51	4.01	-5.36***
	SD	1.51	1.56	

\*p < .05, \*\*p < .01, \*\*\*p < .001.

### *Category Contributions to Welfare by Years of Practice*

Results from a *t*-test that examined category contributions to welfare across both groups, i.e., Group 1 and Group 2, are shown in Table 3.37. Group 2 had higher mean scores than Group 1 in all six categories. Of the six, there are significant differences in four categories: Communication; Design Theory and Process; Interior Construction, Codes, and Regulations; and Products and Materials. This finding may indicate that the more experienced interior designers put a greater emphasis on these four categories to achieve the goal of designing for people's welfare in their design practices. There are no significant mean differences in two categories: Human Environment Needs and Professional Practice Categories, which may indicate that each group rates the categories' contributions to the BOK quite similarly when making design decisions related to people's welfare.

Table 3.37. Significant Differences: Years of Practice, Categories, and Welfare.

Category		Years of Practice		<i>t-value</i>
		Less than 8 years (N = 351)	8 years + (N = 1227)	
Communication	Mean	5.01	5.28	-2.67*
	SD	1.74	1.65	
Design Theory and Process	Mean	4.88	5.15	-3.14***
	SD	1.39	1.37	
Human Environment Needs	Mean	5.82	5.84	-0.26
	SD	1.19	1.22	
Interior Construction, Codes, and Regulations	Mean	5.18	5.48	-3.37***
	SD	1.50	1.46	
Products and Materials	Mean	5.15	5.37	-2.52*
	SD	1.52	1.45	
Professional Practice	Mean	4.78	4.89	-1.24
	SD	1.48	1.47	

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### **Contribution of KAs to HSW by Years of Practice**

*T*-test comparisons were conducted to examine if there are significant differences between years of practice and KA contribution to HSW.

### **Contribution of KAs to Health by Years of Practice**

Out of 65 KAs, there are only 11 KAs where significant differences in interior designers' ratings of the contribution of KAs to health are found between the two groups, i.e., Group 1 and Group 2. The results in Table 3.38 show that the means for each KA for Group 2 are higher than Group 1. Therefore, Group 2 is more likely than Group 1 to rate more highly the contribution of all those KAs to health.

Table 3.38. Significant Differences: Years of Practice, KAs, and Health.

Knowledge Area (KA)		Years of Practice		t-value
		Less than 8 years (N = 351)	8 years + (N = 1227)	
Acoustical design principles	Mean	4.61	5.10	-2.46*
	SD	1.65	1.45	
	N	75	232	
Custom work [e.g., cabinetry, furniture, millwork, details]	Mean	4.38	4.93	-2.29*
	SD	1.69	1.54	
	N	55	194	
Contributions of interior design to contemporary society	Mean	3.73	5.09	-2.94**
	SD	1.43	1.57	
	N	55	194	
Evaluating existing premises [e.g., site, existing conditions, space, furnishings]	Mean	4.62	5.09	-2.00*
	SD	1.50	1.57	
	N	55	194	
Ethical and accepted standards of practice	Mean	3.76	4.51	-2.86**
	SD	1.76	1.64	
	N	50	209	
Ecological, socio-economic, and cultural contexts	Mean	4.71	5.35	-2.93**
	SD	1.49	1.51	
	N	62	192	
Creative thinking	Mean	4.26	5.05	-3.79***
	SD	1.45	1.43	
	N	62	192	
Critical path	Mean	3.75	4.59	-2.07*
	SD	1.51	1.90	
	N	64	198	
Budgeting and cost estimation	Mean	3.38	4.26	-2.66**
	SD	1.58	1.79	
	N	64	198	
Professional development	Mean	4.33	4.92	-2.54*
	SD	1.62	1.64	
	N	64	198	
Design concept	Mean	2.73	3.97	-5.12***
	SD	1.50	1.74	
	N	64	98	

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### *Contribution of KAs to Safety by Years of Practice*

Out of 65 KAs, there are 20 KAs where significant differences in interior designers' ratings of the contributions of KAs to safety are found between the two groups, i.e., Group 1 and Group 2. The results in Table 3.39 show that Group 2 rates all but two of the KAs more highly than Group 1. Therefore, for KAs with higher means, Group 2 is more likely than Group 1 to rate more highly the contribution of those KAs to safety. The two KAs that Group 1 rate higher were "floor, wall, and ceiling systems" and "life safety."

Table 3.39. Significant Differences: Years of Practice, KAs, and Safety.

Knowledge Area (KA)		Years of Practice		<i>t-value</i>
		Less than 8 years (N = 351)	8 years + (N = 1227)	
Lighting, acoustics, thermal comfort, and indoor air quality principles	Mean	5.21	5.61	-2.05*
	SD	1.64	1.41	
	N	75	232	
Business development [e.g., marketing services of the firm]	Mean	2.01	2.51	-2.91**
	SD	1.14	1.63	
	N	75	232	
Acoustical design principles	Mean	3.67	4.22	-2.37*
	SD	1.58	1.79	
	N	75	232	
Design theory [e.g., theories of two- and three- dimensional design]	Mean	3.36	3.89	-2.18*
	SD	1.70	1.86	
	N	75	232	
Critical listening	Mean	4.64	5.20	-2.22*
	SD	1.77	1.54	
	N	50	209	
Floor, wall, and ceiling systems	Mean	6.34	5.90	-2.85**
	SD	0.87	1.30	
	N	50	209	
Business, organizational, and familial structures	Mean	3.94	4.56	-2.53*
	SD	1.58	1.56	
	N	50	209	
Life safety [e.g., fire, egress]	Mean	6.96	6.72	-4.07***
	SD	0.20	0.76	
	N	50	209	
Multi-disciplinary collaboration	Mean	4.24	5.13	-2.98**
	SD	1.95	1.61	
	N	50	209	
Color and light principles and theories	Mean	4.32	4.91	-2.53*
	SD	1.72	1.41	
	N	50	209	
Presentation(s) [e.g., oral, written graphic]	Mean	2.60	3.35	-3.16**
	SD	1.54	1.91	
	N	62	192	
Consultations with consultants	Mean	5.24	5.89	-2.94**
	SD	1.59	1.24	
	N	62	192	
Creative thinking	Mean	3.52	4.23	-2.96**
	SD	1.63	1.67	
	N	62	192	
Historical precedent to inform design solutions	Mean	2.73	3.24	-2.39*
	SD	1.39	1.68	
	N	62	192	
Sketching [e.g., ideation, preliminary drawings]	Mean	3.08	4.04	-3.94***
	SD	1.66	1.71	
	N	64	198	

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Table 3.39. Significant Differences: Years of Practice, KAs, and Safety (Continued).

Knowledge Area (KA) (CONTINUED)		Years of Practice		t-value
		Less than 8 years (N = 351)	8 years + (N = 1227)	
Budgeting and cost estimation	Mean	2.92	3.70	-3.38**
	SD	1.48	1.63	
	N	64	198	
Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	Mean	5.14	5.71	-2.55*
	SD	1.72	1.51	
	N	64	198	
Professional development	Mean	4.39	4.87	-1.98*
	SD	1.81	1.66	
	N	64	198	
Design concept	Mean	2.95	3.95	-4.10***
	SD	1.55	1.74	
	N	64	198	
Natural and electrical lighting design principles	Mean	5.02	5.49	-2.31*
	SD	1.50	1.42	
	N	64	198	

\*p < .05, \*\*p < .01, \*\*\*p < .001.

### *Contribution of KAs to Welfare by Years of Practice*

Out of 65 KAs, there are 12 KAs where significant differences in interior designers' ratings of the contribution of KAs to welfare are found between the two groups, i.e., Group 1 and Group 2. The results in Table 3.40 show that Group 2 rate all but one KA higher than Group 1. Therefore, for KAs with higher means, Group 2 is more likely than Group 1 to rate more highly the contribution of those KAs to welfare. The KA that Group 1 rated higher is "business, organizational, and familial structures."

Table 3.40. Significant Differences: Years of Practice, KAs, and Welfare.

Knowledge Area (KA)		Years of Practice		t-value
		Group 1: 0-7	Group 2: 8+	
Principles of thermal design	Mean	3.87	4.45	-2.02*
	SD	1.70	1.77	
	N	45	202	
Problem solving [e.g., creative, critical thinking, strategic planning]	Mean	5.04	5.46	-2.04*
	SD	1.55	1.53	
	N	75	232	
Business, organizational, and familial structures	Mean	5.78	5.35	2.37*
	SD	1.06	1.45	
	N	50	209	
Presentation(s) [e.g., oral, written, graphic]	Mean	4.06	4.60	-2.28*
	SD	1.50	1.89	
	N	62	192	

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Table 3.40. Significant Differences: Years of Practice, KAs, and Welfare (Continued).

Knowledge Area (KA) (CONTINUED)		Years of Practice		<i>t</i> -value
		Group 1: 0-7	Group 2: 8+	
Regulations and ordinances [e.g., industry-specific regulations]	Mean	5.11	5.70	-2.72**
	SD	1.55	1.47	
	N	62	192	
Consultations with consultants	Mean	5.10	5.64	-2.79**
	SD	1.40	1.30	
	N	62	192	
Creative thinking	Mean	4.71	5.38	-3.12**
	SD	1.49	1.45	
	N	62	192	
Wayfinding	Mean	5.06	5.56	-2.36*
	SD	1.52	1.42	
	N	62	192	
Sketching [e.g., ideation, preliminary drawings]	Mean	3.94	4.67	-2.86**
	SD	1.85	1.75	
	N	64	198	
Critical path	Mean	4.23	4.88	-2.74**
	SD	1.73	1.60	
	N	64	198	
Design process [e.g., programming, schematic design, design development, contract documents, contract administration]	Mean	5.42	5.85	-2.11*
	SD	1.56	1.35	
	N	64	198	
Design concept	Mean	3.78	4.54	-3.23**
	SD	1.65	1.61	
	N	64	198	

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### Comparison of Years of Practice and Practice Type

Using statistical analysis, it was found that there were significant differences in the demographics of interior designers who participated in the study, across both number of years of practice and practice types. To determine if either of these variables influenced interior designers' ratings of the contributions of KAs to HSW, *z*-tests were conducted. Results indicated that there is a significant difference between the years of practice and type of practice. As shown in Table 3.41, the proportion of commercial interior designers is higher in Group 1 (1-7 years) than in Group 2 (8+ years).

Table 3.41 Comparison Number of Respondents Across Years of Practice and Practice Type.

		Years of Practice				Z-Test
		Less than 8 years (N = 351)		8 years + (N = 1227)		
Variable	Measure	Frequency	Percentage	Frequency	Percentage	Z-value
The type of professional practice	Commercial	264	75.2	791	64.4	3.71***
	Residential	37	10.5	215	17.5	3.07***
	Commercial + Residential	50	14.2	221	18.0	1.57

\*p < .05, \*\*p < .01, \*\*\*p < .001.

Conversely, the proportion of residential interior designers is higher in Group 2 than in Group 1. However, there is no significant difference in the third practice type, the mix of commercial and residential interior design and years of practice. With these differences in proportion to the size of the sample, it was important to determine if there was an interactive effect between years of practice and type of practice. To accomplish this, a MANOVA (multivariate analysis of variance) was run, and no significant difference between the two groups was found. Therefore, the findings from the statistical analysis were found to be reliable, i.e., ratings of contributions of KAs to HSW were not influenced by years of practice interacting with practice type

Descriptive, statistical, and inferential analyses to interior designers' rating of the contribution of KAs to HSW provide a depth of information not previously documented. Overall, findings reinforce the importance of the interior design profession's BOK to people's HSW both at the category and KA levels. Further investigation is warranted to understand influences of practice type and years of practice on ratings of KA contributions to HSW. An additional look at welfare differences relative to regions where interior designers live would provide additional information. Further discussion regarding these findings is included in *Section 4. Conclusions*.

## SECTION 4: CONCLUSIONS

This section presents the conclusions reached by the researchers upon completion of the five goals that fulfill the purpose of the study. The conclusions provide the underpinning for recommendations to the interior design profession made by the researchers. It is important to review the purpose and goals to frame the conclusions. The purpose of this study was to update the interior design profession's BOK and document its relationship to HSW. The following five specific goals were completed to accomplish this purpose:

- Goal 1. Provide an empirical basis for a profession's body of knowledge, relate the importance of a body of knowledge to professions, and document and assess interior design's professionalization journey;
- Goal 2. Compare 2010 interior design regulations to 2005 regulations and discuss the comparison as it relates to how interior design is defined and titled;
- Goal 3. Define and describe HSW as related to interior design practice;
- Goal 4. Update the interior design profession's BOK; and
- Goal 5. Document and analyze the contribution of the interior design profession's BOK to HSW within the context of interior design practice.

As the conclusions and recommendations are discussed, it is important to note that this is the third study of the interior design profession's BOK completed by these researchers (Guerin & Martin, 2001; Martin & Guerin, 2006). This continued interest and support of the BOK by the interior design profession show the profession's dedication to maintaining and developing its BOK. The profession is serious about this foundational aspect of professionalization. Further, the emphasis in the 2010 study was to connect the BOK to HSW and professional practice. This moves the BOK forward from defining only the first phase of the interior designer's career cycle (education, experience, examination, and regulation). The 2010 study brought practitioners into its realm as a method of identifying and vetting the level of contribution each KA makes to HSW *across all stages of professional practice*. The next segment

of this section provides recommendations for further study of the BOK. The last segment will provide recommendations for members of the interior design profession that are drawn from results of this study.

### **Conclusions and Recommendations Related to the Research Methods Used in this Study**

A variety of methods was used to accomplish the goals including several literature reviews, content analysis of interior design documents, and a survey of interior design practitioners. A statistical research consultant was involved to vet all methods and assess the findings and analysis. Interior design practitioners were involved in several steps, e.g., as raters of the content, as pilot testers of questionnaires, and as respondents to the survey. Every effort was made to produce objective, unbiased results by using systematic, standard, and repeatable research methods. Because of the interrelated nature of the study's documents, there will be bias that creeps into the study, regardless of the rigor of the research strategies used. Therefore, the researchers worked with a research methods specialist and followed approved protocols to overcome this potential bias.

This is the third in a series of studies about the interior design profession's BOK that has been done by that profession. In other words, we continue to study ourselves. Unfortunately, it is typical for a profession's body of knowledge to be studied by themselves, i.e., the profession's stakeholders, not by those outside the profession. This convention was borne out through the review of professionalization literature generally and across numerous professions' bodies of knowledge specifically. Based on these conclusions, the following recommendations are made to future researchers related to the research methods used for this study.

#### **Regulatory Update Method Recommendations**

Based on their experiences in updating knowledge related to regulation, the following recommendations are made. When reviewing current regulation, it is important to assume that what is available online is not necessarily current or accurate. Researchers' personal knowledge of jurisdictional activities made them suspicious of reported information, causing additional investigation via personal conversations with regulatory board staff to assist in identifying other sources to verify online findings. Therefore, a person knowledgeable in North American regulation must be included on the research team.

Next, fluidity of regulatory activity makes fact-checking difficult and time-consuming. This investigation would be hampered should it occur between January and May, as most legislative bodies are engaged at that time, exacerbating the fluid nature of law. Then, once the law, bill, or act has been passed, there is a lag time between its passage, the development and adoption of rules or bylaws, enacting, and reporting. Therefore, future researchers must be aware of the calendar of events in each jurisdiction to capture the most current information.

Finally, language can be a barrier, depending on the researchers' language ability, as other languages beyond English are sometimes used, so an interpreter (e.g., French and Spanish) must be available.

### **BOK Update Method Recommendation**

Based on the researchers' experience with this and previous studies, the following recommendation can be made about future BOK updates. The content should be analyzed using a small focus group comprised of three knowledgeable, diverse interior design practitioners and researchers who would first work independently to identify abstract knowledge then collaborate to determine KAs in focus group format. This would combine the best practices of content analysis with a panel of experts who have practice experience and can distinguish, separate, and categorize abstract knowledge into KAs and then into categories. This would facilitate open discussion and debate about the KAs and groupings that would reflect best and broad practices. The researchers of this study will be able to train the next researchers in this hybrid method of content analysis and panel of experts.

It is acknowledged that involving practitioners in the content analysis process could include bias. However, bias will exist because of their knowledge, and therefore could be considered a strength. Bias would be controlled by the use of three people to identify abstract knowledge.

### **Survey Method Recommendation**

The researchers also identified suggestions relative to how the survey was operationalized. The survey sample consisted of NCIDQ certificate holders. Extending it to a second group of non-NCIDQ certificate holders might be instructional. It also would be beneficial for NCIDQ to collect additional demographic information to extend the comparison of the sample to the population. This information could be augmented by use of focus groups to

confirm the findings, i.e., a multi-methods approach. Findings are representative of Canadian and U.S. interior designers; but interior design's BOK is an international issue. In the future, surveying an international audience could deepen the meaning of the findings and subsequently act as a touchstone for a larger public and interior design audience. Perhaps this could be done as a collaborative effort with the International Federation of Interior Architects/Interior Designers (IFI).

## Conclusions and Recommendations Related to Results of this Study

### Goal 1. Examination of Professionalization

In the following segment, conclusions relevant to the interior design BOK will be discussed and specific recommendations identified that focus on the essential relationship between these conclusions and recommendations for the future of the interior design profession. The body of knowledge of a profession is comprised of abstract knowledge upon which members of a profession base their practice decisions. Professionals are expected to apply the body of knowledge to be able to practice. A body of knowledge is not static; it grows, evolves, or shifts as new knowledge is created, knowledge is abandoned, or new professions develop. It is important for a profession to define its body of knowledge so members are able to identify it, add to it, study it, discuss it, and determine the future of the profession based on how they want to define their body of knowledge. Dialogue must include how the development of the body of knowledge and the profession are inter-related.

- *Recommendation 1. The interior design profession must understand its vision of where it wants to be and develop strategies on how to get there. Contribution to the profession's BOK must be at the core of these efforts.*

*Webster's New World College Dictionary* (2009) defines "profession" as "a vocation or occupation requiring advanced education and training and involving intellectual skills, as medicine, law, theology, engineering, teaching, etc...the body of persons in any such calling or occupation." According to Abbott (1988), professions are engaged in work that cannot be routinized, but instead involves the accumulation and application of abstract knowledge. Furthermore, Abbott states that "professionalization is how modern societies institutionalize expertise" (1988, p. xii).

It has been shown that interior design has achieved professional status as indicated by an exploration of the professionalization process from several theorists and researchers (Abbott, 1988; Flexner, 1915; Freidson, 1994; Khurana Nohria, & Penrice, 2005; Martin 1998,

2007). Why is this so important? Because one role of a profession is to protect the public; this is actualized as safeguarding of life, health, and/or welfare (Abbott, 1988; Freidson, 1994; Tamir & Wilson, 2005). Further, the BOK then documents the abstract knowledge that interior design practitioners use to safeguard the public via their designs.

Interior design's journey to achieve professional status is similar to many other professions from the standpoint of its origins and efforts to achieve the benchmarks of professionalization, including knowledge creation via development of the BOK. Interior design is also not unique in terms of the challenges it faces in achieving professional status.

The maintenance and development of abstract knowledge must continue because a profession's jurisdiction is dependent on its ability to create and apply abstract knowledge (Abbott, 1988). This is the third BOK study undertaken; it is apparent the interior design profession is dedicated to maintenance. But, what about development?

- *Recommendation 2. Research must be conducted that measures abstract knowledge that protects the public's HSW. This is research of the science of interior design and will connect the BOK to HSW by identifying, documenting, and measuring HSW outcomes. Measured results of these outcomes will further support the regulation of practice, to the benefit of people via protection of their HSW.*

However, not all members of the public see professions as the ultimate gift; the profession must continue to "provide proof of specialist knowledge" to justify regulatory goals (Pfadenhauer, 2006, p. 566). As the profession continues to "raise the bar," pressure is placed on those designers who are less qualified, and they resist change through various efforts. These efforts tend to cause dissent and fragmentation, potentially fracturing the profession. However, the value the profession provides to consumers specifically, and society generally, substantiates this evolution.

As a review of the 2010 BOK reveals in comparison with earlier studies, design of the interior environment is not going to become less complicated, but more so. This trend necessitates that the interior design profession attends to its BOK and requires knowledge of and application of the BOK by its professionals.

- *Recommendation 3. Interior design professionals must become remain engaged with the evolving BOK or be marginalized by the profession as being less qualified.*

The profession has no recourse; if it should remain stagnant, it will be unable to maintain its BOK, and the profession will be marginalized and devalued. The profession's BOK is a reflection of society's needs (Romeo & Rigsby, 2008). It is crucial to note that this review of

professionalization and examination of other professions is not “done.” It will need periodic updating to gauge the trends associated with professions, their level of acceptance, and what is considered a “profession.” This activity is not static, nor is the threshold by which an occupation considered a profession.

Although interior design is not a new profession, in the history of professions, it is a youngster. However, interior design is further ahead than any other built environment profession; it has an ongoing and iterative process for defining, documenting, and disseminating defined, documented, and disseminated its BOK.

The process of designing builds our personal understanding of the BOK. However, as a profession, we need to greatly enhance our documentation and analysis of design solution outcomes to build our new abstract knowledge and the profession's BOK. There is a direct link between abstract knowledge and building the BOK; what is missing are the analysis, documentation, and dissemination of results. This is a call for interior design researchers.

- *Recommendation 4. The connection between interior design practice and research must be strengthened, integrated, coalesced, and automatic.*

Research must be integrated into the design process, i.e., evidence-based design (EBD), which is beginning to be recognized as a value-added approach by clients. Post-occupancy evaluations (POEs) or case studies are examples of such activities; funding of them cannot be a line-item cost that clients' firms reject. Design and post-occupancy analysis should not be separated.

## **Goal 2. Comparison of 2005 and 2010 Regulations**

This report provides much evidence of the interior design profession's BOK and its connection to protection of the public's HSW. This is knowledge needed by regulatory coalitions when asked by legislators and the public for evidence of their critical support of human life. The comparison of 2005 to 2010 interior design regulation shows a relatively stable set of regulations. That is not to say that activities are static, however. A review of regulatory definitions indicates that HSW language is integrated into the regulations, to greater or lesser extents. In some jurisdictions, regulatory language relies on the NCIDQ (National Council for Interior Design Qualification, 2004) definition of interior design as referenced in its entirety or as excerpted by various regulatory jurisdictions. This definition was developed by a panel of experts across interior design organizations and vetted by those organizations prior to

adoption. However, it was last revised and published in July 2004. Further, federal government's identification of interior design practice is significantly outdated, which can then inaccurately inform jurisdictional regulatory agencies. Two challenges are identified regarding definition language.

- *Recommendation 5. NCIDQ must update its definition of interior design practice to accurately represent the 2010 BOK.*
- *Recommendation 6. The interior design profession must work toward changing the U.S. Bureau of Labor Statistic's definition of interior design to reflect its contributions to HSW and prevention of harm, as well as how the profession is currently categorized.*

Both of these recommendations will help educate the public and all stakeholders about the profession of interior design via the profession and government entities and agencies.

It is apparent from this review of regulatory language that the crafting of new language should be grounded in a careful, thorough investigation of other jurisdictions' regulatory language for an in-depth understanding of nuances, meanings, and impact of the words used to define interior design. Regulatory language authors must do a "deep dig"—going well beyond what is available online and engage in personal dialogue with other regulatory bodies and persons responsible for authoring regulatory language.

### **Goal 3. Defining HSW in Relation to Interior Design Practice**

The goal to develop new definitions of HSW was completed based on an extensive review of literature. The new definitions are:

**Health as Related to Interior Design Practice:** *Interior designers create interior environments that support people's soundness of body and mind; protect their physical, mental, and social well-being; and prevent disease, injury, illness, or pain that could be caused by occupancy of interior environments.*

**Safety as Related to Interior Design Practice:** *Interior designers create interior environments that protect people against actual or perceived danger; protect against risk from crime, accidents, or physical hazards; and prevent injury, loss, or death that could be caused by occupancy of interior environments.*

**Welfare as Related to Interior Design Practice:** *Interior designers create interior environments that support people's physical, psychological, social, and spiritual well-being; and assist with or contribute to their financial or economic management, success, and responsibility.*

This study's new definitions should be vetted and adopted by the profession. It was timely to develop definitions that present the relationship between interior design practice and HSW. Interior design researchers use this terminology, but practitioners generally are uncomfortable with defining their responsibility to protect the public's HSW and giving their own examples of what knowledge they have that is related to HSW.

- *Recommendation 7. Once vetted, the interior design profession's definitions of HSW should be publicized and promoted to the public as a description of the abstract knowledge that interior designers possess and critically apply.*

The literature search for definition of HSW exposed the lack of actual, precise definitions of these terms that would be useful to interior design practitioners. Rather, descriptions of how organizations, practices, and professions, including government entities, affected HSW were found, i.e., the outcomes of health, or safety, or welfare. This resulted in the researchers' linking abstract knowledge from Knowledge Areas, e.g., ergonomics, to the definition of one term, e.g., health. The result is that with interior designers' knowledge of *ergonomics*, they can improve people's *health* by designing office workstations that reflect users dimensions to control glare on the work surfaces and to reduce eye strain, and specify surface heights that accommodate arm, wrist, and foot actions and reduce repetitive motion injury. As previously stated, a more thorough study of the factors that constitute HSW definitions needs to be conducted, aligning the interior design profession's abstract knowledge with those factors.

Discussion and documentation will act as a bridge between HSW and how it is achieved via interior design solutions. This will assist practitioners and the public in addressing and discussing HSW and its intimate relationship with interior design.

This is where the gap in knowledge exists, and where interior design researchers and practitioners must make concerted efforts to affect change.

- *Recommendation 8. Interior designers must be able to articulate their ability to prevent harm through design of interior environments. They must:*
  - *include design goals that have metrics attached to them to determine when solutions achieve the predicted outcomes;*
  - *develop a vocabulary around HSW and their practice outcomes;*
  - *be able to talk about the human and environmental benefits related to HSW beyond their passion for the design solution itself; and*
  - *document the relationship between their work and HSW as defined by the study.*

Prevention of harm is an important contribution that interior designers make to people's HSW. Fostering this approach can be a strategy to create change in the public's mind. Based on NIOSH's Prevention through Design National Initiative (National Institute for Occupational Safety and Health, 2007), it is clear that interior designers can partner with NIOSH and other organizations. They can give input through research, education, and practice by contributing to PtD's strategic planning. For example, the interior design profession addresses safety in egress paths, recognizing hazards from toxins or people, and complying with fire codes. In addition, contributions to safety occur in the building construction process via interior designers' specification of methods of fabrication, installation, and maintenance.

- *Recommendation 9. The interior design profession needs to be a stakeholder in NIOSH's Prevention through Design National Initiative (National Institute for Occupational Safety and Health, 2007).*

Health and safety are clearer in interior designers' minds; they are regulated by codes and knowledge of them is required by regulatory agencies and organizations as part of continuing education requirements. Interior designers identify people's age, abilities, and physical needs, among other needs, to design safe interior environments that protect people from risk and accidents. Although there are many standards related to safety, risks to safety are also relative to a person's point of reference (Kopec, 2006). The *Stanford Encyclopedia of Philosophy* (Safety, 2008b) suggests there is a difference between "doing vs. allowing harm." This source asks, "Is doing harm worse than allowing harm?" This is a question interior design practitioners can use to determine their actions. Is it responsible to follow the law and do no

harm, when it is within the interior designers' purview to actually prevent harm? Some of these decisions are regulated by building codes, yet there are always those that are regulated by the professional interior designers' code of ethics.

Also, interior designers are responsible for the economic welfare of their clients in relation to the budget for the design solution and also by designing to improve the client's economic condition, i.e., improve employee productivity, reduce employee absenteeism, and increase employee retention.

However, people have negative emotional responses to poor design that surface in frustration, annoyance, insecurity, and stress. Poor design can also be unsafe, which causes fear and risk aversion, potentially contributing to poor performance, dissatisfaction, and even economic dysfunction. Unsafe or unhealthy environments can overtly and quickly harm to the people who use them. However, negative emotions can contribute less obtrusively and more slowly to people's well-being, and can potentially affect health. On the other hand, good design performed by responsible, qualified interior designers can positively affect people's lives.

Interior designers can also prevent design for people's welfare at the identification of a design problem such as addressing basic needs of shelter, water, and sanitation. Fisher (2009), Dean of the College of Design at the University of Minnesota, suggests that "Public interest designers...could develop housing prototypes that could be produced at very low cost in local communities and be carried out by unskilled laborers in myriad cultures and climates" (B 6). This type of design practice would begin to serve the other 80% of the planet's people, those who do not have access to professional design services. He also suggests that there is no shortage of a need for design; it's how we practice, where, and for whom. Interior designers are the professionals who have welfare as their primary design goal. Interior design is always about human welfare, carried through as the primary purpose of every design solution. Support of human welfare is the aspect of design that interior design can call its core.

- *Recommendation 10. Regulatory bodies need to require continuing education on welfare, not just health and safety.*
- *Recommendation 11. Welfare abstract knowledge factors must be researched by interior design researchers to provide evidence of improved human conditions via design of the interior environment.*
- *Recommendation 12. Interior design practitioners and researchers need to change the order of the HSW terms and speak of these terms as WELFARE, health, and safety (WHS) to reflect interior design practitioners' critical contribution to quality of life.*

#### Goal 4. Updating the Interior Design Profession's BOK

Recommendations for the method used to update the BOK have already been made. This section discusses the conclusions drawn from the BOK update.

Content analysis of source documents (from Council for Interior Design Accreditation, 2008; National Council for Interior Design Qualification, 2009a; 2009b) found 65 KAs. There were 7-16 KAs within a category and 1-30 abstract knowledge factors within the KAs. The researchers identified and named six categories:

- Communication;
- Design Theory and Process;
- Human Environment Needs: Research and Application (cited as Human Environment Needs);
- Interior Construction, Codes, and Regulations;
- Products and Materials: Evaluation, Installation, Specifications, and Inspection (cited as Products and Materials); and
- Professional Practice: Principles, Methods, and Tools (cited as Professional Practice).

Categories were named to reflect the overall content and were revised from the 2005 BOK study (Martin & Guerin, 2006) to reflect the specificity of the content. The first stage of content analysis coding assigned abstract knowledge to KAs, and then a KA name was identified to 'label' this group of abstract knowledge. The final step was to assign KAs to categories; which appear in Tables 3.6-3.11 shown in alphabetical order. This work was carried out by trained raters in collaboration with the researchers (see *Section 3, Goal 4* for an in-depth description). In this study, abstract knowledge does not describe skills or tasks, but rather the knowledge that underpins inference and decision-making. Even when an abstract knowledge, e.g., drawing, is included in the BOK, it is the knowledge about drawing that underlies the skill, not the skill level of drawing.

Updating the BOK as well as the findings of this study in comparison to the 2001 and 2005 studies offers evidence that the profession's jurisdictional boundaries are not static and that the profession is continuing to develop and maintain its knowledge areas and subsequently its jurisdiction. Bodies of knowledge reflect a specific point in time, as this one does; it affords an illustration of what has been maintained, evolved, annexed, or discarded within the BOK since the last examination and documentation.

In this report, KAs were not weighted nor were frequencies analyzed because the content analysis was purposeful in determining *what* KA were included. Whereas the survey of

interior design practitioners, which was based on the content analysis findings, was utilized to determine KA *level of importance*. A comparison of the categories from the three BOK studies from 2001 (Guerin & Martin, 2001), 2005 (Martin & Guerin, 2006), and 2010 is shown below in Table 4.1.

Table 4.1. Comparison of BOK Categories and KA Quantities from 2001, 2005, and 2010.

<b>2001</b> <b>7 Categories; 83 KAs</b>	<b>2005*</b> <b>6 Categories; 96 KAs</b>	<b>2010*</b> <b>6 Categories; 65 KAs</b>
Human Needs (11 KAs)	Human Environment Needs (20 KAs)	Human Environment Needs (10 KAs)
Codes (2 KAs)	Interior Construction, Codes, & Regulations (20 KAs)	Interior Construction, Codes, & Regulations (10 KAs)
Interior Building Construction (18 KAs)		
Design (22 KAs)	Design (19 KAs)	Products & Materials (8 KAs)
Furnishings, Fixtures, & Equipment (7 KAs)	Products & Materials (14 KAs)	Design Theory and Process (16 KAs)
Professional Practice (10 KAs)	Professional Practice (13 KAs)	Communication (7 KAs)
Communication (13 KAs)	Communication (10 KAs)	Professional Practice (14 KAs)

\* These categories are shown as most important to least important. In the 2005 study, this was achieved by weighting KAs; in the 2010 study, the ordering was achieved via ratings by practitioners relative to KAs' contributions to HSW. In the 2001 study, categories were not rank ordered for importance.

A comparison of the categories from the three studies shows similarity in the domains of the BOK over time. The top two categories in all studies are the ones that make up the social and physical science of interior design.

- Human Needs (2001) and Human Environment Needs (2005, 2010) and
- Codes/Interior Building Construction (2001) and Interior Construction, Codes and Regulations (2005, 2010).

The KAs in the middle two categories express the act of design and the knowledge required to analyze needs to specify and design interior content. These two areas are often what interior designers are most recognized for, and they are the theory and application domains of the profession. Again, in all studies, the middle two categories continue to be:

- Design (2001, 2005) and Design Theory and Process (2010) and
- Furnishings, Fixtures, and Equipment (2001) and Products and Materials (2005, 2010).

Finally, the last two categories in all three studies suggest the business and law portion of practice.

- Communication (2001, 2005, 2010) and
- Professional Practice (2001, 2005, 2010).

It can be concluded that the categories remain stable and secure in the profession's BOK. This is true even if the number of KAs change in each category over time and regardless of the weighting method or strategy used to assign importance.

### **Goal 5. Contribution of the Interior Design Profession's BOK to HSW**

A survey of interior design practitioners drawn from NCIDQ certificate holders as described in *Section 2. Method*, was conducted to identify their perceptions of the contribution of each KA of the 2010 BOK to each of the three terms: HSW. The sample of interior design practitioners was representative of the population when compared to NCIDQ's data of certificate holder demographics.

Findings from the statistical analysis relative to years of practice, type of practice, and region where the interior designer lives need further study; questions included within this study were not intended to draw explanatory information on these characteristics. Also, the survey focused on where practitioners lived, not the location where they practiced. Certainly global practice would have to be questioned in a different manner.

Interior designers rated the extent of contribution of each term, independently, on a scale of 1-7 where "1" meant "no contribution" and "7" meant "extensive contribution." As a reminder of the interpretations of these numbers, Table 3.12 has been repeated below.

Table 3.12 Interpretation of Mean Range.

<b>Mean Range</b>	<b>Level of Contribution to HSW</b>
1.00 - 2.2	No contribution
2.21 - 3.4	Minimal contribution
3.41 - 4.6	Moderate contribution
4.61 - 5.8	Substantial contribution
5.81 - 7.0	Extensive contribution

Several KAs contributed at the extensive levels to all three terms (HSW): "occupant well-being," "universal design," "human factors," "code requirements," "selection and application of products," and "building systems." It is interesting to note that these KAs are more about the science of ID rather than the art of interior design. Also, within a category

across HSW, “universal design,” “human factors,” and “occupant well-being and performance” are the top three KAs; universal design is the highest rated KA across HSW.

The Human Environment Needs Category had the highest grand mean and the highest mean in terms of its KAs' contributions to health and welfare. It contains KAs that are at the core of ID practice. Additionally, the Interior Construction, Codes, and Regulations Category contributed the most to safety, at the extensive level. Interior design practitioners' ratings of the KAs within these categories and the categories themselves were not a surprise to the researchers based on the previous two BOK studies and what is known about the interior design profession across academic and organizational sources. And, these findings support 1) the regulatory language in force today, 2) the need for additional regulation of interior design practice, and 3) the HSW definitions that were developed as a result of this study.

It was also found that all categories in the current study are contributing to HSW at the substantial level, except for Professional Practice (see Table 3.13, *Section 3. Goal 5*). Moreover, considering contributions by KAs to welfare, it was found that 17% of KAs contribute at the extensive level and 71% of KAs contribute at the substantial level; therefore, 88% of all KAs contribute at these higher levels, with only 12% contributing at the moderate level (see Table 3.17, *Section 3. Goal 5*).

It is also of interest to note that just as the Human Environment Needs Category was found to have the highest grand mean relative to health and safety in this study, it was also found of greatest importance in the 2005 study, as determined through weighted means. Also, in the 2005 study, the Interior Construction and Codes Category was rated second in importance by weight to the BOK, in this study, the Interior Construction, Codes, and Regulations Category was rated highest by interior designers relative to its contributions to safety. Products and Materials as a category was also highly rated in both studies. These repeated findings help to confirm the validity of the 2005 study. Additionally, the importance practitioners give to these two categories identifies KAs in them as fundamental and critical to practice.

Furthermore, it is welfare that the interior designers who participated in the survey found to be of critical importance across KAs and all categories, especially the Human Environment Needs Category (see Table 3.18). Interior designers are one of the few, if not only built environment professionals whose education includes physical, social, and psychological human needs; human factors; and human behaviors as they related to design. Designing for

human behavior is the foundation of interior designers' practice and BOK. Welfare needs to climb in exposure and awareness by interior designers and in their communication with their clients, legislators, and the public. Welfare is what encompasses psychological, cognitive, emotional, social, and cultural needs of people.

Other findings relative to KAs within categories are also worth attention. In the Interior Construction, Codes, and Regulations Category, "code requirements, laws, standards, regulations, accessibility and sustainability" and "life safety" are the highest rated KAs across HSW. In this category, the grand mean is the second highest, but its KAs contributions to safety are at the highest mean levels among all categories (6.05-6.76) (see Table 3.19, *Section 3, Goal 5*). This illustrates that interior designers do understand the contributions of interior construction, codes, and regulations to safety and their work.

Under the Products and Materials Category, there is only one KA that is rated in the top three KAs of all three terms (HSW) and that is "building materials and finishes." In this category, contributions of KAs are perhaps a reaction to the focus on the expansion of knowledge about the effects of products and materials on IAQ and other health aspects currently encountered at a growing rate (see Table 3.20, *Section 3, Goal 5*). Contributions of KAs in the Products and Materials Category are at the extensive or substantial level. This confirms the ability of interior designers to prevent harm by application of this abstract knowledge.

In the Design Theory and Process Category, "natural and electrical lighting design principles" and "design process" are in the top three rated KAs across HSW. It is interesting to consider these findings in context of the ranking of "evidence-based design" in the Design Theory and Process Category (see Table 3.21), which is an outcome of the application of research and, again, confirms the importance of the science of design. In the Communication Category, "critical listening" and "communication" are in the top three rated KAs across HSW. And, in the Professional Practice Category, "consultations with consultants" and "multi-disciplinary collaborations" are within the top three rated KAs across HSW.

These findings raise a recommendation for interior design educators:

- *Recommendation 13. Educators must determine curriculum focus based on results from the interior design practitioners' rating of KA contributions to HSW.*

### **Overarching Conclusions**

The interior design profession's BOK has been successfully updated and related to HSW. To accomplish this, five interrelated goals were achieved to provide the knowledge from which

a comprehensive view of the interior design profession could be made. Through this work, the researchers found a way to engage practitioners in the rating of KAs to HSW, which is the beginning of documenting practitioners' embedded knowledge. However, there is still a need to comprehensively define and document embedded knowledge beyond the first phase of the career cycle.

*The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare* is a complex study, intended to update the interior design profession's BOK and document its relationship to health, safety, and welfare. Five specific goals were completed to accomplish this purpose. The researchers strongly suggest that the study be considered in its entirety as the Executive Summary is too condensed to present the extensive and significant findings contained in the full report, especially as it concerns the results from the survey of interior design practitioners in *Section 3. Goal 5*.

Upon completion of this five-goal study, the researchers identified four overarching conclusions about KA contributions to HSW:

- *The survey findings provide evidence that the KAs contained in the BOK significantly contribute to interior design practitioners' ability and responsibility to protect the public's HSW;*
- *The survey findings document that interior designers' specialized knowledge underpins their goal and responsibility of protecting people;*
- *As evidenced in this study, the specialized knowledge provided by interior designers' education, experience, and examination (i.e., the BOK), shows they are prepared to protect people's HSW, and, in fact, prevent people from being harmed and, based on this evidence;*
- *Interior design practice in public spaces must be regulated so that people know when they are receiving services from interior design practitioners who understand and apply the interior design profession's BOK and are able to design interior environments that protect them.*

This study informs the interior design profession where its jurisdictional boundaries are, regardless of their fluidity. It defines for the public, and all the built environment design professions, the content of the interior design profession's abstract knowledge, based on vetted documents, in a way that cannot be disputed. This abstract knowledge is the currency of the profession, that is, the way the public and all stakeholders identify the value added by responsible interior designers who are qualified by education, experience, examination, and regulation to prevent them from coming to harm in spaces where they live their lives.

Moreover, interior designers' application of abstract knowledge will improve the quality of their lives.

The researchers are looking forward to the dialogue that the profession will conduct based on this study. They hope the evidence-based recommendations will be considered in light of their contributions to the profession's continued development.

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**Appendix A. Acronyms and Abbreviations used in  
*The Interior Design Profession's Body of Knowledge, 2010***

<b>AAFCS</b>	American Association of Family and Consumer Sciences
<b>AARP</b>	American Association of Retired Persons
<b>AHEA</b>	American Home Economics Association
<b>AIA</b>	American Institute of Architects
<b>AICAD</b>	Association of Independent Colleges of Art and Design
<b>AICPA</b>	American Institute of Certified Public Accountants
<b>ALA</b>	American Library Association
<b>APIDQ</b>	Association of Professional Interior Designers of Quebec
<b>ARIDO</b>	Association of Registered Interior Designers of Ontario
<b>ASID</b>	American Society of Interior Designers
<b>ASHRAE</b>	American Society of Heating, Refrigerating, and Air Conditioning Engineers
<b>ASLA</b>	American Society of Landscape Architects
<b>ASWB</b>	Association of Social Work Boards
<b>BLS</b>	Bureau of Labor Statistics
<b>BOK</b>	Body of Knowledge of the Interior Design Profession
<b>BOMA</b>	Building Owners and Managers Association
<b>BIFMA</b>	Business and Institutional Furniture Manufacturers Association
<b>CIDA</b>	Council for Interior Design Accreditation (formerly known as FIDER)
<b>CLARB</b>	Council of Landscape Architectural Registration Boards
<b>CNA</b>	Canadian Nurses Association
<b>CPA</b>	Certified Public Accountants
<b>DHS-NCSD</b>	Department of Homeland Security-National Cyber Security Division
<b>EBD</b>	Evidence Based Design
<b>EDRA</b>	Environmental Design Research Association
<b>EPA</b>	Environmental Protection Agency
<b>FCS</b>	Family and Consumer Sciences
<b>FEMA</b>	Federal Emergency Management Agency
<b>FIDER</b>	Foundation for Interior Design Education Research
<b>GEI</b>	GREENGUARD Environmental Institute
<b>HHS</b>	U.S. Department of Health and Human Services
<b>HSW</b>	Health, Safety, and Welfare
<b>IAQ</b>	Indoor Air Quality
<b>ICC</b>	International Code Council
<b>ICM</b>	International Confederation of Midwives
<b>ICN</b>	International Council of Nurses
<b>ICU</b>	Intensive Care Unit
<b>IDC</b>	Interior Designers of Canada
<b>IDEC</b>	Interior Design Educators Council
<b>IDEP</b>	Interior Design Experience Program

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<b>IFI</b>	International Federation of Interior Architects/Interior Designers
<b>IFMA</b>	International Facility Management Association
<b>IIDA</b>	International Interior Design Association
<b>JCR</b>	Joint Commission Resources
<b>KA</b>	Knowledge Area
<b>LABOK</b>	Landscape Architecture Body of Knowledge
<b>LARE</b>	Landscape Architecture Registration Examination
<b>LEED®</b>	Leadership in Energy and Environmental Design
<b>LEED® AP</b>	Leadership in Energy and Environmental Design Accredited Professional
<b>NCATE</b>	National Council for the Accreditation of Teacher Education
<b>NCIDQ</b>	National Council for Interior Design Qualification
<b>NEHA</b>	National Environmental Health Association
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>NZEB</b>	Net Zero Energy Buildings
<b>OD</b>	Organization Development
<b>OSHA</b>	Occupational Safety & Health Administration, U.S. Department of Labor
<b>PDU</b>	Professional Development Unit
<b>POE</b>	Post-Occupancy Evaluation
<b>PMI</b>	Project Management Institute
<b>PR</b>	Public Relations
<b>PtD</b>	Prevention through Design
<b>TSC</b>	Total Safety Culture
<b>USGBC</b>	United States Green Building Council
<b>VOC</b>	Volatile Organic Compound
<b>WHO</b>	World Health Organization

## Appendix B. Canadian and U.S. Regulatory Language: Definition, Title, and Type

The following 34 U.S. and Canadian jurisdictions regulate the title and/or practice of interior design. Seven of them are title/practice acts or bills regulating who is qualified to use the title and practice after meeting the regulatory jurisdiction's requirements. The definition that was available in 2005 is noted first, with the current definition noted immediately afterwards. In some cases, though there was regulation in the jurisdiction in 2005 and/or 2010, a definition of interior design was not available or could not be attained at the time the report was written so "NA" is noted in place of the missing definition. If the 2010 regulation definition is the same as it was in 2005, only the 2010 definition is shown with a note adjacent to the regulatory title, i.e., "No change in Definition."

Only the definition of interior design is included here. Additional information about the extent of rights and privileges as well as limits on tasks and responsibilities of regulated individuals that occur in other portions of regulatory language has not been included. Summary comments regarding a comparison of the 2005 regulations to the current regulations, the influence of regulation on interior design practice and vice versa, as well as linkage of regulation to issues of protection of HSW is presented in *Section 3. Goal 2*.

### Canada

There are seven provincial associations with regulatory language. Of them, Nova Scotia's regulation controls both the title and practice of interior design. For additional detailed information and to receive the most current information, contact the Interior Designers of Canada ([www.interiordesigncanada.org](http://www.interiordesigncanada.org)). Canadian provinces with interior design regulations are noted below in alphabetical order. The province name, date, and title are given in the heading for each year. If there was no change in definition from 2005 to 2010, that is noted.

#### **Alberta - 2010 (Registered Interior Designer)—No Change in Definition**

A Licensed Interior Designer is entitled to practice the portion of the "Scope of Practice" of architecture referred to as interior design. This is limited to:

- (vii) giving advice or preparing designs, plans, drawings, detail drawings, specifications or graphic representations, respecting interior finishes in a building, fixed or loose furnishings, equipment or fixtures for use in a building, or partitioning in a building that is used to subdivide a floor area.
- (ii) the administering of construction contracts, inspection of work, and assessment of the performance of work, and the quality of materials related to the work described in sub-clause (i).

Source: Retrieved on May 23, 2010, from  
[http://www.aaa.ab.ca/pages/public/about\\_assoc/am\\_memcat\\_lid.aspx](http://www.aaa.ab.ca/pages/public/about_assoc/am_memcat_lid.aspx)

### **British Columbia (2005)**

Interior designers consult with clients to determine needs, preferences and safety requirements, formulate preliminary design concepts, develop and present final design recommendations, and prepare working drawings and specifications for non-load-bearing interior construction, materials, finishes, space planning, furnishings, fixtures and equipment. They also collaborate with professional services of other licensed practitioners in technical areas of mechanical or electrical design. They prepare and administer bids and contract documents, and they review and evaluate design solutions during implementation and upon completion.

### **British Columbia – 2010 (Registered Interior Designer)**

Professional interior designers have the education and experience necessary to oversee the complex tasks of designing and managing the construction of interior environments. Whether designing a private residence, commercial office, retail environment, recreation facility, or public institution, interior designers coordinate with other trades, suppliers, and licensed practitioners to ensure the safe, successful completion of a project.

With this combination of training, experience, and examination, a professional interior designer's role is to:

- Analyze clients' needs, goals, and life and safety requirements
- Integrate findings with knowledge of interior design
- Formulate preliminary design concepts that are aesthetic, appropriate, functional, and in accordance with codes and standards
- Develop and present final design recommendations
- Prepare working drawings and specifications for non-load bearing interior construction, reflected ceiling plans, lighting, interior detailing, materials, finishes, space planning, furnishings, fixtures, and equipment in compliance with universal accessibility guidelines and all applicable codes
- Collaborate with other licensed practitioners in the technical areas of mechanical, electrical, and load-bearing design as required for regulatory approval
- Prepare and administer bids and contract documents as the client's agent
- Review and evaluate design solutions during implementation and upon completion

Public health, safety and welfare (HSW) are an interior designer's first priorities. NCIDQ Certificate holders and licensed interior designers are trained to create spaces that meet local, state and provincial building codes and the requirements of the Americans with Disabilities Act - as well as the needs of the intended user.

Source: Retrieved on May 23, 2010, from  
[http://www.idibc.org/design/what\\_is\\_an\\_interior\\_designer/](http://www.idibc.org/design/what_is_an_interior_designer/)

**Manitoba - 2010 (Professional Interior Designer) —No Change in Definition**

“Interior design” or “the practice of interior design” means representing oneself as a professional interior designer while carrying out the practice of those functions which have as their object the design of interior space; (« décoration intérieure » ou « exercice de la décoration intérieure »)

Source: Retrieved on May 27, 2010, from  
<http://web2.gov.mb.ca/laws/statutes/ccsm/i057e.php>

**New Brunswick (2005)**

NA

**New Brunswick - 2010 (Registered Interior Designer)**

The interior designer is qualified by education, experience and examination to enhance the function and quality of interior spaces, for the purpose of improving the quality of life, increasing productivity, and protecting the health, safety and welfare of the public. (See Appendix E,\* the NCIDQ Definition of Interior Design (2004) available from <http://www.ncidq.org/AboutUs/AboutInteriorDesign/DefinitionofInteriorDesign.aspx>.)

Source: Retrieved on May 28, 2010, from <http://www.aridnb.ca/downloads/ARIDNB-ByLaws2009.pdf>

**Nova Scotia - 2010 (Interior Designer) –No Change in Definition**

h) “Practice of interior design” means providing or offering to provide, for a fee, commission or hope of reward, design services in relation to the non-structural construction of and non-structural alterations to the interior area of a structure designed for human habitation and includes:

- (i) analyzing the intended use of the interior area of a structure, the life-safety requirements and applicable codes,
- (ii) developing preliminary and final designs for the alteration or construction of an interior area of a structure,
- (iii) preparing and filing with the authority having jurisdiction for the purpose of obtaining a building permit, technical submissions for non-structural interior construction, materials, finishes, space planning, reflected ceiling plans, furnishings, fixtures and equipment,
- (iv) consulting and collaborating with licensed design professionals,
- (v) preparing and administering bids and contract documents, and
- (vi) reviewing and evaluating the implementation of projects while in progress and upon completion;

(j) “Registered Class” means the class of membership in which a member is entitled to practise interior design and meets the requirements set out for this class of member of the Association in the regulations;

Source: Retrieved on July 13, 2010, from  
<http://www.gov.ns.ca/legislature/legc/statutes/interior.htm>

**Ontario (2005)**

NA

**Ontario – 2010 (Interior Designer)**

NA

Source: Retrieved July 20, 2010, from [http://www.arido.ca/Files/file/ARIDO%20By-laws/ARIDO%20By-Law%20No\\_3%20-%20Membership.pdf](http://www.arido.ca/Files/file/ARIDO%20By-laws/ARIDO%20By-Law%20No_3%20-%20Membership.pdf)

**Saskatchewan – 2010 (Interior Designer)—No Change in Definition**

(2) Interior design involves the programming, planning, design and documentation of construction and installation of non-structural elements within the interior and related spaces of structures or buildings. [1995, c.I-10.02, s.2.]

Protection of title. (20) No person other than a member shall use the title: interior designer.

Source: Retrieved on July 13, 2010, from [http://www.idas.ca/pdf/interior\\_designers\\_ACT.pdf](http://www.idas.ca/pdf/interior_designers_ACT.pdf)

**United States**

There are 27 states and territories with regulatory language. Of them, six control both the title and practice of interior design. For additional detailed information and to receive the most current information, contact the regulatory board directly. Also, both ASID ([www.asid.org](http://www.asid.org)) and IIDA ([www.iida.org](http://www.iida.org)) provide information about regulatory activities. U.S. states and territories with interior design regulations are noted below in alphabetical order. If there was no change in definition from 2005 to 2010, that is noted.

**Alabama (2005)**

The performance of, or offering to perform, services for a fee or other compensation, directly or indirectly, to another person, or to a partnership, corporation, or other legal entity, in connection with the design, utilization, furnishing, or fabrication of elements in interior spaces in buildings, homes, and related structures. These services include, but are not limited to, the following: programming the functional requirements for interior spaces; planning interior spaces; preparing analyses of user needs for interior spaces; preparing designs, drawings, and specifications for selection, use, location, color, and finishes of interior walls, materials, equipment, furnishings, furniture, and personal property; administering contracts for fabrication, procurement, or installation in connection with reflected ceiling plans, space utilization, furnishings, or the fabrication of nonstructural elements within and surrounding interior spaces of buildings.

**Alabama – 2010 (Registered Interior Designer)**

Section 34-15C-3. (3) Registered Interior Designer. An interior design professional, as defined by the NCIDQ, who is approved and registered by the board and the Secretary of State.

Source: Alabama Interior Design Registration Act of 2010 [2010-706]. Retrieved on July 16, 2010, from <http://arc-sos.state.al.us/cgi/actdetail.mbr/detail?year=2010&act=%20706&page=description>

**Arkansas - 2010 (Registered Interior Designer)—No Change in Definition**

(b) (1) A registered interior designer is a design professional who is qualified by education, experience, and examination as authorized by an authority. (2) In general, a registered interior designer performs services including preparation of working drawings and documents relative to non-load-bearing interior construction, materials, finishes, space planning, furnishings, fixtures, and equipment. [Portion that refers to what interior design is not as noted from 2005 remains, but is not included here as it is not part of the definition.]

Source: Retrieved on May 29, 2010, from <http://www.arkleg.state.ar.us/bureau/Publications/Arkansas%20Code/Title%2017.pdf>

**California - 2010 (Certified Interior Designer)—No Change in Definition**

California Business and Professions Code - Section 5800-5812

1.2 INTERIOR DESIGN: The term "interior design" as used in this Chapter and these Administrative Rules and Regulations shall be defined as the:

- A. Analysis of a client's needs, goals, and life and safety requirements;
- B. Integration of findings with knowledge;
- C. Formulation of preliminary design concepts that are appropriate, functional and aesthetic;
- D. Development and presentation of final design recommendations through appropriate presentation media;
- E. Preparation of working drawings, plans and specifications for non-structural, non-seismic interior construction, materials, finishes, space planning, furnishings, fixtures, and equipment, that are of sufficient complexity so as to require the skills of a licensed contractor;
- F. Coordination with professional services of other licensed practitioners as required for regulatory approval;
- G. Preparation and administration of construction and furnishing bids and contract documents on behalf of a client;
- H. Review and evaluation of design solutions after project completion.

Source: Retrieved on May 25, 2010, from: <http://www.ccidc.org/rules.html>

**Colorado (2005)**

Concerning the authority of interior designers that meet certain qualifications to prepare interior design documents for filing for purposes of obtaining building permits...Nothing in this article shall be construed to prevent an interior designer from preparing interior design documents and specifications for interior finishes and nonstructural elements within and surrounding interior spaces of a building or structure of any size, height, and occupancy and filing such documents and specifications for the purpose of obtaining approval for a building permit provided by law from the appropriate city, city and county, or regional building

authority, which may approve or reject any such filing in the same manner as for other professions.

### **Colorado – 2010 (Interior Designer)**

The Colorado Architects' Practice Act recognizes Interior Design as a distinct profession and sets out the requirements necessary to call oneself an Interior Designer. Interior Designers are not licensed but are subject to education and experience requirements under the State Board of Examiners of Architects. (12-4-112(6), C.R.S.)

Interior Designers may prepare and file interior design documents for the purpose of obtaining approval for a building permit for nonstructural interior construction, materials, finishes, space planning, furnishings, fixtures, equipment, lighting, and reflected ceiling plans.

Source: Retrieved June 30, 2010, from <http://www.colorado.gov/oed/industry-license/276IndDetail.html>

### **Connecticut – 2010 (Registered Interior Designer)—No Change in Definition**

§ 20-377k. Definitions

Interior designer means a person qualified by education, experience and examination who (A) identifies, researches and creatively solves problems pertaining to the function and quality of the interior environment; and (B) performs services relative to interior spaces, including programming, design analysis, space planning and aesthetics, using specialized knowledge of non-load-bearing interior construction, building systems and components, building codes, equipment, materials and furnishings; and (C) prepares plans and specifications for non-load-bearing interior construction, materials, finishes, space planning, reflected ceiling plans, furnishings, fixtures and equipment relative to the design of interior spaces in order to enhance and protect the health, safety and welfare of the public.

Source: Retrieved July 15, 2010, from <http://www.cga.ct.gov/2005/pub/Chap396a.htm#Sec20-377k.htm>

### **Florida – 2010 (Registered Interior Designer\*)—No Change in Definition**

481.203 Definitions

ARCHITECTURE AND INTERIOR DESIGN (ss. 481.201-481.231)

(8) "Interior design" means designs, consultations, studies, drawings, specifications, and administration of design construction contracts relating to nonstructural interior elements of a building or structure. "Interior design" includes, but is not limited to, reflected ceiling plans, space planning, furnishings, and the fabrication of nonstructural elements within and surrounding interior spaces of buildings. "Interior design" specifically excludes the design of or the responsibility for architectural and engineering work, except for specification of fixtures and their location within interior spaces. As used in this subsection, "architectural and engineering interior construction relating to the building systems" includes, but is not limited to, construction of structural, mechanical, plumbing, heating, air-conditioning, ventilating, electrical, or vertical transportation systems, or construction which materially affects life safety systems pertaining to fire safety protection such as fire-rated separations between interior spaces, fire-rated vertical shafts in multistory structures, fire-rated protection of structural

elements, smoke evacuation and compartmentalization, emergency ingress or egress systems, and emergency alarm systems.

[\*Note: Prior to 2010, both "Interior Designer" and "Registered Interior Design" were legal titles.]

Source: Retrieved on May 25, 2010, from [http://www.leg.state.fl.us/statutes/index.cfm?App\\_mode=Display\\_Statute&URL=Ch0481/ch0481.htm](http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=Ch0481/ch0481.htm)

### **Georgia (2005)**

'Registered interior designer' means a person who is registered under Article 2 of this chapter as being qualified by education, experience, and examination to use the title 'registered interior designer' in the State of Georgia and as further defined in Code Section 43-4-30. Nothing in this paragraph or in this article shall be construed as prohibiting or restricting the practice or activities of an interior decorator or individual offering interior decorating services, including, but not limited to, selection of surface materials, window treatments, wall coverings, paints, floor coverings, and lighting fixtures.

As used in this article, the term 'registered interior designer' means a person registered under this article as being qualified by education, experience, and examination to use the title 'registered interior designer.' In general, an interior designer performs services including preparation of documents relative to nonload-bearing interior construction, furnishings, fixtures, and equipment. (43-4-30)

### **Georgia - 2010 (Registered Interior Designer)**

43-4-1 (9)(A) 'Interior design' means the rendering of or the offering to render designs, consultations, studies, planning, drawings, specifications, contract documents, or other technical submissions and the administration of interior construction and contracts relating to nonstructural interior construction of a building by a registered interior designer. Such term includes:

- (i) Space planning, finishes, furnishings, and the design for fabrication of nonstructural interior construction within interior spaces of buildings;
- (ii) Responsibility for life safety design of proposed or modification of existing nonstructural and nonengineered elements of construction such as partitions, doors, stairways, and paths of egress connecting to exits or exit ways; and
- (iii) Modification of existing building construction so as to alter the number of persons for which the egress systems of the building are designed.

43-4-1 (14) 'Registered interior designer' means a person who is registered under Article 2 of this chapter as being qualified by education, experience, and examination to use the title 'registered interior designer' in the State of Georgia and as further defined in Code Section 43-4-30.

Source: Retrieved June 30, 2010, from House Bill 231 (As passed in the House and Senate), and signed into law by the governor June 2, 2010.

**Illinois (2005)**

The profession of interior design, within the meaning and intent of this Act, refers to persons qualified by education, experience and examination, who administer contracts for fabrication, procurement, or installation in the implementation of designs, drawings, and specifications for any interior design project and offer or furnish professional services, such as consultations, studies, drawings, and specifications in connection with the location of lighting fixtures, lamps and specifications of ceiling finishes as shown in reflected ceiling plans, space planning, furnishings, or the fabrication of non-loadbearing structural elements within and surrounding interior spaces of buildings but specifically excluding mechanical and electrical systems, except for specifications of fixtures and their location within interior spaces.

**Illinois - 2010 (Registered Interior Designer)**

"The profession of interior design", within the meaning and intent of this Act, refers to persons qualified by education, experience, and examination, who administer contracts for fabrication, procurement, or installation in the implementation of designs, drawings, and specifications for any interior design project and offer or furnish professional services, such as consultations, studies, drawings, and specifications in connection with the location of lighting fixtures, lamps and specifications of ceiling finishes as shown in reflected ceiling plans, space planning, furnishings, or the fabrication of non-loadbearing structural elements within and surrounding interior spaces of buildings but specifically excluding mechanical and electrical systems, except for specifications of fixtures and their location within interior spaces.

A person represents himself or herself to be a "registered interior designer" within the meaning of this Act if he or she holds himself or herself out to the public by any title incorporating the words "registered interior designer" or any title that includes the words "registered interior design". A person represents himself or herself to be a "registered residential interior designer" within the meaning of this Act if he or she holds himself or herself out to the public by any title incorporating the words "registered residential interior designer" or any title that includes the words "registered residential interior design". (Source: P.A. 95-1023, eff. 6-1-09.)

Source: Retrieved on May 26, 2010, from

<http://ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1341&ChapAct=225%20ILCS%20310/&ChapterID=24&ChapterName=PROFESSIONS+AND+OCCUPATIONS&ActName=Interior+Design+Title+Act>

**Indiana - 2010 (Registered Interior Designer)**

IC 25-20.7-1-5 Interior design

Sec. 5. (a) "Interior design" means client consultation and preparation and administration of design documents that include:

- (1) design studies;
  - (2) drawings;
  - (3) schedules;
  - (4) specifications; and
  - (5) contracts relating to nonstructural and nonseismic interior elements of a building or structure.
- (b) The term includes design documents for space plans, reflected ceiling plans, egress, ergonomics, and the design or specification of fixtures, furnishings, equipment,

cabinetry, lighting, materials, finishes, and interior design that does not materially affect the building system.

(c) The term does not include construction documents for construction (as defined in 675 IAC 12-6-2(c) that are prepared only by architects and engineers and filed for state design release. *As added by P.L.177-2009, SEC.37.*

IC 25-20.7-1-10 Registered interior designer

Sec. 10. "Registered interior designer" means a person registered under this article. *As added by P.L.177-2009, SEC.37.*

Source: Retrieved on May 26, 2010, from

<http://www.in.gov/legislative/ic/code/title25/ar20.7/ch1.html>

### **Iowa (2005)**

NA

### **Iowa - 2010 (Registered Interior Designer)**

"Interior design" means the design of interior spaces including the preparation of documents relating to space planning, finish materials, furnishings, fixtures, and equipment, and the preparation of documents relating to the interior construction that does not affect the mechanical or structural systems of a building. "Interior design" does not include services that constitute the practice of architecture or professional engineering.

"Registered interior designer" means a person who obtains a registration and engages in the practice of interior design under the authority of Iowa Code Supplement chapter 544C.

Retrieved on May 26, 2010 from:

[http://www.legis.state.ia.us/ACO/IAChtml/193g.htm#rule\\_193g\\_1\\_1](http://www.legis.state.ia.us/ACO/IAChtml/193g.htm#rule_193g_1_1)

### **Kentucky (2005)**

NA

### **Kentucky - 2010 (Certified Interior Designer)**

323.400 Definitions for KRS 323.400 to 323.416 and 323.992.

As used in KRS 323.400 to 323.416 and 323.992, unless the context otherwise requires:

(2) "Certified interior designer" means a person who is certified to use the title "certified interior designer" in accordance with KRS 323.400 to 323.416 and 323.992 by meeting the criteria of education, experience, and examination as determined by the board;

323.406 Administrative regulations.

The board may promulgate administrative regulations in accordance with KRS Chapter 13A, 323.400 to 323.416, and 323.992 that:

(4) Establish a process regarding the use of a certified interior designer's signature and certificate number on documents, plans, reports, drawings, or specifications that do not require the seal of a licensed architect or professional engineer.

Source: Retrieved on July 13, 2010, from <http://boa.ky.gov/NR/rdonlyres/E013E838-8F93-46E9-B62C-45799FD5A928/0/KRS323asof122309.pdf>

### **Louisiana – 2010 (Registered Interior Designer) —No Change in Definition**

#### § 3172. Definitions

(3) “Interior Design” means designs, consultations, studies, drawings, specifications, and the administration of design construction contracts relating to nonstructural interior elements of a building or structure. Interior design includes but is not limited to space planning, finishes, furnishings, and the design for fabrication of nonstructural elements within and surrounding interior spaces of buildings. Interior design specifically excludes the design of or the responsibility for architectural and engineering work except for specification of fixtures and their location within interior spaces. Interior design also specifically excludes construction of structural, mechanical, plumbing, heating, air conditioning, ventilation, electrical or vertical transportation systems, fire-rated vertical shafts in multi-story structures, fire-related protection of structural elements, smoke evacuation and compartmentalization, emergency sprinkler systems, and emergency alarm systems.

(5) “Practice of interior design” means the rendering of services to enhance the quality and function of an interior area of a structure designed for human habitation or occupancy. The term includes:

(a) An analysis of a client’s needs and goals for an interior area of a structure designed for human habitation or occupancy and the requirements for safety relating to that area.

(b) The formulation of preliminary designs for an interior area designed for human habitation or occupancy that are appropriate, functional, and esthetic.

(c) The development and presentation of final designs that are appropriate for the alteration or construction of an interior area of a structure designed for human habitation or occupancy.

(d) The collaboration with licensed professionals in preparation of contract documents for the alteration or construction of an interior area of a structure designed for human habitation or occupancy, including specifications for partitions, materials, finishes, furniture, fixtures, and equipment.

(e) The collaboration with licensed professionals in the completion of a project for the alteration or construction of an interior area of a structure designed for human habitation or occupancy.

(f) The preparation and administration of bids or contracts as the agent of a client.

(g) The review and evaluation of problems relating to the design of a project for the alteration or construction of an area designed for human habitation or occupancy during the alteration or construction and upon completion of the alteration or construction.

(6) “Registered interior designer” means a person who has received a certificate of registration pursuant to the provisions of this Chapter.

Source: Retrieved on July 13, 2010, from: <http://lsbid.org/laws.pdf>

### **Maine (2005)**

Interior design services means services that do not require the services of a licensed architect or engineer and that involve the preparation of working drawings, plans and specifications

relative to building elements that are not necessary for the structural stability and mechanical and electrical integrity of the construction.

#### **Maine – 2010 (Certified Interior Designer)**

§220-B. As used in this chapter, unless the context otherwise indicates, the following terms have the following meanings.

A. "Certified interior designer" means an interior designer who has been licensed by the board in accordance with this chapter. [2007, c. 402, Pt. F, §14 (AMD).]

B. "Interior designer" means an individual who provides or offers to provide interior design services. [1993, c. 389, §12 (NEW).]

C. "Interior design services" means services that do not require the services of a licensed architect or engineer and that involve the preparation of working drawings, plans and specifications relative to building elements that are not necessary for the structural stability and mechanical and electrical integrity of the construction. [1993, c. 389, §12 (NEW).]  
[ 2007, c. 402, Pt. F, §14 (AMD) .]

Source: Retrieved on July 13, 2010, from

<http://www.mainelegislature.org/legis/statutes/32/title32sec220-B.html>

#### **Maryland (2005)**

"Interior design services" means rendering or offering to render services for a fee or other valuable consideration, in the preparation and administration of interior design documents (including drawings, schedules and specifications) which pertain to the planning and design of interior spaces including furnishings, layouts, fixtures, cabinetry, lighting fixtures, finishes, materials, and interior construction not materially related to or materially affecting the building systems, all of which shall comply with applicable laws, codes, regulations, and standards. The scope of work described herein shall not be construed as authorizing the planning and design of engineering and architectural interior construction as related to the building systems, including structural, electrical, plumbing, heating, ventilating, air conditioning or mechanical systems and shall not be construed as authorizing the practice of architecture or engineering as defined in Title 3 or Title 14 of this article. The interior design plans as described above are not to be construed as those architectural plans which may be required to be filed with any county or municipality.

#### **Maryland - 2010 (Certified Interior Designer)**

§ 8-101. Definitions.

(e) "Certified interior design services" means interior design services provided by a certified interior designer.

(f) "Certified interior designer" means an interior designer who is certified by the Board.

(h) "Interior design services" means rendering or offering to render services for a fee or other valuable consideration, in the preparation and administration of interior design documents (including drawings, schedules and specifications) which pertain to the planning and design of interior spaces including furnishings, layouts, fixtures, cabinetry, lighting fixtures, finishes, materials, and interior construction not materially related to or materially affecting the building systems, all of which shall comply with applicable laws, codes, regulations, and standards. The scope of work described herein shall not be construed as authorizing the planning and design of engineering and architectural interior construction as related to the building systems, including

structural, electrical, plumbing, heating, ventilating, air conditioning or mechanical systems and shall not be construed as authorizing the practice of architecture or engineering as defined in Title 3 or Title 14 of this article. The interior design plans as described above are not to be construed as those architectural plans which may be required to be filed with any county or municipality. [1991, ch. 663; 1994, ch. 3, § 13; 2001, ch. 193; 2003, ch. 21, § 7; ch. 227, § 2.]

Source: Retrieved on July 13, 2010, from:

<http://michie.lexisnexis.com/maryland/lpext.dll?f=templates&fn=main-h.htm&cp>

### **Minnesota – 2010 (Certified Interior Designer) –No Change in Definition**

326.10 Licensure and Certification.

Subd. 4b. Certified interior designer. (a) For the purposes of sections 326.02 to 326.15, “certified interior designer” means a person who is certified under section 326.10, to use the title certified interior designer and who provides services in connection with the design of public interior spaces, including preparation of documents relative to non-load-bearing interior construction, space planning, finish materials, and furnishings.

Source: Retrieved on May 27, 2010, from

[https://www.revisor.mn.gov/bin/getpub.php?pubtype=STAT\\_CHAP&year=current&chapter=326#stat.326.106.0](https://www.revisor.mn.gov/bin/getpub.php?pubtype=STAT_CHAP&year=current&chapter=326#stat.326.106.0)

### **Missouri – 2010 (Registered Interior Designer) –No Change in Definition**

(3) “Registered interior designer”, a design professional who provides services including preparation of documents and specifications relative to nonload-bearing interior construction, furniture, finishes, fixtures and equipment and who meets the criteria of education, experience and examination as provided in sections 324.400 to 324.439.

(L. 1998 H.B. 1601, et al. § 1, A.L. 2004 S.B. 1122, A.L. 2008 S.B. 788)

Source: Retrieved on May 27, 2010, from <http://www.moga.mo.gov/statutes/C300-399/324000400.HTM>

### **Nevada – 2010 (Registered Interior Designer) –No Change in Definition**

NRS 623.0225 “Practice as a registered interior designer” defined.

“Practice as a registered interior designer” means the rendering, by a person registered pursuant to subsection 2 of NRS 623.180, of services to enhance the quality and function of an interior area of a structure designed for human habitation or occupancy. The term includes:

1. An analysis of:
  - (a) A client’s needs and goals for an interior area of a structure designed for human habitation or occupancy; and
  - (b) The requirements for safety relating to that area;
2. The formulation of preliminary designs for an interior area designed for human habitation or occupancy that are appropriate, functional and esthetic;
3. The development and presentation of final designs that are appropriate for the alteration or construction of an interior area of a structure designed for human habitation or occupancy;

4. The preparation of contract documents for the alteration or construction of an interior area of a structure designed for human habitation or occupancy, including specifications for partitions, materials, finishes, furniture, fixtures and equipment;
5. The collaboration in the completion of a project for the alteration or construction of an interior area of a structure designed for human habitation or occupancy with professional engineers or architects who are registered pursuant to the provisions of title 54 of NRS;
6. The preparation and administration of bids or contracts as the agent of a client; and
7. The review and evaluation of problems relating to the design of a project for the alteration or construction of an area designed for human habitation or occupancy during the alteration or construction and upon completion of the alteration or construction.

Source: Retrieved on May 28, 2010, from <http://www.leg.state.nv.us/NRS/NRS-623.html#NRS623Sec0225>

### **New Jersey- 2010 (Certified Interior Designer)—No Change in Definition**

45:3-33 Definitions relative to certification of interior designers.

3. As used in this act:

“Interior design services” means rendering or offering to render services, for a fee or other valuable consideration, in the preparation and administration of interior design documents, including, but not limited to, drawings, schedules and specifications which pertain to the design intent and planning of interior spaces, including furnishings, layouts, non-load bearing partitions, fixtures, cabinetry, lighting location and type, outlet location and type, switch location and type, finishes, materials and interior construction not materially related to or materially affecting the building systems, in accordance with applicable laws, codes, regulations and standards. [L.2002, c.86, s.3.]

“Certified interior designer” means an individual who through education, training, and experience is skilled in interior design services for commercial and residential spaces and is certified by the board pursuant to section 9 of this act and holds a current, valid certificate. [L.2002, c.86, s.3.]

Source: Retrieved on June 30, 2010, from <http://www.njconsumeraffairs.gov/laws/interiorlaws.pdf>

### **New Mexico (2005)**

“Interior design” means services that do not necessarily require performance by an architect, such as administering contracts for fabrication, procurement or installation in the implementation of designs, drawings and specifications for any interior design project and consultations, studies, drawings and specifications in connection with reflected ceiling plans, space utilization, furnishings or the fabrication of nonstructural elements within and surrounding interior spaces of buildings but specifically excluding mechanical and electrical systems, except for specifications of fixtures and their location within interior spaces.

**New Mexico- 2010 (Licensed Interior Designer or Licensed Designer)**

## 61-24C-3. Definitions

B. "Interior design" means services that do not necessarily require performance by an architect, such as administering contracts for fabrication, procurement or installation in the implementation of designs, drawings and specifications for any interior design project and consultations, studies, drawings and specifications in connection with reflected ceiling plans, space utilization, furnishings or the fabrication of nonstructural elements within and surrounding interior spaces of buildings, but specifically excluding mechanical and electrical systems, except for specifications of fixtures and their location within interior spaces; and

C. "Licensed interior designer" or "licensed designer" means a person licensed pursuant to the Interior Designers Act." SB 535 (2007)

Source: Retrieved on May 28, 2010, from

<http://legis.state.nm.us/Sessions/07%20Regular/final/SB0535.pdf>

**New York – 2010 (Certified Interior Designer)—No Change in Definition**

## §8303 Definition of practice of interior design.

For the purposes of this article, the practice of interior design is defined as rendering or offering to render services for a fee or other valuable consideration, in the preparation and administration of interior design documents (including drawings, schedules and specifications) which pertain to the planning and design of interior spaces including furnishings, layouts, fixtures, cabinetry, lighting, finishes, materials, and interior construction not materially related to or materially affecting the building systems, all of which shall comply with applicable laws, codes, regulations, and standards. The scope of work described herein shall not be construed as authorizing the planning and design of engineering and architectural interior construction as related to the building systems, including structural, electrical, plumbing, heating, ventilating, air conditioning or mechanical systems and shall not be construed as authorizing the practice of engineering or architecture as described in article one hundred forty-five or one hundred forty-seven of this title. The interior design plans as described above are not to be construed as those required to be filed with local municipalities or building departments as required by the state education law regulating the practices of architecture or engineering.

Source: Retrieved on May 28, 2010, from <http://www.op.nysed.gov/prof/id/article161.htm>

**Oklahoma – 2010 (Registered Interior Designer)**

14. "Registered interior designer" means a person recognized by this state who is registered, qualified by education, experience and examination and meeting all the requirements set forth in the State Architectural and Registered Interior Designers Act for interior designers and the Board's rules.

Source: Retrieved on May 29, 2010, from [http://www.ok.gov/Architects/Act\\_&\\_Rules/index.html](http://www.ok.gov/Architects/Act_&_Rules/index.html)

**Puerto Rico (2005)**

Interior designer is that person who through a formal education in a school of decoration, recognized by the Department of Education or University duly accredited in the teaching of this art, may perform interior design work using not only the visual elements, but also the elements dealing with construction, which are form and volume. The interior designer has to be prepared to make preliminary designs, drawings, and sketches to show the client in a clear way the conception of the idea.

**Puerto Rico (2010)**

NA

**Tennessee (2005)**

NA

**Tennessee - 2010 (Registered Interior Designer)**

62-6-501. Part definitions. (B) "Home improvement" does not include:

(vii) Interior design services that are services in connection with the design, utilization, furnishing or fabrication of elements in interior spaces of buildings and related structures and includes, without being limited to, any or all of the following:

- (a) Identifying, researching or creatively solving problems pertaining to the function and quality of interior space;
- (b) Performing services to include consultations, programming, design analysis, drawings, specifications and installations in connection with space utilization, the specification of fixtures and their location, furnishings, reflected ceiling plans and the fabrication of nonstructural elements of interior spaces of buildings, excluding those services specified by law to require other licensed professionals, such as the design of mechanical, plumbing, electrical and load-bearing structural systems; and
- (c) Preparing drawings and documents relative to the design of interior spaces;

[Acts 2007, ch. 460, § 2.]

62-2-902. Part definitions. (2) "Registered interior designer" means a person registered to use the title "registered interior designer" under this part. The registered interior designer is a person who meets the criteria of education, experience and examination as determined by the board.

[Acts 1991, ch. 164, § 3; 1997, ch. 33, §§ 18, 19.]

Source: Retrieved on July 16, 2010, from <http://www.michie.com/tennessee/lpext.dll?f=templates&fn=main-h.htm&cp=tncode>

**Texas (2005)**

"Interior design" means the: (A) identification, research, or development of a creative solution to a problem relating to the function or quality of an interior environment; (B) performance of a service relating to an interior space, including programming, design analysis, space planning of non-load-bearing interior construction, and application of aesthetic principles, by using specialized knowledge of interior construction, building codes, equipment, materials, or furnishings; or (C) preparation of an interior design plan, specification, or related document

about the design of a non-load-bearing interior space. (4) "Interior designer" means a person registered under this subtitle to practice interior design.

#### **Texas - 2010 (Registered Interior Designer)**

(29) Interior Design--The identification, research, or development of creative solutions to problems relating to the function or quality of the interior environment; the performance of services relating to interior spaces, including programming, design analysis, space planning of non-load-bearing interior construction, and application of aesthetic principles, by using specialized knowledge of interior construction, building codes, equipment, materials, or furnishings; or the preparation of interior design plans, specifications, or related documents about the design of non-load-bearing interior spaces.

Source: Retrieved on May 29, 2010, from

[http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=9&p\\_dir=&p\\_rloc=&p\\_tloc=&p\\_ploc=&pg=1&p\\_tac=&ti=22&pt=1&ch=5&rl=5](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=22&pt=1&ch=5&rl=5)

#### **Virginia - 2010 (Certified Interior Designer)—No Change in Definition**

'Interior design" by a certified interior designer means any service rendered wherein the principles and methodology of interior design are applied in connection with the identification, research, and creative solution of problems pertaining to the function and quality of the interior environment. Such services relative to interior spaces shall include the preparation of documents for nonload-bearing interior construction, furnishings, fixtures, and equipment in order to enhance and protect the health, safety, and welfare of the public.

"Certified interior designer" means a design professional who meets the criteria of education, experience, and testing in the rendering of interior design services established by the Board through certification as an interior designer.

Source: Retrieved on July 16, 2010, from <http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+54.1-400>

#### **Washington, DC - 2010 (Interior Designer)—No Change in Definition**

Scope of Practice. 3209.1 For the purposes of this chapter, the term "practice of interior design" means providing or offering to provide consultations, preliminary studies, drawings, specifications, or any related service for the design analysis, programming, space planning, or aesthetic planning of the interior of buildings, using specialized knowledge of interior construction, building systems and components, building codes, fire and safety codes, equipment, materials, and furnishings, in a manner that will protect and enhance the health, safety, and welfare of the public whether one or all of these services are performed either in person or as the directing head of an organization. The practice of interior design does not include the practice of architecture, as defined in D.C. Official Code § 47-2853.61.

Source: Retrieved on May 29, 2010, from <http://www.asisvcs.com/publications/pdf/660949.pdf>

**Wisconsin - 2010 (Registered Interior Designer)—No Change in Definition**

440.96 Definitions. In this subchapter:

(1) "Interior design" means the design of interior spaces in conformity with public health, safety and welfare requirements, including the preparation of documents relating to space planning, finish materials, furnishings, fixtures and equipment and the preparation of documents relating to interior construction that does not substantially affect the mechanical or structural systems of a building. "Interior design" does not include services that constitute the practice of architecture or the practice of professional engineering.

Source: Retrieved on May 29, 2010, from <http://www.legis.state.wi.us/statutes/Stat0440.pdf>

## Appendix C. Content Analysis Method Used for BOK Update

There are three sections to this appendix that provide specific research strategies used to update the BOK. The first segment (C.1.) reviews rater training; the second (C.2.) reviews levels of coding; and the third (C.3.) contains the decision rules. There is an overview of the method in *Section 2. Methods*.

### C.1. Rater Training

Content analysis is rarely done by an individual researcher. Generally, several individuals with specific backgrounds are selected and trained by the researchers to identify or rate the content found in source documents. Researchers carefully identify the raters and determine the rater training process and schedule.

#### Preparation by Researchers

Prior to working with the raters, the researchers reviewed scholarly literature about content analysis process and protocols as well as studies that had utilized content analysis. Researchers then devised a timeline with training goals including numbers of meetings, selection of readings and exercises for raters, content for lectures and discussions, and guidelines for evaluation of raters' exercises. Researchers also systematically discussed outcomes from each aspect of training and reinforced those with raters.

Dates and times for in-person, group rater training were determined in early December 2009. The first meeting was held with raters on December 14, 2009, and training was complete February 5, 2010. After completion of training, raters began the content analysis of source documents used to identify the 2010 BOK, namely abstract knowledge, KAs, and categories.

#### Rater Training Process and Schedule

Duration of training and activities that comprised the meetings is outlined in Table C.1. Raters were responsible for completing readings and exercises assigned by the researchers between meetings. Researchers also completed each exercise. Results from researchers and raters were shared during meetings; in this way essential issues could be highlighted for raters.

Table C.1. Rater Training Schedule and Activities.

Date/Time	Activities
12/14/09 (1 hour)	Discussed the purpose and scope of the BOK study. Goals, timeline, and process of training and project were reviewed. Reading materials about content analysis and two introductory exercises were reviewed and assigned. Exercises 1 and 2 were reviewed and analyzed.
1/6/10 (3 hours)	Content analysis was reviewed including its purpose, method, and process; decision rules, reliability, and validity were also discussed. Completed Exercises 1 and 2 were reviewed in context of this new information. Exercises 3 and 4 were reviewed and assigned.
2/5/10 (2 hours)	Findings, questions, and issues discovered via completion of Exercises 3 and 4 were reviewed. Purpose of the BOK study was reviewed in relation to the method. Coding procedures, definitions of key operational terms, e.g., knowledge, and process for documenting and submitting findings to researchers was presented. Source documents (the sample) were introduced and disseminated; raters' questions about the coding process were answered by researchers.

At the first meeting (12/14/10), the raters were informed about their upcoming work for the BOK study; however, the prior BOK studies (Guerin & Martin, 2001; Martin & Guerin, 2006) were purposely not discussed, and raters were instructed to not become familiar with those studies (none had read them beforehand) as familiarity with previous study findings could skew coding for the current study. Procedural and ethical considerations were discussed. For example:

- Raters were required to complete their work individually (both exercises and study coding) and could not discuss it with one another;
- The procedure for asking questions of the researchers was determined;
- Raters used pre-assigned, confidential rater identification numbers so researchers could not identify findings;
- Raters were encouraged to always work when not distracted, but to be methodical and careful;
- Raters were instructed on the coding process and categorization of content documentation protocols (using highlighters) and determination of frequencies, i.e., counts of coding results (separately from the document) to enhance accuracy; and
- The importance of their work to the outcomes and implications of this study were reinforced.

These measures were applied to training exercises in anticipation of their application to the KA coding to identify the BOK.

Raters were educated about content analysis, its purpose, process, and protocols through readings (Babbie, 2010; Sommer & Sommer, 2002; Stemler, 2001) and participation in lecture and discussion presented by the researchers. Raters were also engaged in exercises (four) that provided practice experiences applying *a priori* coding decisions to literature

selected by the researchers. Readings began with short and simple excerpts from two books and the focus of the content analysis varied specifically per reading. Researchers purposely did not use subject matter related to the BOK study for the first two readings, but rather selected more familiar, basic terms to help explain and simplify the task. For both exercises, raters were given content analysis goals (without applying that terminology) and documentation protocols, i.e., highlighting and listing.

Exercise 1 was assigned from Hans Christian Andersen's "The Tinder Box" from *The Fairy Tale Book* (1958). Raters were to identify "words/phrases that *denote* violence, aggression, or threat of violence." Raters were also asked to code "words/phrases that *might denote* violence, aggression, or threat of violence." This two-tiered coding was assigned to help illustrate to raters the difficulty in coding. Then, categorization of findings were explored, i.e., physical versus verbal acts.

Exercise 2 used a writing entitled, "Beer and Bacon Sandwiches at 5:30 a.m." from *The Ice Palace That Melted Away: Restoring Civility and Other Lost Virtues to Everyday Life* (Stumpf, 1998). Raters were to identify "words/phrases that denote technology as a *bad* influence on food" as well as "words/phrases that denote technology as a *good* influence on food." When raters' content analysis findings were discussed during the second training (1/6/10), variation in findings among raters of both words/phrases identified and frequencies were explored, as well as the difficulty in decision-making when coding the source documents. During the training on this same day, researchers gave a somewhat in-depth review of the process of content analysis. Identification, interpretation, and categorization involved in coding were reviewed, as well as the role of *a priori* and emergent coding methods and the development and essential role of decision rules. Raters' experiences with the first two exercises prepared them to absorb and apply the content analysis background material.

In the next training step, raters were presented with documents related to interior design and were reviewed during the final training meeting (2/5/10). Exercise 3 called for raters to read the *U.S. Bureau of Labor Statistics, Occupational Outlook Handbook's* description of "Interior Designers" (2009). Analyzing this seven-page document, raters were to code words/phrases that addressed the research question, "What specialized knowledge does an interior design practitioner possess to be capable of practicing interior design?" This presented a greater challenge than the previous two exercises as it required raters to 1) consider the content present versus personal knowledge; 2) determine "specialized knowledge" versus other

abilities, i.e., skills; and 3) track and document content and frequency count accurately in this content-dense document.

The final assignment, Exercise 4, culminated training by requiring all aspects of Exercise 3, but with the additional task of having raters place coded content into categories relative to health, safety, and/or welfare. Raters were provided NCIDQ brief definitions (National Council for Interior Design Qualification, 2004, p. 22) of these terms by the researchers (note: NCIDQ's defined health and safety together with welfare as a separate definition), along with "Chapter 7. Human Factors and Social Responsibility," from Pile's, *Interior Design* (2007). At this stage, raters' abilities to 1) code content, 2) categorize it by its relationship(s) to health and safety and/or welfare, 3) determine content frequencies, and 4) document findings accurately were tested. Experiences and findings from Exercises 3 and 4 created the foundation for discussion by raters, led by researchers, regarding decision rules for the BOK study itself. This was a critical step in the training, as the coding method being used for this study was *a priori*, with refinements and adjustments addressed through emergent coding. These last two exercises also illustrated for the researchers the need to define "knowledge," versus "skill" and "task" for the raters in preparation for coding of the BOKs source documents. "Categorization" was also defined, as were two terms ("input" and "output") used in a source document for the BOK content analysis: *Professional Standards 2009* (Council for Interior Design Accreditation, 2008).

## C.2. Levels of Coding

Specific steps taken that defined the levels of coding for this study are outlined below.

### **Level 1. Coding abstract knowledge.**

**Step 1.** Following the initial decision rules created by the researchers (see C.3. Decision Rules of this appendix for Initial Decision Rules), manifest content from the three source documents was coded separately, and frequencies were noted by raters working independently. Raw data were alpha ordered, and data were electronically submitted, anonymously, to researchers via rater identification number. During the early part of this process, raters submitted any questions or difficulties encountered during the coding process to the researchers. Review of these questions and issues resulted in development of a list of emergent decision rules, which was given to the raters for their use in completing this portion of the work. (See C.3 Decision Rules.)

**Step 2.** Researchers combined the raw data for all three sources submitted by the raters; data were alpha ordered.

**Step 3.** The raw data were cleaned by the researchers; this included making small changes to bring the data into alignment with the decision rules, e.g., remove grammatical and spelling errors; eliminate redundancies in manifest coding such as combining space plan, space plans, and spatial plan as “space plan(s).” At this point, raw data remained as abstract knowledge; knowledge was not yet grouped into KAs.

### **Level 2. Categorization of abstract knowledge.**

**Step 1.** Cleaned data were returned to the raters along with the six category names used in the 2005 BOK study (Martin & Guerin, 2006), i.e., *a priori* coding. Raters were asked to assign coded, cleaned data into categories based on their knowledge of interior design (via education, experience, examination).

**Step 2.** Researchers reconciled coded data to eliminate abstract knowledge redundancies and made decisions regarding assignment of abstract knowledge to one of the six categories when fewer than three of five raters had placed it in the same category. This was done to order and organize data and to make it manageable for analysis and discussion.

### **Level 3. Formulation of KAs via grouping abstract knowledge.**

**Step 1.** Researchers grouped abstract knowledge into KAs and identified the KA name for each area.

**Step 2.** Researchers renamed categories based on finalized coding of abstract knowledge and KA content groupings.

## **C.3. Decision Rules**

Below, initial and *a priori* decision rules are described followed by emergent decision rules.

### Initial Decision Rules

The following decision rules were determined prior to the raters beginning analysis of content. These initial decision rules were documented and disseminated by the researchers to all raters prior to commencing coding of the sample.

- 1) Raters have not read either of the two previous BOK studies; they will not read them during this content analysis process.
- 2) Raters will not discuss the rating process, the sample (the source documents), or their findings with one another.
- 3) Raters will document unclear abstract knowledge to discuss during meetings.
- 4) Headings/subheadings from source documents will be considered as data and included in the content analysis.
- 5) Content of all tables, figures, and footnotes will be considered as data and included.
- 6) Page names, labels, e.g., the title of the book; section label, such as *Professional Standards 2009* will not be considered as data and not included as they relate to navigating the book, not content.
- 7) An abstract knowledge phrase is to be included in its entirety; keywords are not to be extracted from the phrase. For example: retain “structural solidity and safety;” do not separate/edit it to read as separate abstract knowledge, e.g., “structural solidity” and “safety.” Likewise, retain and record “impact of color and light;” do not document them as separate abstract knowledge, such as “impact of color” and “impact of light.”
- 8) Do not abbreviate the abstract knowledge phrase in any way, even if it seems it will enhance clarity or meaning; keep the abstract knowledge phrase as published. For example, retain “suitable levels of privacy;” do not shorten it to either “levels of privacy” or “privacy levels.”
- 9) In some cases, a string of abstract knowledge words can be separated before being documented. Below, two examples are offered to help make the determination whether to maintain the abstract knowledge in a single phrase, or to document them separately:
  - a. If the string of abstract knowledge describes related KAs, they should be documented as a single abstract knowledge phrase, e.g., “counter, shelf, desk heights.”
  - b. If the string of abstract knowledge is describing unrelated KAs, they should be documented separately, e.g., “lighting, materials, color.”

10) If abstract knowledge is noted in the document, followed by a definition of the abstract knowledge, document both of these elements of abstract knowledge via the content analysis, e.g., “shoe” and the words that define/describe a shoe.

### **Emergent Decision Rules**

The following decision rules emerged as a result of questions posed by the raters to the researchers during the coding process. The resultant decision rules were documented and disseminated by the researchers to all raters prior to completion of the coding of KAs.

- 1) When abstract knowledge is referenced, e.g., in a footnote, that is not adjacent to the noun/KA that it is modifying or expanding on, this should be counted. For example, if in the body of a source document, it is stated that “human behavior is understood” and then in a footnote it explains that “this includes factors such as social, physical, ethnic, proxemics, and ergonomics.” The word “behavior” is not a modifier of social, physical, ethnic, etc. and, individually, social behavior, physical behavior, etc. are all KAs interior designers could be held accountable for understanding. They should each be counted; if as a phrase, document and count the phrase.
- 2) When a phrase uses the word “including” in the following format: “methods of egress including A, B and C” where A, B and C are examples of *egress*. This is to be treated as abstract knowledge.
- 3) When inexplicit/vague wording is used to refer to something that is a KA of interior designers, the researchers must review and make decisions about how it is to be counted.
- 4) When a definition of an already decided KA is given, but contains other KA within it, it is to the researchers’ discretion to decide if it is kept together to reference the KA it is defining versus the contained KA listed within it (of course, no double counting can occur).
- 5) Abstract knowledge, which listed with (/) between words, counts as one item, not several.

### **References for Appendix C. Content Analysis Method**

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**Appendix D. Questionnaire Sample**

*Directions: Please respond to these questions about you.*

1. Have you worked as a professional interior designer in the past five years? <input type="checkbox"/> Yes (If yes, respondents continued.) <input type="checkbox"/> No (If no, the response was submitted and ended here.)
2. How many years have you practiced interior design? _____ (Respondents filled in a one or two-digit number.)
3. Identify your type of professional practice (select only one). <input type="checkbox"/> Nearly 100% commercial/non-residential <input type="checkbox"/> Nearly 100% residential <input type="checkbox"/> About even mix of commercial and residential
4. Gender <input type="checkbox"/> Female <input type="checkbox"/> Male
5. Where do you live? _____ (Respondents chose a state, province, or territory from a comprehensive list of North American selections.)

**Directions:**  
*The rest of this questionnaire is about how your practice affects people’s health, safety, and welfare. Each question asks you to determine to what extent a key area of your specialized knowledge contributes to people’s health, safety, or welfare. The scale ranges from 1 (does not contribute at all) to 7 (contributes very much). You can choose any of the seven numbers. Please respond to each question.*

<b>HEALTH</b>						
Please rate the following knowledge in terms of contribution to <b>health</b> (definition given here).						
1. To what extent does <b>programming (problem identification, requirements)</b> contribute to the client/user’s <b>health</b> ?						Very Much
Not at all						
1	2	3	4	5	6	7
2. To what extent does the <b>research process (studies, data collection, recording, analysis)</b> contribute to the client/user’s <b>health</b> ?						Very Much
Not at all						
1	2	3	4	5	6	7
3. To what extent do <b>accessibility issues (barrier-free and universal design)</b> contribute to the client/user’s <b>health</b> ?						Very Much
Not at all						
1	2	3	4	5	6	7
4. To what extent do <b>aesthetics</b> contribute to the client/user’s <b>health</b> ?						Very Much
Not at all						
1	2	3	4	5	6	7
5. To what extent do <b>acoustics</b> contribute to the client/user’s <b>health</b> ?						Very Much
Not at all						
1	2	3	4	5	6	7
<b>CONTINUED ON NEXT PAGE</b>						

HEALTH (CONTINUED)						
6. To what extent does the <b>analysis of client's/user's needs, activities, and goals</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
7. To what extent do <b>as-built drawings</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
8. To what extent do <b>building codes, laws, regulations; life safety standards (movement, stairs, corridors, ramps, exits) and requirements</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
9. To what extent do <b>building systems (mechanical, electrical, plumbing, structural)</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
10. To what extent do <b>business practices</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
11. To what extent do <b>business processes (marketing, strategic planning, accounting procedures, real estate issues)</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
12. To what extent do <b>client's/user's needs, goals, preferences, and requirements</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
13. To what extent do <b>color principles, theories, and systems</b> contribute to the client/user's <b>health</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
SAFETY						
Please rate the following knowledge in terms of contribution to <b>safety</b> (definition given here).						
14. To what extent does <b>programming (problem identification, requirements)</b> contribute to the client/user's <b>safety</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
15. To what extent does the <b>research process (studies, data collection, recording, analysis)</b> contribute to the client/user's <b>safety</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
16. To what extent do <b>accessibility issues (barrier-free and universal design)</b> contribute to the client/user's <b>safety</b> ?						
Not at all						Very Much
1	2	3	4	5	6	7
CONTINUED ON NEXT PAGE						

SAFETY (CONTINUED)							
17. To what extent do <b>aesthetics</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
18. To what extent do <b>acoustics</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
19. To what extent does the <b>analysis of client's/user's needs, activities, and goals</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
20. To what extent do <b>as-built drawings</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
21. To what extent do <b>building codes, laws, regulations; life safety standards (movement, stairs, corridors, ramps, exits) and requirements</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
22. To what extent do <b>building systems (mechanical, electrical, plumbing, structural)</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
23. To what extent do <b>business practices</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
24. To what extent do <b>business processes (marketing, strategic planning, accounting procedures, real estate issues)</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
25. To what extent do <b>client's/user's needs, goals, preferences, and requirements</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
26. To what extent do <b>color principles, theories, and systems</b> contribute to the client/user's <b>safety</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
WELFARE							
Please rate the following knowledge in terms of contribution to <b>welfare</b> (definition given here).							
27. To what extent does <b>programming (problem identification, requirements)</b> contribute to the client/user's <b>welfare</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
28. To what extent does the <b>research process (studies, data collection, recording, analysis)</b> contribute to the client/user's <b>welfare</b> ?							
Not at all							
1	2	3	4	5	6	7	Very Much
CONTINUED ON NEXT PAGE							

WELFARE (CONTINUED)						
29.	To what extent do <b>accessibility issues (barrier-free and universal design)</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
30.	To what extent do <b>aesthetics</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
31.	To what extent do <b>acoustics</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
32.	To what extent does the <b>analysis of client's/user's needs, activities, and goals</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
33.	To what extent do <b>as-built drawings</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
34.	To what extent do <b>building codes, laws, regulations; life safety standards (movement, stairs, corridors, ramps, exits) and requirements</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
35.	To what extent do <b>building systems (mechanical, electrical, plumbing, structural)</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
36.	To what extent do <b>business practices</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
37.	To what extent do <b>business processes (marketing, strategic planning, accounting procedures, real estate issues)</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7
38.	To what extent do <b>client's/user's needs, goals, preferences, and requirements</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
2	2	3	4	5	6	7
39.	To what extent do <b>color principles, theories, and systems</b> contribute to the client/user's <b>welfare</b> ?					
Not at all						Very Much
1	2	3	4	5	6	7

Thank you for your time!

### Appendix E. NCIDQ Definition of Interior Design

Interior design is a multi-faceted profession in which creative and technical solutions are applied within a structure to achieve a built interior environment. These solutions are functional, enhance the quality of life and culture of the occupants, and are aesthetically attractive. Designs are created in response to and coordinated with the building shell, and acknowledge the physical location and social context of the project. Designs must adhere to code and regulatory requirements, and encourage the principles of environmental sustainability. The interior design process follows a systematic and coordinated methodology, including research, analysis and integration of knowledge into the creative process, whereby the needs and resources of the client are satisfied to produce an interior space that fulfills the project goals. Interior design includes a scope of services performed by a professional design practitioner, qualified by means of education, experience, and examination, to protect and enhance the health, life safety and welfare of the public. These services may include any or all of the following tasks:

- Research and analysis of the client's goals and requirements; and development of documents, drawings and diagrams that outline those needs;
- Formulation of preliminary space plans and two and three dimensional design concept studies and sketches that integrate the client's program needs and are based on knowledge of the principles of interior design and theories of human behavior;
- Confirmation that preliminary space plans and design concepts are safe, functional, aesthetically appropriate, and meet all public health, life safety and welfare requirements, including code, accessibility, environmental, and sustainability guidelines;
- Selection of colors, materials and finishes to appropriately convey the design concept, and to meet socio-psychological, functional, maintenance, life-cycle performance, environmental, and safety requirements;
- Selection and specification of furniture, fixtures, equipment and millwork, including layout drawings and detailed product description; and provision of contract documentation to facilitate pricing, procurement and installation of furniture;
- Provision of project management services, including preparation of project budgets and schedules;
- Preparation of construction documents, consisting of plans, elevations, details and specifications, to illustrate non-structural and/or non-seismic partition layouts; power and communications locations; reflected ceiling plans and lighting designs; materials and finishes; and furniture layouts;
- Preparation of construction documents to adhere to regional building and fire codes, municipal codes, and any other jurisdictional statutes, regulations and guidelines applicable to the interior space;

- Coordination and collaboration with other allied design professionals who may be retained to provide consulting services, including but not limited to architects; structural, mechanical and electrical engineers, and various specialty consultants;
- Confirmation that construction documents for non-structural and/or non-seismic construction are signed and sealed by the responsible interior designer, as applicable to jurisdictional requirements for filing with code enforcement officials;
- Administration of contract documents, bids and negotiations as the client's agent;
- Observation and reporting on the implementation of projects while in progress and upon completion, as a representative of and on behalf of the client; and conducting post-occupancy evaluation reports.

### **Reference for Appendix E**

National Council for Interior Design Qualification. (2004). Definition of interior design.

Retrieved July 21, 2010, from

<http://www.ncidq.org/AboutUs/AboutInteriorDesign/DefinitionofInteriorDesign.aspx>

## Appendix F. Author Biographies



**Denise A. Guerin**, PhD, FIDEC, FASID, IIDA, is a Morse-Alumni Distinguished Professor and Director of Interior Design, University of Minnesota. She earned a bachelor's, master's, and a PhD in interior design. She teaches undergraduate studios, ethics and professional practice, and interior design research methods and advises both master's and PhD students. Guerin's research focuses on post-occupancy evaluation in sustainable buildings and implementation of evidence-based design in practice. She has a significant number of publications in refereed journals and presents at many designed environment conferences. She served as President of IDEC (2010-2011) and has served as President and Vice President of the IDEC Foundation, on several task forces for NCIDQ, and as editor of *JID*. She serves as a CIDA site visitor and actively participates in Minnesota's ID practice legislation efforts. Guerin is co-editor with Martin of *The State of the Interior Design Profession (2010)*. She is also co-author of *The Interior Design Profession's Body of Knowledge: Its Definition and Documentation, 2001*, and *The Interior Design Profession's Body of Knowledge, 2005 Edition*. She is co-creator and coordinator of InformeDesign®. Guerin is a recipient of IIDA's Michael Tatum Excellence in Education Award, NCIDQ's Louis Tregue Award, ASID's Distinguished Educator, ARIDO's award for Educational Leadership, and IIDA's Lifetime Achievement Award (Minnesota Chapter).



**Caren S. Martin**, PhD, CID-MN, FASID, IDEC, IES, IIDA, is an Associate Professor of interior design at the University of Minnesota. Before earning her master's and PhD, she practiced institutional, corporate, and healthcare interior design and project management for nearly 20 years for multidisciplinary design firms, which she shares with her undergraduate and graduate students within the context of an evidence-based design approach. Martin served two-terms on Minnesota's professional licensing board and chaired NCIDQ's Model Language Committee. She serves on ASID's Legislative and Codes Advisory Council and for nearly a decade has served on the Steering Committee of Minnesota's legislative coalition. Her scholarship focuses on opportunities and threats facing

the interior design profession. Martin authored "Rebuttal of the Report by the Institute for Justice Entitled Designing Cartels: How Industry Insiders Cut Out Competition" (*Journal of Interior Design*, 2008), and the book, *Interior Design: From Practice to Profession* (ASID, 2007). With Guerin, she co-authored *The Interior Design Profession's Body of Knowledge: Its Definition and Documentation, 2001*, and *The Interior Design Profession's Body of Knowledge, 2005 Edition*. Martin co-created InformedDesign® and serves as its Executive Director. *The State of the Interior Design Profession*, co-edited with Guerin, was published in 2010 (Fairchild Books).