STATE OF UTAH

OCCUPATIONAL AND PROFESSIONAL LICENSURE REVIEW APPLICATION

I.D.E.A.L. for Utah

ideal

INTERIOR DESIGN ☆ EDUCATION & LEGISLATION

for Utah

Section A: Applicant Group Information

1.) What occupational group is seeking regulation?

a.) Interior Design Education and Legislation (IDEAL) for Utah is seeking licensing for interior designers, in association with the American Society of Interior Designers (ASID), International Interior Design Association (IIDA), and the National Council of Interior Design Qualification (NCIDQ) organization.

b.) Contact Information

Melanie Bahl, IIDA
Principal / Interior Designer, LEED® AP ID+C, NCIDQ
Interiors West, LLC
254 East 100 South
Salt Lake City, Utah 84111
Office 801-933-4949
Fax 801-933-4955
melanie@interiors-west.com

Kaye Christiansen Englert, ASID, NCIDQ
Design Plus, Inc.
Christiansen Englert Design
323 South 600 East Suite 100
Salt Lake City, Utah 84102
Office 801-531-0764
Fax 801-521-5731
kaye.designplus@earthlink.net

Amy Coombs
Legislative Advisor
705 Hidden Manor Circle
Lehi, Utah 84043
Office 801-404-2627
amcoombs@usc.edu

2.) List all titles currently used by Utah practitioners of this occupation. Estimate the total number of practitioners now in Utah, and the number using each title.

a. Interior Designer is the current title used by most practitioners, and according to the department of workforce services there are 340 practitioners in Utah. There are 135 NCIDQ certified Interior Designers in the state of Utah. The broad view of titles in the state of Utah could include the following:

NCIDQ Interior Designer, Interior Designer, Interior Decorator, Designer and Kitchen and Bath Designer.

3.) Identify each occupational association representing current practitioners in Utah and estimate its membership. For each, list the name of any associated national group.

a. There are numerous organizations which Interior Designers participate in. Members of the American Society of Interior Designers (ASID), and the International Interior Design Association (IIDA) are the groups which represent all fields of designers.
b. The American Society of Interior Designers (ASID) has over 30,000 members, and the International Interior Design Association (IIDA) has over 13,000 members.

American Society of Interior Designer
718 7th Street NW 4th Floor
Washington, DC 20001
Phone 202-546-3480
Fax 202-546-3240
Email www.asid.org

International Interior Design Association (IIDA)
222 Merchandise Mart, Suite 567
Chicago, IL 60654
Toll Free: 888-799-IIDA (4432)
Chicago: 312-467-1950
International: +01 312 467 1950
Email: iidahq@iida.org

c. The designer members for Utah's ASID chapter, the Intermountain Chapter of ASID, is 123.

d. The designer membership for Utah IIDA Intermountain Chapter is 154.

4.) Estimate the percentage of practitioners who support this request for regulation. Document the source of this estimate.

a. Within the state of Utah interior designers who are NCIDQ certified are estimated to be 95% in support of regulation conservatively. In addition, students and recent graduates will be sitting for examination and will contribute to those who are in support.

5.) **Name the applicant group representing the practitioners in this effort to seek regulation. How was this group selected to represent practitioners?**

a. IDEAL for Utah is the group which represents practitioners desiring regulation.
b. IDEAL for Utah is a coalition whose leadership consists of interior designers in Utah and also includes representatives of the supporting occupational and professional associations. The membership includes designers, trade affiliates, and interested members of the public.
c. National Professional organizations representing interior designers created IDEAL model legislation, however the Utah-IDEAL coalition board is made of volunteer interior designers who support licensing for their profession.

6.) **Are all practitioner groups listed in response to question #3 represented in the organization seeking regulation? If not, why not?**

a. Yes, all groups are represented in the coalition seeking regulation.

Section B Consumer Group Information

7.) **Do practitioners typically deal with a specific consumer population? Are clients generally individuals or organizations? Please provide documentation.**

a. Interior designers work with the public in a variety of settings including healthcare, hospitality, government, education, corporate, and residential capacities.
b. Consumers of interior design services can be individuals and/or organizations. In addition, small or large corporations, board of directors and government panels can be clients, as well as CEO's, individuals and families. Interior designers are integral partners with community professionals in the trade industry including architects, engineers, contractors, developers, real estate agents, building owners and property managers.

c. Examples of projects done by interior designers in Utah are listed below (a portion of the below mentioned projects were worked on by interior designers employed in an architecture firm). These projects include a small snapshot of the work by Utah interior designers.

Questar Corporate Headquarters, SLC, Utah
Workers Compensation Corporate Offices, Sandy, Utah
FLSmidth Corporate Office, Midvale, UT
Instructure Corporate Office, SLC, UT
Parr, Brown Gee & Loveless, SLC, UT
Powdr Corp., Park City, UT
CHG Healthcare Services, SLC, UT

Snell & Wilmer, SLC, UT
FBI (various remodels), SLC, UT
Bureau of Alcohol, Tobacco & Firearms, SLC, UT
Department of Homeland Security (ICE), SLC, UT
Pritchett, Canyon Meadows Residence, Provo Canyon, UT
McBaine Smith, Fairfield Road Residence, SLC, UT
Mealey, Hunters Ridge Residence, SLC, UT
Blatter, Brockbank Way Residence, SLC, UT

8.) Identify any advocacy groups representing Utah consumers of this service. List also the name of applicable national advocacy groups.

a. To our knowledge there are no specific advocacy groups representing Utah consumers locally or nationally regarding interior design. However, formal agencies that work closely with interior designers to advocate and protect consumers are the state and local fire marshals, code officials, building and health inspectors, insurance companies who offer liability insurance to interior designers, the Better Business Bureau, and the Consumer Protection Agency.

9.) Identify any consumer populations not now using practitioner services who are likely to do so if regulation is approved.

a. New consumer populations will likely use the services of licensed interior design professionals. These include individuals and organizations that have projects with square footage above 3,000 square feet. Clients with projects 3,000 square feet and over currently cannot directly hire an interior designer, and interior designers can already work in projects up to 2,999 square feet (Utah Architectural Licensing Act, 58-3a-304e). In addition, interior designers once recognized as licensed professionals, will gain more opportunities as their right to bid on all projects within their scope is recognized by those clients who only will hire licensed professionals in their requests for proposals (RFP's) as a matter of company policy.

10.) Does the applicant group include consumer advocate representation? If so, please provide documentation. If not, describe the efforts, if any, made to include such representation.

a. No. At the present time IDEAL for Utah does not have consumer advocacy representation, nor do the local chapters of the national interior design organizations. Shall we be licensed, we will have a regulatory board which will hear such consumer complaints.

11.) Name any non-applicant groups opposed to or with an interest in the proposed regulation. If none, indicate efforts made to identify them.

a. Local groups, organizations, or interested affiliated parties have yet to publicly or privately state any opposition. While it is the official position of the national organizations of the American Institute of Architects (AIA) and National Kitchen and Bath Association (NKBA) to oppose interior design licensing, the local associations have not officially provided statements. They may or may not follow the dictates of their individual national organizations.

Section C: Sunrise Criteria

I. The unregulated practice of the occupation or profession has clearly harmed or may harm or endanger the health, safety or welfare of the public and the potential for harm is easily justified.

12.) What is the nature and severity of the harm to the public? Please provide documentation for any physical, social, intellectual, financial, or other consequences to consumers resulting from incompetent practice.

a. Utah has declared a professional must be licensed to oversee the work in ALL projects 3,000 square feet and above due to demonstrated safety and health concerns, why would there also be less of a need for those same protections at 2,999 square feet? Additionally, inconsistent interpretation at the plan check could lead to hazard even with the open door for 3,000 square feet (Guerin, D. A., & Martin, C. S., 2010).

b. Interior designers with an NCIDQ certification, are specifically trained in safety and health issues for professional work in the code-based interior built environment. In emergency situations, the decisions made by interior designers are critical in protecting the life and safety of an interior space's occupants. Interior designers are specially trained in interior materials, including flammability and toxicity, and are qualified to select interior finishes that comply with applicable fire codes. Proper paths for egress, alarm systems, and exit lighting are all addressed by interior designers.

c. When designing for the workplace, interior designers are trained to provide for ergonomic work spaces and a built environment that can lead to increased productivity. Interior designers are also responsible for designing interior spaces that conform to ADA requirements, providing barrier-free designs for the handicapped and other persons with special needs.

d. When designing a space in a hospital setting, a qualified interior designer understands the relevant safety codes and practices necessary to design a safe, healthy and effective space. A qualified interior designer will know which type of products and finishes are flame retardant, antibacterial and anti-microbial; which products will withstand harsh cleansers and strict sanitary protocols, and which colors and types of lighting will aid recovery and enhance healing, or help a surgeon focus while operating.

e. Licensing provides consumers the opportunity to distinguish between licensed professionals verses a non-licensed professionals and work directly and with an appropriate interior design professional on code-based interior projects, saving clients both time and money.

f. Evidence of physical, social, intellectual, financial, or other consequences to consumers due to incompetent interior design work can be illustrated by:

This article is the primary article that speaks to the nature of harm due to incompetent interior design work:

Guerin, D. A., & Martin, C. S. (2010). The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare. *University of Minnesota.*

1. Physical Harm

Palka v. Servicemaster Mgt., 634 NE 2d 189 - NY: Court of Appeals 1994

Williams v. Melby, 699 P.2d 723 (Utah 1985).

Stephens v. Stearns, 678 P. 2d 41 - Idaho: Supreme Court 1984
The impact of healthcare environmental design on patient falls. Center for Health Design, 2008.

Hays, J. W. (2003). Construction Defect Claims against Design Professional and Contractors. *Constr. Law.*, *23*, 9

Lipscomb, H. J., Glazner, J., Bondy, J., Lezotte, D., & Guarini, K. (2004). Analysis of text from injury reports improves understanding of construction falls. *Journal of occupational and environmental medicine*, *46*(11), 1166-1173.

B & B Cut Stone Co., Inc. v. Resneck, 465 So. 2d 851 (La. Ct. App. 1985).

2. Social Harm

Boiler, L., Vorrham, L., Monshouwer, K. Van Hasselt, N., & Bellis, M. 2011. Alcohol and Drug Prevention in Nightlife Settings: A Review of Experimental Studies. Substance Use and Misuse, 46:1569-1591

3. Intellectual Harm

MONTGOMERY and FROST, New Mexico

4. Financial Harm

John Wagner Associates v. Hercules, Inc., 797 P.2d 1123 (Utah Ct. App. 1990).

Bellis, M., Hughes, K., & Lowery, H. 2002. Healthy Nightclubs and Recreational Substance Use from a Harm Minimization to a Healthy Settings Approach.

Wernsman, M. G. (2008). The Process of Designing and Constructing an Accessible Residence Hall for People with Disabilities on a Public University Campus. ProQuest.

Wade, A. R. (2011). DESIGNING TO PROMOTE PHYSICAL HEALTH FOR THE OBESE IN COMMERCIAL INTERIORS (Doctoral dissertation, Colorado State University).

El-Zeiny, R. M. A. (2013). Interior Design of Workplace and Performance Relationship: Private Sector Corporations in Egypt.

5. Other Consequences due to incompetence

Guerin, D. A., & Martin, C. S. (2010). The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare. *University of Minnesota.*

13.) How likely is it that harm will occur? Cite cases or instances of consumer injury. If none, how is harm currently avoided?

a. It is clear that the state of Utah has already made the public policy decision to protect the public from the previously listed design risks/problems, and that there are significant safety issues associated with spaces regardless of size. Professional interior designers work in spaces with these design risks. It is likely that requiring licensing will continue to decrease risks which currently exist. Harm is likely avoided, or at least minimized, when educated and experienced interior design professionals follow the state-adopted building codes and federal accessibility laws as a standard practice. There is a high chance for harm to occur when non-qualified and in-experienced designers attempt to work on projects in hospital settings and in spaces which require adherence to the ever changing requirements of ADA and building codes.

b. DOPL complaints and unprofessional conduct retrieved from Department of Occupational and Professional Licensing. Below is the link to the June 2014 Disciplinary Newsletter retrieved from http://www.dopl.utah.gov/investigations/newsletter/monthly_discp_2014-06.pdf

c. Guerin, D. A., & Martin, C. S. (2010). The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare. *University of Minnesota.*

d. Ulrich, R. S. (1991). Effects of interior design on wellness: theory and recent scientific research. *Journal of health care interior design, 3*(1), 97-109

e. Tremblay, K. R., & Barber, C. E. (2005). *Preventing falls in the elderly*. Colorado State University, Cooperative Extension.

f. Reiling J, Hughes RG, Murphy MR. The Impact of Facility Design on Patient Safety. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter 28. Retrieved from: http://www.ncbi.nlm.nih.gov/books/NBK2633/

14.) What provisions of the proposed regulation would preclude consumer injury?

a. The provisions of the proposed legislation are to create a safety standard by allowing the state to recognize professional interior designers who have passed rigorous examinations, demonstrated significant applicable experience and educational qualifications for working in code-based environments. Currently, designers will continue to work on projects both under and over 3,000 square feet, yet only architects, contractors, engineers, and builders are the parties licensed. This provision to allow for licensure of interior designers provides the same consumer health, safety and welfare protections that are found in projects over 3,000 square feet as well as for projects under 3,000 square feet.

15.) Is there or has there been significant public demand for a regulatory standard? Please provide documentation.

a. Yes. There are 27 states, the District of Columbia, Puerto Rico and eight Canadian Provinces which have passed regulatory measures for interior designers. Some of these regulations have been in existence since the 1980's.

II. The public needs, and can reasonably be expected to benefit from, an assurance of initial and continuing professional or occupational competence.

16.) What specific benefits will the public realize if this occupation is regulated? Indicate clearly how the proposed regulation will correct or preclude consumer injury. Do these benefits go beyond freedom from harm? If so, in what way?

a. The public will gain the current protections which are garnered from the protections at 3,000 square feet or above. For example those protections the public gains from the licensed trades would include interior designers.

b. Yes, these benefits go beyond the freedom from harm. For example, cost savings in the form of productivity, alertness and even calming effects at hospitals due to efficient and thoughtful lighting as well as innovative antibacterial materials increase productivity and protect public. Each environment an interior designer works with is impacted in ways which increase productivity, cost savings and functionality.

17.) Which consumers of practitioner services are most in need of protection? Which require the least protection? Which consumers will benefit most and least from regulation?

a. All consumers can benefit from protections offered by regulation, as has already been proven by the state regulation of the remainder of the construction trades teams in Utah. Specifically, consumers with disabilities, patients in healthcare settings, and children in school and daycare settings. Patrons of movie theaters, parks, office workers, and hotel guests are also affected by the expertise of interior designers. Consumers who are not affected by codes are the least likely to be influenced, however there is not an individual that is not impacted on a daily basis by building codes and accessibility requirements. We cannot point to anyone who would not benefit from safe design.

18.) Provide evidence of "net" benefit when the following possible effects of regulation are considered:

a. **Restriction of opportunity to practice:**
Currently there is a restriction of opportunity for interior designers to practice within their scope of expertise, so this bill would open the market and allow for competition.

b. **Restricted supply of practitioners:**
Current practice laws restrict interior designers from coming to Utah to work independently, and the laws also negatively impact new graduates by discouraging them from staying in Utah and starting interior design firms. Decorators and unlicensed interior designers would continue to provide services, but only Licensed Professional Interior Designers would be able to call themselves so. This bill is about safety as well as not restricting business.

c. **Increased costs of service to consumer:**
Increased competition is likely to keep costs down. Cost savings are also found as licensed interior designers promote their specialized skills and use sustainable and durable materials on projects over 3000 square feet, as is the case for healthcare settings. Professionals working to win a client will use their knowledge and education to provide the cost savings in many forms.

d. **Increased governmental intervention in the marketplace**:
It is in this specific case that the professional associations are requesting government licensure to help protect the public, and not the government pressing the regulations on them. Furthermore, the least objectionable intervention is when regulatory measures are implemented for the health and safety of the public, as is determined to be the case in this situation.

III. Regulation of the profession or occupation does not impose significant new economic hardship on the public, significantly diminish the supply of qualified practitioners or otherwise create barriers to services that are not consistent with the public welfare or interest.

19.) How many people seek services from this occupation? Will regulation of the occupation affect this figure? If so, in what way?

a. Currently, everyone encounters interior design, whether you are in a residential or commercial building, there are benefits of professional interior design realized. The demand for design services tends to track with the fortunes of the economy at large, similarly to the construction trades. In a strong economy, demand is high and design firms will find it difficult to attract and retain talented and experienced employees, especially at the junior level. In a downturn economy, the opposite will occur, with jobs harder to come by and interior designers tending to stay in a position rather than transferring to another firm. Regulation will open up opportunities for interior designers to continue to seek commercial work if they are laid off from their position in an architectural firm. Those seeking interior design services will have more options.

b. No, regulation of the occupation will not affect those seeking design services because the exemptions for those who are unlicensed would still be maintained. Regulation will affect licensed interior designer's ability to function as independent trade professionals, within their scope of practice, on projects without limitations on square footage.

20.) What is the current cost of the services provided (per episode or visit)? Estimate the total amount of money spent annually in Utah for the services of this group. How will regulation affect these costs?

a. Designers use a variety of fee structures and, as with other professions, base their fees on variables such as geographic location, years of expertise, professional reputation and client demand. Most designers charge using one of the following fee structures or a combination, to fit a client's particular needs:

b. Fixed fee (or flat fee), Hourly Fee, Percentage of the project fee, Retainer, Cost Plus, and Per Square Foot. The average cost for interior design services in the United States is reported below, however we note the wide variance of fees, with the average hourly rate anywhere from $50.00-$200.00:

Cost of Residential Interior Designers

$113.40 per hour (Range: $93.80 - $133.00)
$1.88 per square foot (Range: $0.75 - $3.00)
$64.99 fixed fee - flat rate (Range: $49.99 - $79.99)
$102.50 per visit / by session (Range: $85.00 - $120.00)
0.09% (Range: 0.06% - 0.12%)

Cost of Interior Designers - Commercial
$119.42 per hour (Range: $101.33 - $137.50)
$64.99 fixed fee - flat rate (Range: $49.99 - $79.99
$1.50-$2.50 per usable square foot of leased space

b. The current estimated amount of money spent annually on goods and services for interior design in Utah is $43 million according to ASID.

c. This situation is a case for providing increased options for consumers. As interior designers are able to bid on projects of all square footage, competition in the marketplace, in addition to market value, will balance costs for consumers and may result in decreased costs overall. Consumers will have a better opportunity to negotiate prices with a professional interior designer regarding design fees more easily, than when the design-build pricing is rolled into other services as may be the case currently. Allowing for the licensing of interior designers opens competition, and those professionals who are successful may find justification for increasing their fees based on their skills.

d. Documentation

http://www.fixr.com/costs/interior-design
http://interior-designers.promatcher.com/cost/
http://hadleycourt.com/how-much-does-it-cost-to-hire-a-professional-interior-decorator/
http://www.asid.org/content/how-interior-designers-charge-their-services
http://www.asid.org/interior-design-2014-outlook-and-state-industry

21.) Provide a cost analysis supporting regulation of this occupation. Include costs to provide adequate regulatory functions during the first three years following implementation of this regulation. Assure that at least the following have been included:

a. costs of program administration, including staffing:
The cost is minimal with the proposal to join the board which currently regulates the architects as the state of Nevada has done. The additional administration would include members who are licensed designers which would support their membership by fees and fines. We propose two additional board members, and submit to the rules as already established by the architectural board.

b. costs of developing and/or administering examinations:
The administrative cost for developing and administering examinations is not applicable. Testing is handled through the private sector by the National Council for Interior Design Qualification (NCIDQ).

c. costs of effective enforcement programs:
The cost of enforcement will be covered by the fees associated with board membership and licensing. The state of Nevada is a good example on how this process works, and appropriate documents are attached.

22.) Does adoption of the requested regulation represent the most cost-effective form of regulation? Indicate alternatives considered and costs associated with each.

a. Licensing, certification and registration have all been considered. Recent certification of music therapists have not been instituted long enough to judge cost effectiveness for this industry in comparison to licensing. Other forms of regulation have been considered, with the benefits of licensing regarding safety and health superseding any other form of regulation.

b. The costs are minimal for licensure, as we propose a joint board with the architects. However the trend to certify specific groups, who are currently smaller in numbers to justify a full licensing board may be more cost effective. It is too early to summarize the cost differential on these options, other than to say it is estimated to be minimal.

IV. The occupation requires possession of knowledge, skills, and abilities that are both teachable and testable.

23.) Is there a generally accepted core set of knowledge, skills, and abilities without which a practitioner may cause public harm? Please describe and document.

a. Yes. The NCIDQ exam qualifies interior designers in health, safety and welfare issues pertaining to the scope of their practice. Without such education, examination, and training the public is at risk for harm. Professional interior designers are trained for safety and health, including building and fire codes, ergonomics, materials, lighting, egress, ADA and a host of other vital components to create a safe built environment.

b. In addition to the above requirements, continuing education requirements are in place to maintain professional membership in ASID and IIDA, as well as for those in states with licensing CEUs, of which, IDCEC monitors and serves as the reporting agency. There are six eligibility routes used by the National Council for Interior Design Qualification (NCIDQ) to determine qualifications. A complete list of requirements outlined by NCIDQ is attached. The most common routes are:

1. A bachelor's or master's degree from one of over 180 interior design programs accredited by the Council of Interior Design Accreditation (CIDA) and 3,520 hours of qualified interior design work experience.

2. An associate's degree with 40 hours of interior design coursework with 7,040 hours of qualified interior design work experience.

24.) What methods are currently used to define the requisite knowledge, skills, and abilities? Who is responsible for defining these knowledge, skills, and abilities?

a. Currently a combination of education, experience and examination are used to define the minimum standards for the professional practice of Interior Design. The National Council for Interior Design Qualification (NCIDQ) defines these standards for the United States and Canada.

25.) Are the knowledge, skills, and abilities testable? Is the work of the group sufficiently defined that competence could be evaluated by some standard (such as ratings of education, experience, or exam performance)?

a. Yes, the knowledge, skills, and abilities are testable. The work of professional interior designers is standardized and competence is measureable by the NCIDQ for 27 states, District of Columbia, Puerto Rico, and all eight Canadian provinces.

b. Interior designers who meet NCIDQ's eligibility requirements for education and experience, and pass the NCIDQ examination, are assigned a NCIDQ Certificate number that attests to their qualifications. (See attached document)

26.) List institutions and program titles offering accredited and non-accredited preparatory programs in Utah. Estimate the annual number of graduates from each. If no such preparatory programs exist within Utah, where are the most accessible locations offering such programs? Add two other schools and average out, to be consistent

a. There are currently two CIDA (Counsel for Interior Design Accreditation) accredited interior design bachelor degree programs in Utah. CIDA is an independent, non-profit accrediting organization for interior design education programs at colleges and universities in the United States and Canada.

1. Utah State University
   Bachelor of Interior Design
   16 graduates per year on average
   47 applicants per year on average over past five years
   20 accepted per year on average over past five years
   Old Main Hill
   Logan, Utah 84322-1400
   www.usu.edu

2. Weber State University
   Interior Design Bachelor of Science Degree
   applicants & accepted per year (have not received, but will continue to gather appropriate numbers which will be available if requested).
   5-25 graduates per year on average
   3848 Harrison Blvd.
   Ogden, Utah 94408
   www.weber.edu

b. There is currently one non-accredited interior design bachelor degree program in Utah.

1. The Art Institute of Salt Lake City
   Interior Design Bachelor of Arts
   applicants & accepted per year (have not received, but will continue to gather appropriate numbers which will be available if requested).
   11 graduates per year on average
   121 West Election Road, Suite 100
   Draper, Utah 84020
   www.new.artinstitutes.edu

c. There are currently two non-accredited interior design associate degree programs in Utah.

1. LDS Business College
   Associate of Applied Science in Interior Design
   52 accepted per year on average over past five years
   37 graduates per year on average
   95 North 300 West
   Salt Lake City, Utah 84101-3500
   www.ldsbc.edu

2. Salt Lake Community College
   CTE Associate of Applied Science
   94 applicants per year on average over past five years
   25 graduates per year on average
   4600 South Redwood Road
   Salt Lake City, Utah 84123
   www.slcc.edu

d. There is currently one non-accredited one year certificate interior design program in Utah.

3. Bridgerland Applied Technology College
   1301 North 600 West
   7 graduates per year on average
   10 applicants per year on average over past five years
   Logan, UT 84321
   Main: 435-753-6780
   Toll Free: 866-701-1100
   TDD: 800-346-4128
   Fax: 435-752-2016
   http://www.batc.edu/

e. There have been other design programs in the past which have left the state, one being Brigham Young University's program which resides in its Idaho location.

27.) Apart from the programs listed in question 26, indicate other methods of acquiring requisite knowledge, skill, and ability. Examples may include apprenticeships, internships, on-the-job training, individual study, etc.

a. There are currently no other methods for acquiring the minimum requisite knowledge, skill, and ability for professional interior design.

b. As with other professions recognized by the state of Utah the education requirements set the level of expertise in the profession. Decorators or designers do not have the rigorous education of professional interior designers which sets the minimum requirements of a professional status. Other professions have lesser levels of expertise or defined scopes of practice, as in the case of nurses RN/ /LPN/Nurse Practitioners, or in the mental health fields. As the only member of the trade industry team that is not licensed, allowing for licensing professional interior designers would be no different, and even warranted.

28.) Estimate the percentage of current practitioners trained by each of the methods described in questions 26-27.

a. Currently there are 135 NCIDQ certified interior designers in Utah
b. There are currently 340 designers listed on HOUZZ.com as designers in Utah

29.) Does any examination or other measure currently exist to test for functional competence? If so, indicate how and by whom each was constructed and by whom it is currently administered. If not, indicate search efforts to locate such measures.

a. Yes. The Council for Interior Design Qualification (CIDQ) administers the NCIDQ examination for interior designers. The NCIDQ examination is composed of three sections:

1. IDFX: Interior Design Fundamentals Exam is designed to assess knowledge of building systems, construction standards and design application.

2. IDPX: Interior Design Professional Exam is designed to assess knowledge of building systems, codes, professional practice and project coordination.

3. PRAC: Interior Design Practicum is a full-day examination consisting of seven unique exercises that focus on space planning, lighting design, egress, life safety, restroom design, systems integrations, and millwork.

b. The examination is testing for educational knowledge and the application of that knowledge to measure competence. There are additional competence measures put in place in the form of supervised hours requirements and continuing education on an ongoing condition for renewal of certification.

30.) If more than one examination is listed above, which standard do you intend to support? Why? If none of the above, why not, and what do you propose as an alternative?

a. The NCIDQ is the national standard examination, and the accepted test for interior design competence. The state of California has its own test, but is rumored to be moving towards the NCIDQ shortly.

V. The occupation is clearly distinguishable from other occupations that are already regulated.

31.) What similar occupations are or have been regulated in Utah?

a. Architects, Builders, Contractors, Engineers and Landscape Architects are all licensed and regulated members of the professional trade industry team that works on projects with interior designers.

b. In fact, 2008 data suggests that the bulk of market projects are 3,000 square feet and above, which precludes qualified interior designers in the state of Utah the ability to bid on 90 percent of projects available.

32.) Describe functions performed by practitioners that differ from those performed by occupations listed in question 31.

a. There are some overlapping functions in reference to the occupations listed for question 31, however professional interior designers are uniquely trained and qualified to assess the interior uses of the space for their clients, while adhering to the safety and health codes which apply to the project space. Interior designers are experts in the non-structural code based environment, and choose appropriate fixtures, lighting, materials, and walkways/pathways for their clients while adhering to ADA and other building codes to achieve functional and productive spaces.

33.) Indicate the relationships among the groups listed in response to question 31 and practitioners. Can practitioners be considered a branch of currently regulated occupations?

a. The interior designers are often a distinct contributor of a team working on a project, with their own scope of practice clearly defined. Interior designers function separately and are hired by other regulated occupations to perform their scope of practice.

34.) What impact will the required regulation have upon the authority and scopes of practice of currently regulated groups?

a. There is no impact

35.) Are there unregulated occupations preforming services similar to those of the group to be regulated? If so, identify.

a. Interior designers are the only unregulated group of professionals preforming these services.

36.) Does the occupation or professional group have an established code of ethics, a voluntary certification program, or other measures to ensure a minimum quality of service?

a. Yes. There are professional standards and ethics codes provided by ASID, IIDA and CIDA which govern the conduct of interior designers. In addition the NCIDQ also contributes ethics and standards of professional practice.

37.) Are there measures that ensure a minimum quality of service? Why are these measures insufficient?

a. There is no real oversight to uphold complaints, nor is there a system standard for the state which oversees if a designer is adhering to their code of ethics or conduct.

b. A piece of paper is of little comfort when safety codes or professional conduct of a designer is in question. A consumer should have a pathway for reporting violations of ethical codes, safety and harm to the public, or to report unprofessional conduct.

VII. The public cannot be adequately protected by any means other than regulation.

38.) Explain why marketplace factors are not sufficient to ensure public welfare. Document specific instances in which market controls have proven ineffective in assuring consumer protection.

It is difficult to report on Utah statistics, simply because we don't have a regulatory board. However, Nevada has documented cases of harm occurring in their disciplinary actions newsletter, which are specific to interior design. In addition, Utah DOPL hears many reports of incidents in the construction trades that are similar, if not identical to the safety issues and responsibilities placed on interior designers, but because they are unregulated the reports indicate the licensed professional. Copious scholarly journals have reviewed this topic and clear evidence suggests that those working in a code based environment make decisions that affect the health and safety of consumers. We have provided some of those journal citations/and articles with this application.

a. The only way to truly protect the public from the unqualified practice of interior design is to provide title protection for qualified practitioners. This will allow for consumers to make educated decisions with regard to the qualifications of the interior designers that they hire. Interior designers impact the health and safety of the public at large by the decisions they make every day. When incorrect design decisions are made, and when improper materials are installed, people can be exposed to unnecessary risks, such as in the following examples:

1. **Ensuing Safe Evacuation from Interior Spaces in Emergency Situations**

Qualified interior designers are knowledgeable of building codes that define egress requirements. This includes the responsibility of planning clear circulation pathways within spaces that lead to building exits, as well as for understanding the requirements for fire ratings of partitions and door assemblies that affect the spread of fire and smoke.

2. **Reducing Accidental Injuries Due to Falling**

High-traffic areas such as public building entrances and lobbies require slip-and-trip-resistant flooring materials. The qualified interior designer understands technical properties such as the coefficient of friction, a factor in slip resistance.

3. **Improving Indoor Air Quality**

To minimize "sick building syndrome", materials that are void of volatile organic compounds (VOCs) must be installed. Interior designers who have studied this are knowledgeable about products that do not adversely affect indoor air quality.

4. **Proper Lighting**

Insufficient lighting can lead to accidents as well as eyestrain. Proper lighting must be provided to ensure the ability to clearly see transitions in the floor levels, read directional signage, and impart an overall feeling of safety. Interior designers possess the technical knowledge to specify appropriate fixtures for various interior settings.

b. Any errors or omissions are not necessarily reported or made known, and lawsuits are not always made public. Confidentiality agreements can prevent disclosure of unprofessional behavior, and so the public may not be aware of the risk they are taking when hiring an interior designer. Licensing would allow for additional consumer awareness, and thus an additional layer of safety would be available.

39.) Are there other states in which this occupation is regulated? If so, identify the states and indicate the manner in which consumer protection is ensured in those states. Provide, as an appendix, copies of the regulatory provisions from these states.

a. Yes, to date, Interior Design laws have been enacted in 27 U.S. states, including the District of Columbia and Puerto Rico, and 8 Canadian provinces. See appendix for a list of the states and their statues (or links).

40.) What means other than governmental regulation have been employed in Utah to protect consumer health and safety. Show why the following would be inadequate:

a. code of ethics

1. There is no enforcement on violations of an ethics code, it is a piece of paper. And while that may be sufficient for some industries, interior designers deal with health and safety issues that are sufficient to warrant enforcement of professional standards.

b. codes of practice enforced by professional associations

2. Interior design best practices defined are sufficient for business, if done ethically, but for matters of health and safety there should be a higher standard of enforcement as the public is trusting their workplace, home, living space, and community to an interior designer.

c. dispute-resolution mechanisms such as mediation or arbitration

3. Often, consumers are not aware of where to make a complaint, because their insurance may not cover the nominal damages they have suffered with their deductible. In addition, consumers may feel that since the person is not licensed, it is their misfortune for having trusted in the business. If interior designers are subject to losing their license, they may be more apt to work out issues and provide more ethical service.

d. recourse to current applicable law

4. Interior Designers are hired by other licensed professionals, and so the focus of any lawsuit would likely fall on their expertise, otherwise a civil suit may not be worth the time and energy for the client.

e. regulation of those who employ or supervise practitioners

5. Businesses are looking out for their profit, and that is not always synonymous with an ethical perspective for the client. Businesses are not looking out for the public, they make money and provide goods and services.

f. other measures attempted or contemplated

6. Yes, there are codes of ethics, professional standards, occupational associations, continuing education requirements AND building and fire codes which are standardized. In addition, there are over-regulations in place and by removing the arbitrary square foot limitations for practicing interior design, the opening up of excessively broad regulations would allow for more benefits to consumers and businesses through market competition.

Section D: Proposal for Regulation

41.) Do you propose licensure, certification, registration or another type of regulation? What is the justification for the level of regulation sought?

a. We propose full licensing for interior designers who are NCIDQ certified for the reasons stated previously on this application.
b. In addition to those health and safety answers above, licensing is necessary for the following reasons:

1. Education expenditures from tax payers help to fund university programs for interior design in Utah where students may leave the state for better opportunities.

2. Interior designers are the ONLY remaining professional not currently licensed on the project, including those with less education
3. If licensing is required for health and safety reasons for interior design projects over 3,000 square feet, then they should be licensed for ANY project dealing with the issues in a code based environment.

4. Licensing will promote business growth of interior design firms in Utah, which will keep our students in jobs here, and will also attract jobs for our design community. Licensed Interior Designers will be able to compete for projects on a national and international level, bringing stronger businesses and money into the state economy. For example, the design firm from California that won the Adobe project.

5. The loss of BYU's Interior Design Program

6. The Professional status licensing provides impacts communities and enhances neighborhoods in which they live, including but not limited to, a sense of well-being and an increase in property value.

42.) Describe the regulatory process that would administer this proposal focusing on the following areas:

The answers to this section are done so with the assumption of a joint board. We have included our proposal for a separate board in the appendix.

a. Regulatory board, proposed make-up of the board, qualifications for membership on the board.

1. We propose that two interior designers join the architectural board, and serve as a joint board as is done in Nevada.

b. Examinations

1. We propose that the standard examination is the NCIDQ certification process.

c. Inspections

1. Investigations on compliance would be based on the NCIDQ certification number as the licensing number, and said investigations would be conducted in the same matter of fashion as is currently practiced by the architectural board.

d. Renewal, revocations, or suspension of the right to practice this occupation or profession.

1. The renewal of license would be every two years, and disciplinary actions would be in accordance with DOPL and what has been established as functional with the existing architectural board practices.

e. Handling of the complaints and disciplinary actions to be taken against practitioners.

1. Disciplinary actions would be conducted in accordance with DOPL standards of practice and in similitude with established practices of the architectural board.

f. Types, numbers and amounts of fees to be collected. (Include fees for applications, examinations, original licenses, and renewals.)

1. Fees would be set at the appropriate amount necessary to cover all costs with the formation, implementation and administration of the board as detailed above.

43.) What do you propose as minimum standards (education, training, and experience) for entry into this occupation or profession? How accessible is the training and what is the anticipated cost?

a. We propose the applicant must provide proof which is satisfactory to the board that the applicant has:

1. Successfully completed a program of interior design accredited by the Council for Interior Design Accreditation (CIDA) or any successor in interest to that organization or a substantially equivalent program of interior design approved by the board, or The Alternate Education Review Process as administered by National Council for Interior Design Qualification (NCIDQ) or any successor in interest to that organization.

2. Successfully completed The Interior Design Experience Program as administered by NCIDQ or a supervised work experience program that is substantially equivalent to the Interior Design Experience Program.

3. Submitted verification issued by NCIDQ as proof that the applicant has passed the examination prepared and administered by NCIDQ.

b. The estimated cost for entry into this profession are detailed below:

1. Utah State University Tuition $18,950/ Weber State University $16,640 (Does not include fees, books, supplies, food or housing)

2. NCIDQ Exam
$200 Certificate Candidate Application for all 3 sections
$420 PRAC section
$270 IDFX section
$320 IDPX section
$1210.00

3. The NCIDQ exam is offered twice a year, in April and October. The exam is typically offered in Salt Lake City, Utah once a year. It is also available in Las Vegas, Nevada and Denver Colorado.

44.) Do you propose alternate routes of entry into the occupation or profession, or alternate methods of meeting the training, education, and experience requirements? If so, describe.

a. No, we do not propose alternate routes of entry besides what have already been described. It is desired to standardize the basic qualifications, for a minimum expectation of health and safety by those licensed by the state of Utah.

45.) Do you propose a "grandfather" clause in which current practitioners are exempted from compliance with proposed entry standards? If so, how is that clause justified? What safeguards will be provided for consumers? Will those who are grandfathered be required to meet the prerequisite qualifications at a later date?

We are not opposed to the concept, and have outlined a "grandfather" clause below. We defer to the experience and knowledge of the review committee on this matter.

An alternate path to licensure during the first four years of regulation will include:

1. A form or letter, as prescribed by the regulatory board, declaring his or her intention to apply for a certificate of licensure to practice interior design. [This "Letter of Intent" may have no expiration date for the persons who submit a letter within the period of four years from the date the law is enacted.]

2. Remainder of application process may have no expiration date, but will include:

a. An application on a form provided by the board;

b. The fees required;

c. A verification of passage of the National Council for Interior Design Qualification (NCIDQ) Examination as prepared and administered by that organization or any successor in interest or that organization and verifying the conditions of eligibility and standards as set by that organization or any successor in interest to that organization at the time of certification issuance; and

d. All information required to complete the application an approved by the Regulatory Board.

46.) Do you propose that renewal be based only upon payment of a fee, or do you propose it require re-examination, continuing education credits, peer review or other enforcement? Be specific. State whether you propose that renewals be annual, biennial, or otherwise.

a. In addition to payment of fees upon renewal, we propose that proof of continuing education credits be submitted with the application to the board every two years.

47.) If a continuing education requirement is proposed, describe opportunities and costs of continuing education in Utah.
(Or elsewhere if not available in the state)

a. We propose that to renew a license, an interior designer must complete 12 hours of continuing education. There are numerous continuing education credits that are offered free of charge throughout the state of Utah on an ongoing basis.

48.) What requirements do you propose for applicants from other states who have met the requirements for licensure or regulation in their former state?

a. We propose that any applicant who has passed the NCIDQ exam, and fulfilled the requirements for NCIDQ certification would be eligible to apply for a license in the state of Utah. Those who meet the same or stronger requirements and are licensed, certified or registered would be recognized via reciprocity.

49.) Estimate the cost to the state to implement and administer the proposed regulatory program. Include board member travel and per-diem expenses, personnel costs to administer day-to-day functions, costs of materials, testing costs, inspection costs, enforcement costs, and other related costs.

a. The costs are de minimus, because we propose that additional members will join the architectural board to create a joint board, as has been accomplished in Nevada, and where the fees will cover any other costs associated with licensing.

50.) How many practitioners are likely to apply to apply initially if the proposed regulation is adopted? How many in each of the next three years?

a. We expect all 135 Utah NCIDQ certificate holders to apply initially.
b. In the next three years, those who have graduated from the CIDA accredited programs will likely apply upon the completion of the hours requirement and NCIDQ examination.

51.) Will all costs of implementation and administration be covered by projected revenues? If not, what other sources of revenue could be used to cover the costs of regulation?

a. Yes, all costs will be covered by projected revenues

52.) How will start-up costs be generated?

a. Fees for applicants and for renewals, as well as any fines which shall be imposed.

References

B & B Cut Stone Co., Inc. v. Resneck. 1985

Bellis, M., Hughes, K., & Lowery, H. 2002. Healthy Nightclubs and Recreational Substance Use from a Harm Minimization to a Healthy Settings Approach.

Boiler, L., Vorrham, L., Monshouwer, K. Van Hasselt, N., & Bellis, M. 2011. Alcohol and Drug Prevention in Nightlife Settings: A Review of Experimental Studies. Substance Use and Misuse, 46:1569-1591

El-Zeiny, R. M. A. (2013). Interior Design of Workplace and Performance Relationship: Private Sector Corporations in Egypt.

Guerin, D. A., & Martin, C. S. (2010). The Interior Design Profession's Body of Knowledge and Its Relationship to People's Health, Safety, and Welfare. University of Minnesota.

Hays, J. W. (2003). Construction Defect Claims against Design Professional and Contractors. Construction Law.

John Wagner Associates v. Hercules, Inc., 797 P.2d 1123 (Utah Ct. App. 1990).

Lipscomb, H. J., Glazner, J., Bondy, J., Lezotte, D., & Guarini, K. (2004). Analysis of text from injury reports improves understanding of construction falls. Journal of occupational and environmental medicine, 46(11), 1166-1173.

MONTGOMERY and FROST, New Mexico

Palka v. Servicemaster Mgt., 634 NE 2d 189 - NY: Court of Appeals 1994

Reiling J, Hughes RG, Murphy MR. The Impact of Facility Design on Patient Safety. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter 28. Retrieved from: http://www.ncbi.nlm.nih.gov/books/NBK2633/

Stephens v. Stearns, 678 P. 2d 41 - Idaho: Supreme Court 1984

The impact of healthcare environmental design on patient falls. 2008. Center for Health Design.

Tremblay, K. R., & Barber, C. E. 2005. Preventing falls in the elderly. Colorado State University, Cooperative Extension.

Ulrich, R. S. (1991). Effects of interior design on wellness: theory and recent scientific research. Journal of health care interior design, 3(1), 97-109.

Wernsman, M. G. (2008). The Process of Designing and Constructing an Accessible Residence Hall for People with Disabilities on a Public University Campus. ProQuest.

Wade, A. R. (2011). DESIGNING TO PROMOTE PHYSICAL HEALTH FOR THE OBESE IN COMMERCIAL INTERIORS (Doctoral dissertation, Colorado State University).

Williams v. Melby, 699 P.2d 723 (Utah 1985).

Any information needed or additional citation information is available upon request.

NCIDQ Examination

2013 Interior Design Professional Exam (IDPX) Distribution of 150 Scored Questions

INTERIOR DESIGN PROFESSIONAL EXAM (IDPX) – PAGE 1

2013 CONTENT AREA	DISTRIBUTION
1. Knowledge of and skill in analyzing and synthesizing the programmatic information	**10 Items – 6.7%**
For example: • Design concept statement • Functional parti diagrams • Concept models	
2. Knowledge of and skill in application of code requirements, laws, standards, regulations, accessibility, and sustainability	**20 Items – 13.3%**
For example: • Universal/accessible design • Life safety • Signage • Wayfinding • Egress • Fire separation • Site analysis • Indoor air quality • Energy conservation • Renewable resources • Water conservation	
3. Knowledge of and skill in integration with building systems and construction	**13 Items – 8.7%**
For example: • Construction types (e.g., wood, steel, concrete) • Sequencing of work (e.g., plumbing before dry walling) • Components (e.g., doors, windows, studs) • Permit requirements • Mechanical systems • Electrical systems • Plumbing systems • Structural systems • Fire protection systems • Low voltage systems • Acoustical systems • Lighting systems	

NCIDQ • 1602 L St. NW, Suite 200, Washington, DC, 20036 • Fax: 202.721.0221

2013 CONTENT AREA	DISTRIBUTION
4. Knowledge of and skill in selection, specification, use and care of furniture, fixtures, equipment, interior finishes, materials, and lighting	**22 Items – 14.7%**

For example:

- Research, sourcing, and procurement
- Cost estimating
- Purchase orders
- Prepayment requirements
- Detail drawings
- Technical specifications
- Warranties
- Manuals
- Project budget
- Product assembly
- Installation
- Production time
- Furniture delivery
- Life safety
- Window treatments
- Textiles
- Acoustics
- Wall treatments
- Floor coverings
- Ceiling treatments
- Daylighting
- Lighting
  - Sources (i.e., lamping, illumination)
  - Fixtures
  - Calculations (i.e., foot candle requirements, energy efficiency, codes, lease requirements)
  - Physiological responses (e.g., visual acuity)
  - Color rendering
  - Light distribution (e.g., ambient lighting and task lighting)

2013 CONTENT AREA	DISTRIBUTION
5. Knowledge of and skill in development and use of construction drawings, schedules, and specifications	**15 Items – 10.0%**
For example: • Architectural woodwork • Construction and installation standards • General Conditions • Prescriptive, performance, and proprietary specifications • Detail page • General notes • Egress plan • Elevation plan • Schedules • Detailed space plans • Lighting plan • As-built plan • Demolition plan • Reflected ceiling plan	

2013 CONTENT AREA	DISTRIBUTION
6. Knowledge of and skill in interior design documentation and contract administration	**23 Items – 15.3%**

For example:

- Project management
- Program management
- Field administration
- Quality control
- Problem solving
- Facilitation/negotiation
- Change orders
- Forms
- Transmittals
- Punch list/deficiency lists
- Addenda
- Bonds
- Bid forms/tender forms
- Bulletins
- Minutes and field reports
- Field administration
- Shop drawings
- Project meetings/meeting management/meeting protocol
- Substitutions
- Purchase orders
- Payouts
- Site visits
- Project close-out
- Proposals
- Construction mock-ups
- Tenant work letter requirements
- Invoices
- Project budget/budget review/progress and tracking
- Project schedule/schedule review/progress and tracking
- Value engineering
- Project accounting

2013 CONTENT AREA	DISTRIBUTION
7. Knowledge of and skill in project coordination procedures and the roles of related design professionals	**20 Items – 13.3%**
For example: • Critical path (i.e., design milestones, sequencing) • Project planning • Close-out procedures • Architects • Electrical, structural, mechanical, civil engineers • Contractors/construction managers • Lighting consultants • Acoustical consultants • Graphics/signage designer • Audiovisual consultant • Landscape architects • Food service consultants • Other specialized consultants • Decorators • Developers • Real estate professionals • Leasing agents • Project planning • Project management of consultants • Project team dynamics • Project budgeting/tracking during design phases	
8. Knowledge of and skill in application of professional ethics and business practices	**27 Items – 18.0%**
For example: • Post occupancy evaluation services • Contracts • Contract negotiation • Contracts with consultants and subconsultants • Negotiation strategies • Time and fee estimation/proposals • Determine scope of work • Phases of a project • Budgeting principles and practices • HR • Office management • Strategic planning (internal) • Business licenses required by local jurisdictions • Accounting principles (office/business) • Legal considerations (e.g., liabilities and forms of business) • Insurance • Professional licensure, certification, registration	

advocate

IIDA INTERNATIONAL INTERIOR DESIGN ASSOCIATION

State Laws Regulating Interior Designers

Alabama

Type of Act: Allows for Sign, Seal & Permitting
Year Passed: Title Law: 1982, Practice: 2001, amended 2010
Continuing Ed: Yes
Exam Required: NCIDQ & additional exam to be offered by the board for the registered level

Alabama State Board of Registration for Interior Design
P. O. Box 11026
Birmingham, AL 35202
T: (205) 879-4232
F: (205) 879-4232 (then press *51)

Arkansas

Type of Act: Professional State Recognition
Year Passed: 1993, amended 1997
Continuing Ed: .5 CEU's per year
Exam Required: NCIDQ

Arkansas Board of Registered Interior Designers
P.O. Box 250220
Little Rock, AR 72225-0220
T: (870) 226-6875

California

Type of Act: Allows for Sign and/or Seal
Year Passed: 1990, amended 1991
Continuing Ed: 10 hours per biennium
Exam Required: IDEX
State Regulation: Business and Professions Code

California Council for Interior Design Certification (CCIDC)
1605 Grand Avenue, Suite 4
San Marcos, CA 92069-2440
Phone: (760) 761-4734

Colorado

Type of Act: Permitting Statute
Year Passed: 2001, effective January 2002
Continuing Ed: No
Exam Required: NCIDQ

Connecticut

Type of Act: Allows for Sign and/or Seal
Year Passed: 1983, amended 1987, amended 2010
Continuing Ed: No
Exam Required: NCIDQ

Connecticut Department of Consumer Protection
Professional Licensing Division - Interior Design
165 Capitol Avenue
Hartford, CT 06106
T: (860) 713-6135
F: (860) 713-7230

Florida

Type of Act: Allows for Sign, Seal, and Permitting
Year Passed: Title Law: 1988, amended 1989, Practice: 1994
Continuing Ed: Minimum 20 hours per biennium
Exam Required: NCIDQ

Florida Board of Architecture and Interior Design
Northwood Center
1940 N. Monroe Street, Suite 60
Tallahassee, FL 32399-0751
T: (850) 487-1395
F: (850) 922-2918

Georgia

Type of Act: Allows for Sign and/or Seal
Year Passed: Title Law: 1992, amended 1994
Continuing Ed: 12 hours per biennium
Exam Required: NCIDQ

Georgia State Board of Architects and Interior Designers
237 Coliseum Drive
Atlanta, GA 31217-3858
T: (478) 207-2440
F: (478) 207-1354

Illinois

Type of Act: Professional State Recognition
Year Passed: Title Law: 1990, amended 1994, 2008
Continuing Ed: No
Exam Required: NCIDQ

tIllinois State Board of Interior Design Professionals
320 W. Washington Street
Springfield, IL 62786
T: (217) 785 - 0820
F: (217) 785 - 0458

Indiana

Type of Act: Professional State Recognition
Year Passed: Title Law: 2009
Continuing Ed: No
Exam Required: NCIDQ or ARE

Indiana Professional Licensing Agency
402 W. Washington Street
Indianapolis, IN 46204
T: (317) 232 - 2960
F: (317) 232 - 2312

Iowa

Type of Act: Professional State Recognition
Year Passed: Title Law: 2005
Exam Required: NCIDQ

Iowa Interior Design Examining Board
200 E. Grand, Suite 350
Des Moines, IA 50309
T: (515) 725 - 9025
F: (515) 725 - 9032

Kentucky

Type of Act: Allows for Sign and/or Seal
Year Passed: Title Law: 2002
Continuing Ed: 12 hours per year
Exam Required: NCIDQ

Kentucky Board of Architects
155 E. Main Street, Suite 300
Lexington, KY 40507
T: (859) 246 - 2069
F: (859) 246 - 2431

Louisiana

Type of Act: Allows for Sign, Seal, and Permitting
Year Passed: Title Law: 1984, amended 1990, 1995, 1997; Practice: 1990
Continuing Ed: .5 CEUs per year
Exam Required: NCIDQ

Louisiana State Board of Interior Design
5222 Summa Court, Suite 358
Baton Rouge, LA 70809
T: (225) 763 - 5550
F: (225) 763 - 5551

Maine

Type of Act: Professional State Recognition
Year Passed: Title Law: 1993
Continuing Ed: No
Exam Required: NCIDQ

Main Board of Architects, Landscape Architects and Interior Designers
35 State House Station
Augusta, ME 04333-0035
T: (207) 624 - 8603
F: (207) 624 - 8637

Maryland

Type of Act: Allows for Sign and/or Seal
Year Passed: Title Law: 1991, amended 1997, 2002
Continuing Ed: 24 hours per biennium
Exam Required: NCIDQ

Maryland Department of Licensing and Regulation
Board of Certified Interior Designers
500 N. Calvert Street, Room 308
Baltimore, MD 21202
T: (410) 230 - 6322
F: (410) 333 - 0021

Minnesota

Type of Act: Allows for Sign and/or Seal
Year Passed: Title Law: 1992, amended 1995
Continuing Ed: 12 hours per biennium
Exam Required: NCIDQ

Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design (AELSLAGID)
Office of the Board
85 East 7th Place, Suite 160
St. Paul, MN 55101
T: (651) 296 - 2388
F: (651) 297 - 5310

Mississippi

Type of Act: Professional State Recognition
Year Passed: Title Law: 2011
Continuing Ed: 8 hours per year
Exam Required: NCIDQ

The Mississippi Board of Architecture
2 Professional Parkway #2B
Ridgeland, Mississippi 39157
T: (601) 856-4652
F: (601) 856-1510
Toll free: (888) 272-2627

Missouri

Type of Act: Professional State Recognition
Year Passed: Title Law: 1998
Continuing Ed: 10 hours per biennium
Exam Required: NCIDQ

Missouri Interior Design Council
3605 Missouri Blvd.
P.O. Box 1335
Jefferson City, MO 65102-1335
T: (573) 522 - 4683
F: (573) 526 - 3489

Nevada

Type of Act: Allows for SIgn, Seal, and Permitting
Year Passed: 1995
Continuing Ed: None
Exam Required: NCIDQ

Nevada State Board of Architectyre, Interior Design
& Residential Design
2080 E. Flamingo Road, Suite 120
Las Vegas, NV 89119
T: (702) 486 - 7300
F: (702) 486 - 7304

New Jersey

Type of Act: Allows for Sign and/or Seal
Year Passed: Title Law: 2002
Continuing Ed: Yes
Exam Required: NCIDQ

New Jersey Board of Architects
P.O. Box 45001
Newark, NJ 07101
T: (973) 504 - 6385

New Mexico

Type of Act: Professional State Recognition
Year Passed: Title Law: 1989
Continuing Ed: 8 hours per year
Exam Required: NCIDQ

New Mexico Board of Interior Design
2550 Cerrillos Road
Santa Fe, NM 87505
T: (505) 476 - 4875
F: (505) 476 - 4595

New York

Type of Act: Allows for Sign and/or Seal
Year Passed: Title Law: 1990
Continuing Ed: None
Exam Required: NCIDQ

New York State Education Department Board of Interior Design
Office of the Professions
State Board of Interior Design
89 Washington Avenue
Albany, NY 12234-1000
T: (518) 474 - 3817
F: (518) 473 - 5354

Oklahoma

Type of Act: Professional State Recognition
Year Passed: Title Law: 2006, amended 2009
Continuing Ed: None
Exam Required: NCIDQ

Oklahoma Board of Architects, Landscape Architects and
Interior Designers
Landmark Towers
P.O. Box 53430
Oklahoma City, OK 73152
T: (405) 949 - 2383
F: (405) 949 - 1690

Puerto Rico

Type of Act: Allows for Sign, Seal and Permitting
Year Passed: Title Law: 1973, amended 1976
Continuing Ed: .45 hours per year
Exam Required: NCIDQ

Departmento de Estado, Junta Examinadora de Disenadores
de Interiores
Puerto Rico State Department
Examining Board of Interior Designers
P.O. Box 3271
San Juan, Puerto Rico 00902
T: (787) 722 - 2122 x237
F: (787) 722 - 4818

Tennessee

Type of Act: Professional State Recognition
Year Passed: Title Law: 1991, amended 1994, 1997
Continuing Ed: 24 hours per year
Exam Required: NCDIQ

Tennessee Board of Architectural & Engineering Examiners
500 James Robertson Parkway
Nashville, TN 37243-1142
T: (615) 741 - 3221
F: (615) 532 - 9410

Texas

Type of Act: Allows for SIgn and/or Seal
Year Passed: Title Law: 1991, amended 2009
Continuing Ed: 8 hours per year
Exam Required: NCIDQ

Texas Board of Architectural Examiners
333 Guadalupe, Suite 2-350
Austin, TX 78701
T: (512) 305 - 9000
F: (512) 305 - 8900

Virginia

Type of Act: Allows for SIgn and/or Seal
Year Passed: Title Law: 1990, amended 1994
Continuing Ed: None
Exam Required: NCIDQ

Virginia Board of Architects, Professional Engineers, Land of Surveyors, Certified Interior Designer (APELSCIDLA)
3600 West Broad Street
Richmond, VA 23230-4917
T: (804) 367 - 8512 or (840) 367 - 8506
F: (804) 367 - 2475

Washington, DC

Type of Act: Allows for Sign, Seal, and Permitting
Year Passed: 1986
Continuing Ed: 10 years per biennium
Exam Required: NCIDQ

District of COlumbia Board of Architecture and Interior Design
441 4th Street NW, Suite 530 South
Washington, DC
T: (202) 727 - 1372
F: (202) 442 - 4528

Wisconsin

Type of Act: Professional State Recognition
Year Passed: Title Law: 1996
Continuing Ed: 9 hours per biennium
Exam Required: NCIDQ

P.O. Box 8935
Madison, WI 53708-8935
T: (608) 266 - 2112
F: (877) 617 - 1565

MAIN OFFICE
2080 E. Flamingo Road, Suite 120
Las Vegas, Nevada 89119
Tel: (702) 486-7300
Fax: (702) 486-7304

RENO CONTACT NUMBER
Tel: (775) 688-2544
Fax: (775) 828-4040

E-mail: nsbaidrd@nsbaidrd.nv.gov

http://nsbaidrd.state.nv.us

NEVADA STATE BOARD

of Architecture, Interior Design and Residential Design

NOTICE

April 2009

To: Churches and Ministries Expanding in Nevada

From: Nevada State Board of Architecture, Interior Design and Residential Design

Re: Qualified Design Professionals

The Nevada State Board of Architecture, Interior Design and Residential Design is responsible for protecting the health, safety and welfare of the public. It is the duty of this Board to license architects, interior designers and residential designers as well as ensure that individuals or organizations providing those services are licensed in Nevada to do so.

There are many companies that offer an all-in-one approach to religious organizations looking to build or remodel. These companies often help with funding, planning, architecture, interior design and construction. This Board has found that a number of these organizations are not licensed to provide those services in Nevada. Utilizing one of these firms, without first verifying if they are legally allowed to provide these services, can prove to be a costly mistake. Anyone offering architectural, planning or design services for a project located in Nevada must have a Nevada licensed architect on staff, or must contract as a consultant to a Nevada architect before offering their services.

Our objective is to safeguard you from these unlicensed individuals; therefore, the Board suggests you follow these two simple steps before hiring an individual or firm to assist with your project:

1. Know the name of the architect, his Nevada license number and the name of the firm. (A business license number is not sufficient.)

2. Contact the Board office at (702) 486-7300 to verify that the architect's license is active and in good standing.

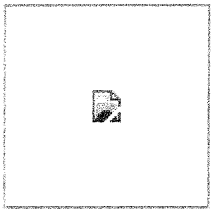
If the individual or firm is not licensed or approved by this Board, but tells you they will have a Nevada licensed contractor stamp the plans and build the facility, please be aware this is a violation of Nevada law and we recommend you contact the Board office for further assistance.

The Board published "A Consumer's Guide to Hiring Architects, Residential Designers and Registered Interior Designers," which provides more information about hiring architects. This free booklet can be downloaded from the publications page of the Board's web site (nsbaidrd.state.nv.us) or you can call the Board office to request a copy by mail.

We are here to help. If you have any questions about this letter, or would like to find out information about an individual or firm you are considering working with, please do not hesitate to call the Board office at (702) 486-7300.

Sincerely,

Gina Spaulding
Executive Director



NEVADA STATE BOARD OF ARCHITECTURE, INTERIOR DESIGN & RESIDENTIAL DESIGN
2080 E. Flamingo Rd., Suite 120
Las Vegas, NV 89119

(702) 486-7300 – phone
(702) 486-7304 – fax
nsbaidrd@nsbaidrd.nv.gov

MEMORANDUM

May 2006

To: Nevada furniture, finishes, fixtures and equipment vendors

From: Nevada State Board of Architecture, Interior Design and Residential Design

Re: Specifying furniture and providing space planning services in Nevada

The mission of the Nevada State Board of Architecture, Interior Design and Residential Design is to protect the health, safety and welfare of the public. As part of this mission, the board educates business owners about Nevada laws and which services fall under the practice of architecture and registered interior design.

When the registered interior design law passed in 1995, a limited exemption was provided for people who prepare drawings of the layout of materials or furnishings used in interior design (NRS 623.330). The exemption allows the implementation of drawings or installation of materials or furnishings, as long as they are **not regulated by any building code or other law, ordinance, rule or regulation governing the alteration or construction of a structure**. Prior to 1995, these activities were considered the practice of architecture and not exempt from the law.

NRS 623.330 reads in part:

1. *The following persons are exempt from the provisions of this chapter:*
   (g) Any person who prepares drawings of the layout of materials or furnishings used in interior design or provides assistance in the selection of materials or furnishings used in interior design, including, without limitation:
      (1) Decorative accessories;
      (2) Wallpaper, wallcoverings or paint;
      (3) Linoleum, tile, carpeting or floor coverings;
      (4) Draperies, blinds or window coverings;
      (5) Lighting fixtures which are not part of a structure;
      (6) Plumbing fixtures which are not a part of a structure; and
      (7) Furniture or equipment,

if the preparation or implementation of those drawings or the installation of those materials or furnishings is not regulated by any building code or other law, ordinance, rule or regulation governing the alteration or construction of a structure. (Emphasis added)

The following examples of interior design services are regulated; they **do not** fall within the exemption:

- **Furniture:** A building permit is required when specifying moveable cases, counters and partitions, including modular furniture, over 69" in height. Additionally, fabric covered partitions, whether 69" in height or less, must meet specific flame spread and smoke development requirements of the "Interior Finishes" chapter of the applicable building code.

- **Space planning:** Providing interior space planning on a commercial project requires compliance with applicable building and fire codes and the Americans with Disabilities Act. Space planning includes, but is not limited to, the type, amount and placement of furniture, finishes, fixtures and equipment (FF&E), as well as the ingress and egress that is created/changed by the placement of furniture, partitions, etc.

- **Finishes:** Building and fire codes regulate the specification of decorations and trim, including but not limited to: curtains, draperies, hangings and other decorative materials that are suspended from walls

or ceilings (i.e. fabric, foam, plastic, silk plants). Permits and/or approval are required prior to installation.

While there is no law prohibiting who can sell FF&E, a registered design professional, certified interior designer or licensed contractor must specify the FF&E if it is going to be used in a commercial project (i.e. tenant improvement, hotel, casino, timeshare, office building, retail store, etc.). Further, only a registered design professional or appropriately licensed contractor may provide space planning services.

If you or your company would like to provide these regulated services, there are four options allowing you to do so lawfully:

1. Become a registered interior designer
2. Work under the responsible control of a registered interior designer or architect (as an employee or subcontractor)
3. Become a licensed contractor under NRS 624
4. Become a certified interior designer through the Nevada Fire Marshal (certificate holders may only specify regulated FF&E; certificate holders may not provide space planning services)

For information on how to become a registered interior designer or architect, please visit the board's Web site at nsbaidrd.state.nv.us, or call the board office at (702) 486-7300. For more information on becoming a licensed contractor, please contact the Nevada State Contractors Board at (702) 486-1100. For more information on becoming a certified interior designer, please contact Susie Riolo, in the State Fire Marshal's office, at (775) 684-7536.

If you are unsure if the services you provide are regulated by this board, please call the board office. Gina Spaulding, the board's Executive Director, is available to answer your questions and help you ensure that your business operates within Nevada law. Board staff is also available to assist you with general information on becoming a registered interior designer or architect.

The entire text of NRS 623 (Architecture, Interior Design and Residential Design) can be downloaded from the "Laws & Rules" page on the board's Web site. For your information, the definition of "practice as a registered interior designer" (NRS 623.0225) follows:

"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.*

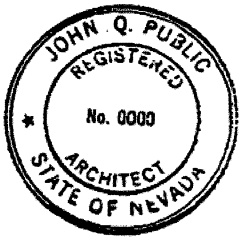
Again, if you have any questions, please feel free to call the board office at (702) 486-7300.

New Stamping Regulations Passed at the March 8, 2006 Meeting of the Nevada State Board of Architecture, Interior Design and Residential Design

Regulations are effective May 4, 2006

NAC 623.750

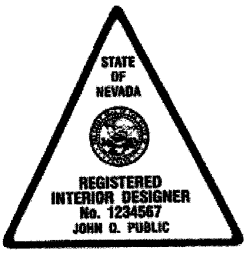
1. Each architect shall obtain and possess an embossed seal, a seal designed as a rubber stamp or ***a seal in electronic format*** which complies with the following specifications:
   (a) The overall diameter of the seal must be approximately 1 7/8 inches.
   (b) The seal must contain the name of the registrant, his number of registration and conform to the following design:



2. Each plan, specification, report or other document issued by a registrant must be signed and must be sealed or stamped by him ***either manually or electronically***.

NAC 623.755

1. Each registered interior designer shall obtain and possess an embossed seal, a seal designed as a rubber stamp ***or a seal in electronic format*** which must:
   (a) Be an equilateral triangle, each side of which must be 2 1/2 inches;
   (b) Contain the name of the registrant and his number of registration; and
   (c) Conform to the following design:



2. Each plan, specification, report or other document issued by a registrant must be signed and must be sealed or stamped by him ***either manually or electronically***.

NAC 623.760

1. Each residential designer shall obtain and possess ***an embossed seal, a seal designed as*** a rubber stamp ***or a*** seal ***in electronic format*** that complies with the following specifications:
   (a) The seal must be 1 1/4 by 3 inches.
   (b) The seal must contain the name of the registrant, his number of registration and conform to the following design:

(Seal of State) John J. Public

REGISTERED
RESIDENTIAL DESIGNER

(No. 000) STATE OF NEVADA

2. Each plan, specification, report or other document issued by a registrant must be signed and must be sealed or stamped by him ***either manually or electronically***.

NAC 623.763

1. Each registrant shall validate a stamp or seal ***either electronically or manually. The seal, signature and date must produce a clearly visible and legible image on any copy or reproduction of the document to which they are affixed.***
2. When a registrant signs, stamps or seals a document containing the work of others, the registrant represents that the entire document has been prepared by him or prepared under his responsible control, unless he includes a written statement adjacent to his signature, stamp or seal identifying the portion of the document that was prepared by him or prepared under his responsible control.
3. A registrant who signs, stamps or seals a document which was not prepared by him but was prepared under his responsible control is subject to disciplinary proceedings pursuant to chapter 623 of NRS for any errors in that document as if he prepared it himself.
4. For the purposes of NRS 623.185, plans, specifications, reports and any other documents which are issued by a registrant with the intent that they be considered as formal or final documents must be stamped with the seal of the registrant before they are delivered to or filed with any public authority.
5. A registrant is not required to stamp the following documents:
   (a) An as-built plan or record plan;
   (b) A report that includes observations concerning the progress of the construction of a project; or
   (c) An estimate of the costs of a project.

NAC 623.766

1. Plans submitted to a public authority must include:
   (a) The name, address and telephone number of the firm that submits the plans;
   (b) The name and location of the project for which the plans are submitted;
   (c) The date the plans were issued for printing; and
   (d) A statement that indicates whether the plans are preliminary or final.
2. Each sheet ***submitted to a public authority*** must bear the date, the original ***or electronic seal*** and signature of the registrant who provided the responsible control under which the work indicated on the sheet was performed.
3. Each set of specifications submitted to a public authority must include a table of contents or cover sheet that:
   (a) Indicates the professional discipline that is the source of each specification; and
   (b) Contains the stamp of, and is signed and dated by, each registrant who provided the responsible control under which the work in that professional discipline was performed. ***The seal, signature and date may be in original or electronic format.***
4. Each report, study, test result, certification or calculation that is submitted to a public authority must be stamped, signed and dated by the registrant who provided the responsible control under which that report, study, test result, certification or calculation was submitted. ***The seal, signature and date may be in original or electronic format.***

NEVADA STATE BOARD OF ARCHITECTURE, INTERIOR DESIGN & RESIDENTIAL DESIGN
2080 E. Flamingo Rd., Suite 120
Las Vegas, NV 89119

(702) 486-7300 – phone
(702) 486-7304 – fax
nsbaidrd@nsbaidrd.nv.gov

Nevada State Board of Architecture, Interior Design & Residential Design

New Electronic Stamping Regulations

Registrants must...

- Still seal/stamp, sign and date every page.
- Still have responsible control over documents affixed with their seal/stamp and signature.

What is allowed? Registrants may...

- Seal, sign and date their documents electronically.
- Seal, sign and date their documents by hand.
- Seal, sign and date their documents by hand and electronically (i.e. seal and date electronically, sign by hand)
- Affix their signature and/or date with a rubber stamp.
- Submit copies of their original documents to the building department, but the copies MUST be legible.

Using the Electronic Sealing Regulations

From Spring 2006 'Focus' Newsletter

At the March 8 board meeting the NSBAIDRD passed new regulations that will allow registrants to sign, seal and date plans, specifications and documents electronically. These regulations should go into effect by the end of June; the effective date will be posted on the board Web site once it is set by the Secretary of State.

The regulations do not require electronic sealing; they merely offer the option to registrants who choose to use the technology. Registrants may continue to hand-stamp, sign and date plans. Registrants may also choose a combination of electronic and original seals and signatures. For example, a registrant may electronically seal a document, apply the date electronically and sign the plans with his original signature.

As with the current rubber stamps and embossed seals, it is the responsibility of each registrant to secure his electronic seal to ensure it is not affixed to documents not prepared by him or under his responsible control. Further, the registrant may want to apply safety measures to guard against files being altered after his electronic seal has been applied. There are various technological safeguards available for file security, including some programs that protect a document from being modified, or clearly indicate when modifications have occurred. The board has not put any requirements in place, instead allowing each registrant to decide the proper safeguards for his seal and his practice.

The design of the seal remains the same. Electronic seals should be of the same image used on the current stamps. The specifications of the seal are outlined in NAC 623.750-760.

Per NAC 623.766, each sheet of each set of plans submitted to a public authority must contain the registrant's wet stamp or electronic seal, signature and date. This requirement for a stamp, signature and date remains the same as current requirements.

The new regulations pave the way for building departments to begin allowing electronic submittal of plans. To date, the board is not aware of any Nevada building departments able to accept plans electronically, though it is aware that some agencies are moving in that direction.

Registrants are encouraged to contact the board office at (702) 486-7300 with any questions regarding implementation of the new electronic sealing regulations.

Board Answers Questions About Electronic Seals

From Summer 2006 'Focus' Newsletter

As many registrants begin to take advantage of the new allowance for electronic sealing and signing of documents, a handful of questions have emerged about what is acceptable and what is not.

At the August meeting, board members again emphasized that registrants may choose to electronically seal, sign and date their documents; the new regulations do not require electronic sealing. Registrants who do not want to electronically seal, sign and date documents may continue to hand-stamp, sign and date plans. Likewise, registrants may use a combination of electronic and hand/original stamp or seal, signature and date. For example, a registrant may electronically apply his seal and date, and sign the documents by hand.

Board members said that the new regulations also allow registrants to submit copies of their original documents to the building departments and other governmental bodies. For example, a registrant may choose to print the original documents and apply his stamp, signature and date by hand. The registrant may then take those originals and make copies for submission to the building department.

Board members said that the new regulations also allow registrants to use a stamp to apply their signature and date.

Board members stressed that it is still the registrant's responsibility to protect his seal and signature. As with the rubber stamps and embossed seals, each registrant must ensure that his electronic seal and signature are not affixed to documents not prepared by him or under his responsible control. The board is not mandating any particular security system, instead allowing each registrant to determine the proper safeguards and security for his seal and his practice.

Over the coming months, the board will work to educate building officials around the state about the new changes to the stamping requirements. Because the changes are significant, it will take some time for everyone to learn what is and is not acceptable.

Full text of the applicable regulations can be found at nsbaidrd.state.nv.us/Documents/New NAC 0306.htm.

U.S. Bureau of Labor Statistics

Occupational Employment Statistics

Occupational Employment and Wages, May 2013

27-1025 Interior Designers

Plan, design, and furnish interiors of residential, commercial, or industrial buildings. Formulate design which is practical, aesthetic, and conducive to intended purposes, such as raising productivity, selling merchandise, or improving life style. May specialize in a particular field, style, or phase of interior design. Excludes "Merchandise Displayers and Window Trimmers" (27-1026).

National estimates for this occupation
Industry profile for this occupation
Geographic profile for this occupation

National estimates for this occupation: Top

Employment estimate and mean wage estimates for this occupation:

Employment (1)	Employment RSE (3)	Mean hourly wage	Mean annual wage (2)	Wage RSE (3)
43,710	2.6 %	$26.06	$54,200	1.2 %

Percentile wage estimates for this occupation:

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	$12.73	$16.97	$23.32	$32.26	$42.82
Annual Wage (2)	$26,490	$35,290	$48,500	$67,110	$89,060

Industry profile for this occupation: Top

Industries with the highest published employment and wages for this occupation are provided. For a list of all industries with employment in this occupation, see the Create Customized Tables function.

Industries with the highest levels of employment in this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Specialized Design Services	17,180	14.03	$26.41	$54,940
Architectural, Engineering, and Related Services	8,840	0.66	$28.60	$59,480
Furniture Stores	4,160	1.94	$21.27	$44,240
Furniture and Home Furnishing Merchant Wholesalers	2,150	2.22	$27.50	$57,190
Residential Building Construction	1,910	0.32	$25.55	$53,140

Industries with the highest concentration of employment in this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Specialized Design Services	17,180	14.03	$26.41	$54,940
Furniture and Home Furnishing Merchant Wholesalers	2,150	2.22	$27.50	$57,190
Furniture Stores	4,160	1.94	$21.27	$44,240
Architectural, Engineering, and Related Services	8,840	0.66	$28.60	$59,480
Home Furnishings Stores	1,170	0.50	$22.28	$46,350

Top paying industries for this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Federal Executive Branch (OES Designation)	320	0.02	$35.57	$73,980
Other Personal Services	40	0.01	$31.11	$64,710
Management of Companies and Enterprises	1,030	0.05	$30.14	$62,700
Offices of Real Estate Agents and Brokers	70	0.03	$29.61	$61,590
Newspaper, Periodical, Book, and Directory Publishers	40	0.01	$29.11	$60,540

Geographic profile for this occupation: Top

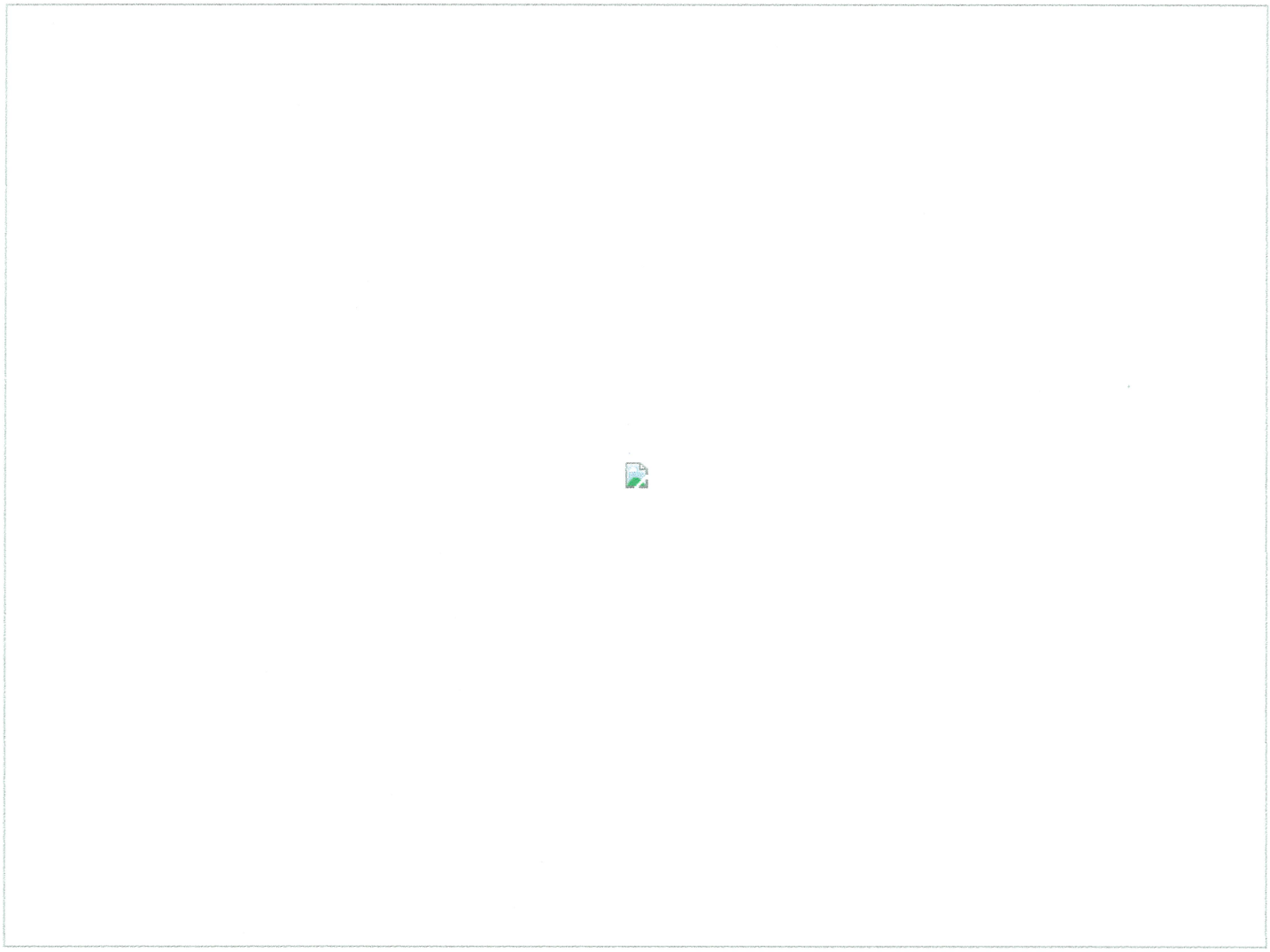
States and areas with the highest published employment, location quotients, and wages for this occupation are provided. For a list of all areas with employment in this occupation, see the Create Customized Tables function.

States with the highest employment level in this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
California	6,200	0.42	1.28	$29.64	$61,660
Texas	3,790	0.35	1.05	$27.72	$57,660
New York	3,530	0.41	1.24	$31.06	$64,610
Florida	3,370	0.45	1.37	$21.73	$45,190
Georgia	1,680	0.43	1.31	$22.38	$46,560

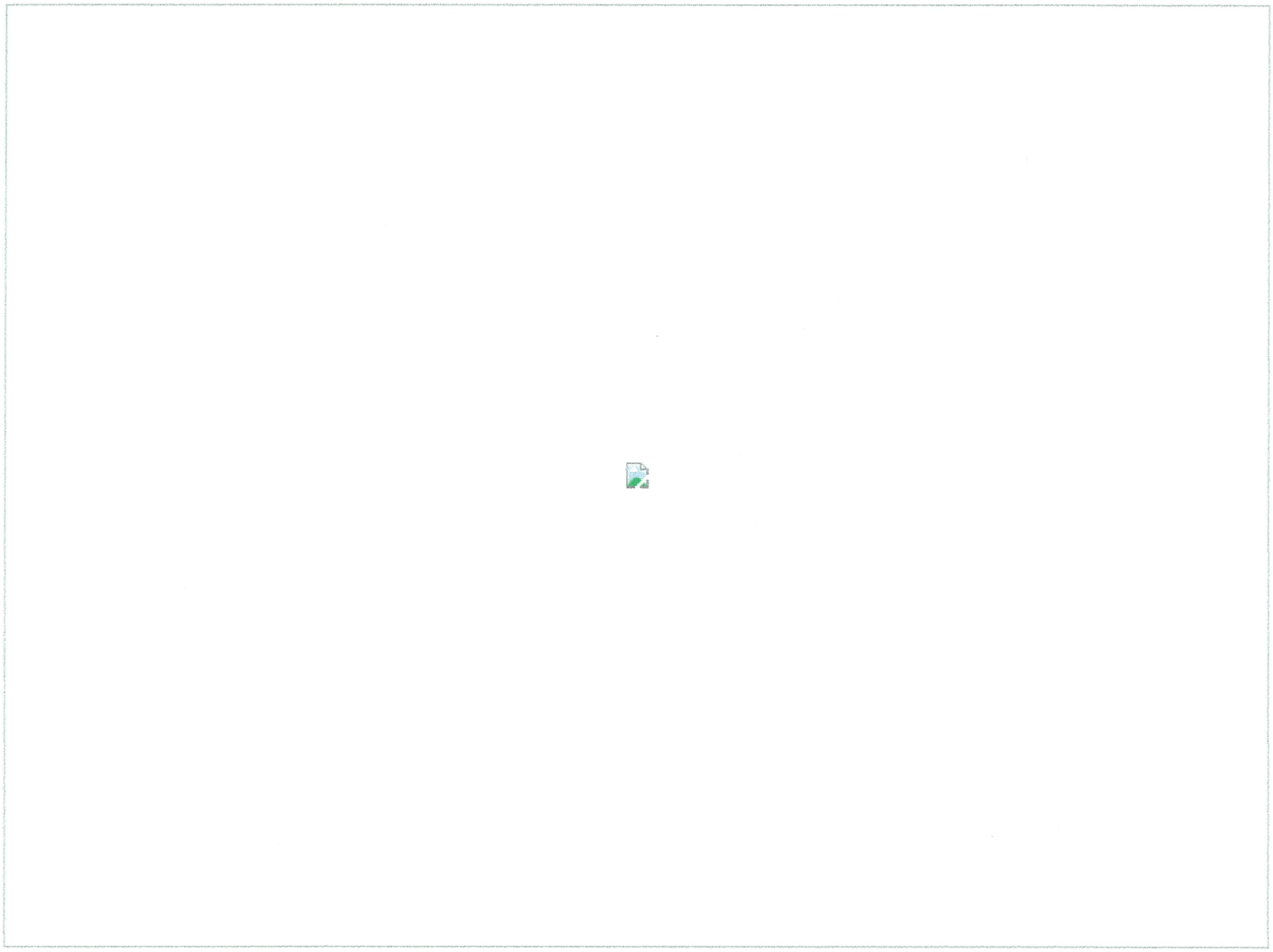
States with the highest concentration of jobs and location quotients in this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
District of Columbia	720	1.08	3.26	$37.69	$78,390
Connecticut	980	0.60	1.81	$30.07	$62,550
Colorado	1,110	0.48	1.47	$25.51	$53,070
Maryland	1,150	0.45	1.37	$24.01	$49,940
Florida	3,370	0.45	1.37	$21.73	$45,190



Top paying States for this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
District of Columbia	720	1.08	3.26	$37.69	$78,390
Massachusetts	1,160	0.36	1.08	$32.89	$68,400
New York	3,530	0.41	1.24	$31.06	$64,610
Connecticut	980	0.60	1.81	$30.07	$62,550
Virginia	990	0.27	0.83	$30.01	$62,420



Metropolitan areas with the highest employment level in this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
New York-White Plains-Wayne, NY-NJ Metropolitan Division	3,080	0.59	1.78	$32.02	$66,600
Los Angeles-Long Beach-Glendale, CA Metropolitan Division	1,820	0.46	1.39	$29.05	$60,420
Dallas-Plano-Irving, TX Metropolitan Division	1,540	0.71	2.17	$28.52	$59,320
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division	1,390	0.59	1.78	$34.56	$71,880
Atlanta-Sandy Springs-Marietta, GA	1,380	0.60	1.81	$23.22	$48,290
Chicago-Joliet-Naperville, IL Metropolitan Division	1,370	0.37	1.12	$25.98	$54,040

Seattle-Bellevue-Everett, WA Metropolitan Division	1,030	0.71	2.17	$25.39	$52,810
San Francisco-San Mateo-Redwood City, CA Metropolitan Division	1,000	0.96	2.91	$36.39	$75,700
Houston-Sugar Land-Baytown, TX	910	0.33	1.00	$32.98	$68,590
Santa Ana-Anaheim-Irvine, CA Metropolitan Division	900	0.62	1.87	$28.65	$59,580

Metropolitan areas with the highest concentration of jobs and location quotients in this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Naples-Marco Island, FL	130	1.10	3.34	$28.54	$59,370
San Francisco-San Mateo-Redwood City, CA Metropolitan Division	1,000	0.96	2.91	$36.39	$75,700

Columbia, MO	80	0.90	2.72	$23.71	$49,320
Bridgeport-Stamford-Norwalk, CT	370	0.88	2.68	$29.53	$61,420
Seattle-Bellevue-Everett, WA Metropolitan Division	1,030	0.71	2.17	$25.39	$52,810
Dallas-Plano-Irving, TX Metropolitan Division	1,540	0.71	2.17	$28.52	$59,320
Fort Collins-Loveland, CO	100	0.70	2.14	$19.68	$40,940
West Palm Beach-Boca Raton-Boynton Beach, FL Metropolitan Division	360	0.69	2.08	$25.93	$53,930
Asheville, NC	120	0.68	2.08	$17.90	$37,240
San Diego-Carlsbad-San Marcos, CA	840	0.65	1.97	$27.58	$57,360

Top paying metropolitan areas for this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Santa Barbara-Santa Maria-Goleta, CA	80	0.46	1.39	$37.07	$77,100
San Francisco-San Mateo-Redwood City, CA Metropolitan Division	1,000	0.96	2.91	$36.39	$75,700
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division	1,390	0.59	1.78	$34.56	$71,880
Wilmington, DE-MD-NJ Metropolitan Division	110	0.33	0.99	$34.15	$71,040
Houston-Sugar Land-Baytown, TX	910	0.33	1.00	$32.98	$68,590
Boston-Cambridge-Quincy, MA NECTA Division	890	0.51	1.54	$32.30	$67,190
Hartford-West Hartford-East Hartford, CT	(8)	(8)	(8)	$32.15	$66,880
New York-White Plains-Wayne, NY-NJ Metropolitan Division	3,080	0.59	1.78	$32.02	$66,600
Nashville-Davidson--Murfreesboro--Franklin, TN	320	0.40	1.22	$31.73	$66,000
Oxnard-Thousand Oaks-Ventura, CA	70	0.23	0.70	$31.65	$65,830

Nonmetropolitan areas with the highest employment in this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
North Central Colorado nonmetropolitan area	170	2.32	7.04	$23.82	$49,540
Western Central North Carolina nonmetropolitan area	90	0.34	1.04	$23.61	$49,120
Northwest Florida nonmetropolitan area	60	1.08	3.27	$17.97	$37,390
Southern Indiana nonmetropolitan area	60	0.35	1.06	$18.92	$39,350
Northwest Iowa nonmetropolitan area	50	0.36	1.08	$15.39	$32,010

Nonmetropolitan areas with the highest concentration of jobs and location quotients in this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
North Central Colorado nonmetropolitan area	170	2.32	7.04	$23.82	$49,540
Northwest Florida					

nonmetropolitan area	60	1.08	3.27	$17.97	$37,390
Upper Eastern Shore nonmetropolitan area	30	0.50	1.52	$19.91	$41,420
Southern Vermont nonmetropolitan area	50	0.49	0.00	$25.61	$53,260
Southcentral Idaho nonmetropolitan area	40	0.49	1.49	$20.60	$42,850

Top paying nonmetropolitan areas for this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Southern Vermont nonmetropolitan area	50	0.49	0.00	$25.61	$53,260
North Central Colorado nonmetropolitan area	170	2.32	7.04	$23.82	$49,540
Western Central North Carolina nonmetropolitan area	90	0.34	1.04	$23.61	$49,120
Southeast Missouri nonmetropolitan area	(8)	(8)	(8)	$22.96	$47,750
West Northwestern Ohio nonmetropolitan area	40	0.16	0.49	$21.46	$44,640

About May 2013 National, State, Metropolitan, and Nonmetropolitan Area Occupational Employment and Wage Estimates

These estimates are calculated with data collected from employers in all industry sectors, all metropolitan and nonmetropolitan areas, and all states and the District of Columbia. The top employment and wage figures are provided above. The complete list is available in the downloadable XLS files.

The percentile wage estimate is the value of a wage below which a certain percent of workers fall. The median wage is the 50th percentile wage estimate--50 percent of workers earn less than the median and 50 percent of workers earn more than the median. More about percentile wages.

(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.

(2) Annual wages have been calculated by multiplying the hourly mean wage by a "year-round, full-time" hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.

(3) The relative standard error (RSE) is a measure of the reliability of a survey statistic. The smaller the relative standard error, the more precise the estimate.

(8) Estimate not released.

(9) The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. A location quotient greater than one indicates the occupation has a higher share of employment than average, and a location quotient less than one indicates the occupation is less prevalent in the area than average.

Other OES estimates and related information:

May 2013 National Occupational Employment and Wage Estimates

May 2013 State Occupational Employment and Wage Estimates

May 2013 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates

May 2013 National Industry-Specific Occupational Employment and Wage Estimates

May 2013 Occupation Profiles

Technical Notes

Last Modified Date: April 1, 2014

U.S. Bureau of Labor Statistics | Division of Occupational Employment Statistics, PSB Suite 2135, 2 Massachusetts Avenue, NE Washington, DC 20212-0001

www.bls.gov/OES | Telephone: 1-202-691-6569 | Contact OES

U.S. Bureau of Labor Statistics

Economic News Release

Workplace Injury and Illness Summary

OS NR 11/07/2013 News Release: Workplace Injuries and Illnesses--2012

For release 10:00 a.m. (EST) Thursday, November 7, 2013 USDL-13-2119

Technical information: (202) 691-6170 * iifstaff@bls.gov * www.bls.gov/iif/oshsum.htm
Media contact: (202) 691-5902 * PressOffice@bls.gov

EMPLOYER-REPORTED WORKPLACE INJURIES AND ILLNESSES--2012

Nearly 3.0 million nonfatal workplace injuries and illnesses were reported by private industry employers in 2012, resulting in an incidence rate of 3.4 cases per 100 equivalent full-time workers, according to estimates from the Survey of Occupational Injuries and Illnesses (SOII) conducted by the U.S. Bureau of Labor Statistics. (See tables 1 and 2.) The rate reported for 2012 continues the pattern of statistically significant declines that, with the exception of 2011, occurred annually for the last decade.

Key findings from the 2012 Survey of Occupational Injuries and Illnesses

* The total recordable cases (TRC) incidence rate of injury and illness among private industry establishments declined in 2012 from a year earlier, as did the rate for other recordable cases not requiring time away from work. The rate for cases of a more serious nature involving days away from work, job transfer, or restriction--commonly referred to as DART--was unchanged in 2012, as a decline in the rate of cases involving days away from work was offset by the rate for cases involving job transfer or restriction only which was unchanged. (See chart 1.)
* No private industry sector experienced an increase in the rate of injuries and illnesses in 2012.
* Manufacturing was the only private industry sector in 2012 in which the rate of job transfer or restriction only cases exceeded the rate of cases with days away from work. This continues a 15-year trend. However, the rates for these two case types have been converging in recent years and differed by only 0.2 case in 2012.
* The incidence rate of injuries only among private industry workers declined to 3.2 cases per 100 full-time workers in 2012--down from 3.3 cases in 2011. (See table 5.) In comparison, the incidence rate of illness cases was statistically unchanged in 2012. (See table 6a.)
* The rate of injuries and illnesses among state and local government workers of 5.6 cases per 100 full-time workers in 2012 was statistically unchanged from 2011, but was still significantly higher than the private industry rate. The incidence rates for state government and local government individually also remained statistically unchanged in 2012--4.4 cases and 6.1 cases per 100 full-time workers, respectively.

Private Industry Injuries and Illnesses

Injuries and illnesses by type of case
More than one-half of the nearly 3.0 million private industry injury and illness cases reported nationally in 2012 were of a more serious nature that involved days away from work, job transfer, or restriction (DART cases). These cases occurred at a rate of 1.8 cases per 100 full-time workers, statistically unchanged annually since 2009. (See table 7.) Between the two components of DART cases, the rate for cases involving days away from work declined in 2012 by 0.1 case to 1.0 case per 100 workers, while the rate of cases requiring job transfer or restriction was unchanged from a year earlier (0.7 case). Other recordable cases--those not involving days away from work, job transfer, or restriction--accounted for the remaining more than 1.4 million injury and illness cases nationally in 2012 and declined to a rate of 1.6 cases per 100 full-time workers compared to 1.7 cases in 2011.

The TRC injury and illness incidence rate remained highest in 2012 among mid-size private industry establishments (those employing between 50 and 249 workers) and lowest among small establishments (those employing fewer than 11 workers). (See table 3 and chart 2.)

Injuries
More than 2.8 million (94.8 percent) of the nearly 3.0 million nonfatal occupational injuries and illnesses in 2012 were injuries. (See table 5.) Among injuries, 2.1 million (75.2 percent) occurred in service-providing industries, which employed 82.4 percent of the private industry workforce. The remaining 0.7 million injuries (24.8 percent) occurred in goods-producing industries, which accounted for 17.6 percent of private industry employment in 2012.

Illnesses

Workplace illnesses accounted for 5.2 percent of the nearly 3.0 million injury and illness cases in 2012. (See table 6b.) The rate of workplace illnesses in 2012 (17.5 cases per 10,000 full-time workers) was not statistically different from the 2011 incidence rate (18.0 cases). Rates among all of the individual illness categories also were unchanged in 2012 compared to a year earlier.

Goods-producing industries accounted for 34.3 percent of all occupational illness cases in 2012, resulting in an incidence rate of 28.6 cases per 10,000 full-time workers--declining from 31.0 cases in 2011. The manufacturing industry sector accounted for 29.5 percent of all private industry occupational illness cases, resulting in one of the highest illness incidence rates among all industry sectors of 38.6 cases per 10,000 full-time workers in 2012--down from 40.8 cases in 2011. Service-providing industries accounted for 65.6 percent of private industry illness cases and experienced a rate of 14.5 cases per 10,000 full-time workers in 2012--statistically unchanged from the prior year. Among service-providing industry sectors, health care and social assistance contributed 23.4 percent of all private industry illness cases and experienced an incidence rate of 28.2 cases per 10,000 full-time workers in 2012--falling from 30.5 cases in 2011.

National Public Sector Estimates

An estimated 792,700 injury and illness cases were reported in 2012 among the approximately 18.2 million state and local government workers--for example, police protection (North American Industry Classification System, NAICS 922120) and fire protection (NAICS 922160)--resulting in a rate of 5.6 cases per 100 full-time workers. The rate among these workers was statistically unchanged from a year earlier (5.7 cases) but was higher than the rate among private industry workers (3.4 cases per 100 workers) in 2012. Nearly 4 in 5 injuries and illnesses reported in the public sector occurred among local government workers in 2012, resulting in an injury and illness rate of 6.1 cases per 100 full-time workers--significantly higher than the 4.4 cases per 100 full-time workers in state government. (See chart 3.)

State Estimates

Private industry and public sector estimates are available for 42 participating states and for the District of Columbia for 2012. (See chart 4.) Data for establishments in the eight states for which individual estimates are unavailable are collected by BLS regional offices and used solely for the tabulation of national estimates. State estimates will be available online on Friday, November 22, 2013; these estimates may also be requested prior to this from the respective state offices. (See www.bls.gov/iif/oshstate.htm for state contacts.)

As compared to a year earlier, private industry TRC injury and illness incidence rates among the 42 states and the District of Columbia for which estimates are available in 2012 declined in 8 states and in the District of Columbia, rose in 1 state, and were statistically unchanged in 32 states (estimates for Ohio for 2011 were not available for comparison).

The private industry TRC injury and illness incidence rates were higher in 21 states than the national rate of 3.4 cases per 100 full-time workers in 2012, lower than the national rate in 15 states and in the District of Columbia, and not statistically different from the national rate in 6 states. Differences in industry mix account for at least some of the differences in rates across states.

Publication Tables and Supplemental Charts

The Bureau of Labor Statistics (BLS) has generated estimates of injuries and illnesses for many of the 2-, 3-, 4-, 5-, and 6-digit industries as defined in the 2007 North American Industry Classification System (NAICS) manual. A complete listing of these estimates is not available in this release. However, summary tables 1 and 2--providing incidence rates and counts of injuries and illnesses by detailed NAICS industry, case type, and ownership (e.g., total recordable cases or cases with days away from work in private industry), respectively--may be accessed electronically for the current year and for prior years from www.bls.gov/iif/oshsum.htm, requested from BLS staff at (202) 691-6170, or requested by email at IIFSTAFF@bls.gov. Supplemental tables and charts illustrating trends among incidence rates and counts are also available from these sources. Information in this release will be made available to sensory impaired individuals upon request. Voice phone: (202) 691-5200; Federal Relay Service (800) 877-8339.

Background of the Survey

Second in a series of three releases from the BLS covering occupational safety and health statistics for the 2012 calendar year, this release follows the August preliminary report on fatal work-related injuries from the Census of Fatal Occupational Injuries (CFOI). A third release in November 2013 will provide case circumstances and worker characteristics from the SOII for nonfatal injury and illness cases

requiring at least one day away from work to recuperate.

Additional background and methodological information regarding the BLS occupational safety and health statistics program, including information such as changes in the definition of recordable cases due to revised recordkeeping requirements in 2002 and the inherent underreporting of illnesses, can be found in Chapter 9 of the BLS Handbook of Methods at www.bls.gov/opub/hom/pdf/homch9.pdf. Employment data in this news release are 2012 annual averages provided by the BLS Quarterly Census of Employment and Wages (QCEW) program.

Completeness of SOII Estimates

Several studies by outside researchers conducted in the mid 2000s questioned the completeness of BLS injury and illness estimates from the SOII. In response to these studies, the BLS began researching the issue internally in 2007 and, at the request of Congress, established an ongoing research program to explore potential undercounting of workplace injuries and illnesses. An initial round of research conducted between 2009 and 2012 determined that the SOII failed to capture some cases but could not determine the magnitude or leading cause of an undercount. Findings suggested that the ability to match injury and illness data across different data sources is impacted by various factors, such as establishment type, the time of case filing, and the type of injury. Results of initial studies led BLS to initiate additional research that commenced in the fall of 2012. Projects are currently underway to explore employersâ€™ recordkeeping practices, to match multiple years of SOII data to workersâ€™ compensation records to analyze trends over time, and to investigate the feasibility of computer-assisted coding of the SOII narrative information to improve classification consistency. Results of on-going research projects will be available in 2014. Additional information about the completeness of SOII estimates can be found at www.bls.gov/iif/oshfaq1.htm#q02.

(Chart 1 appears here in the printed release.)

(Chart 2 appears here in the printed release.)

(Chart 3 appears here in the printed release.)

(Chart 4 appears here in the printed release.)

- Table 1. Incidence rates of nonfatal occupational injuries and illnesses by case type and ownership, selected industries, 2012
- Table 2. Numbers of nonfatal occupational injuries and illnesses by case type and ownership, selected industries, 2012
- Table 3. Incidence rates of nonfatal occupational injuries and illnesses by major industry sector, employment size, and ownership, 2012
- Table 4. Number of cases and incidence rate of nonfatal occupational injuries and illnesses for industries with 100,000 or more cases, 2012
- Table 5. Incidence rates and numbers of nonfatal occupational injuries by selected industries and ownership, 2012
- Table 6. Incidence rates and numbers of nonfatal occupational illnesses by major industry sector, category of illness, and ownership, 2012
- Table 7. Incidence rates of nonfatal occupational injuries and illnesses by major private industry sector and selected case types, 2010-2012
- HTML version of the entire news release

The PDF version of the news release

Table of Contents

Last Modified Date: November 07, 2013

INTERIOR DESIGN ☆ EDUCATION & LEGISLATION

THE CASE FOR INTERIOR DESIGN LEGISLATION

Q: WHAT IS INTERIOR DESIGN?

A: Interior design is a broad term that covers all aspects of the interior built environment. The practice known as interior design has evolved significantly over the past 50 years. Initially it was concerned with decoration, and was focused on color, fabrics and furniture selection to enhance the look and feel of a space. After World War II, a boom in office building construction led to an expansion of interior design knowledge and services for some practitioners. This included increasingly complex planning and analysis tasks, such as placement of non-structural walls and locations of pathways leading to emergency exits. Now, in-depth knowledge of building codes, along with an understanding of building systems, technology and sustainable design is required for the interior designer to provide for the health, safety and welfare of a building's occupants, as well as for enhancing the function and aesthetics of interior spaces.

Q: WHO MAY CALL THEMSELVES AN INTERIOR DESIGNER?

A: The term "interior designer" has become generic. Consumers can find "interior designers" working in furniture stores, paint stores, kitchen stores and big-box stores; in private practice; and in architectural firms. This wide variety of providers and services has value for consumers, yet can create confusion. There is a disparity between the skills required to protect health and safety, versus the skills required for assisting with color and fabric selections. The label of "interior designer" currently covers it all – from individuals with little or no education and little experience, to those with advanced degrees and targeted experience in the areas that directly affect health, safety and welfare. Legislation will clarify these distinctions by allowing those qualified to use the title "Registered Interior Designer"

Q: WHY SHOULD INTERIOR DESIGNERS BE REGULATED?

A: In the USA, people spend approximately 90% of their time indoors, (according to the U.S. Green Building Council). Interior designers directly affect the health, safety and welfare of people in a variety of ways, including planning interior spaces for safe exit in emergency situations; selecting materials that are fire-resistive and non-toxic; designing ergonomic workspaces and selecting flooring materials that provide a safe walking surface (i.e.: non-slip). In addition, interior design is a multi-billion dollar industry, and therefore the financial welfare of consumers needs to be protected. By ensuring that practitioners meet minimum standards of education, experience and examination, the dollars that consumers expend on interior design services and products will be spent appropriately, and backed by actual knowledge and experience. Currently, 26 other states have some type of regulation in place, and IDEAL for Utah is working toward getting our own legislation in Utah as well.

Q: DON'T OTHER REGULATED PROFESSIONALS, SUCH AS ARCHITECTS AND ENGINEERS, ALREADY COVER HEALTH AND SAFETY REQUIREMENTS? DOESN'T THE BUILDING DEPARTMENT ISSUE PERMITS THAT PROVIDE THIS PROTECTION FOR CONSUMERS?

A: They do, although not every project requires an architect or engineer to be involved, or a permit to be issued. In Utah, no permit is required for residential interior work. Another example is an office space with cubicles that are reconfigured to a new layout. In addition, cosmetic changes to carpet, paint, wall-coverings, etc. do not require permits, yet fire resistive and non-toxic materials must be specified for health and safety. The interior designer in these cases is the sole professional with the responsibility to meet health and safety needs, yet they are the only member of the design team that is not regulated.

Q: WHY SHOULD I CARE?

A: If you inhabit an office space, sleep in a hotel, stay in the hospital, send your children to school, rent a condo, attend the theatre, eat in a restaurant or shop in a mall, you are surrounded by decisions made by an interior designer. Your safety depends upon those decisions being accurate.

INTERIOR DESIGN ☆ EDUCATION & LEGISLATION

HEALTH, SAFETY & WELFARE ISSUES

INTERIOR DESIGN LEGISLATION PROTECTS THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC

The only way to truly protect the public from the unqualified practice of interior design is to provide title protection for qualified practitioners. This will allow consumers to make educated decisions with regard to the qualifications of the interior designers that they hire. Interior Designers impact the health and safety of the public at large by the decisions they make every day. When incorrect design decisions are made, and when improper materials are installed, people can be exposed to unnecessary risks, such as the following examples:

EXAMPLE 1: Ensuring Safe Evacuation from Interior Spaces in Emergency Situations

Qualified interior designers are knowledgeable of building codes that define egress requirements. This includes the responsibility for planning clear circulation pathways within spaces that lead to building exits, as well as for understanding the requirements for fire ratings of partitions and door assemblies that affect the spread of fire and smoke.

EXAMPLE 2: Reducing Accidental Injuries Due to Falling

High-traffic areas such as public building entrances and lobbies require slip- and trip-resistant flooring materials. The qualified interior designer understands technical properties such as the coefficient of friction, a factor in slip resistance.

EXAMPLE 3: Improving Indoor Air Quality

To minimize "sick building syndrome," materials that are void of volatile organic compounds (VOCs) must be installed. Interior designers who have studied this are knowledgeable about products that do not adversely affect indoor air quality.

EXAMPLE 4: Proper Lighting

Insufficient lighting can lead to accidents as well as eyestrain. Proper lighting must be provided to ensure the ability to clearly see transitions in floor levels, read directional signage, and impart an overall feeling of safety. Interior designers possess the technical knowledge to specify appropriate fixtures for various interior settings.

EXAMPLE 5: Minimizing Fire and Toxic Smoke Hazards

Fire is a higher risk if fire-rated finishes are not specified, and the toxicity of burning materials can be more deadly than the fire itself. Critical to public safety, an interior designer's knowledge of the appropriate materials for different types of interior spaces is vital. Qualified interior designers possess knowledge of fire ratings and material properties that are needed to reduce the potential of harm to consumers in case of a fire.

AMERICAN SOCIETY OF INTERIOR DESIGNERS
AMERICAN SOCIETY OF INTERIOR DESIGNERS
AMERICAN SOCIETY OF INTERIOR DESIGNERS
AMERICAN SOCIETY OF INTERIOR DESIGNER
AMERICAN SOCIETY OF INTERIOR
AMERICAN SOCIETY
AMERICA

ASID CODE OF ETHICS AND PROFESSIONAL CONDUCT

Government & Public Affairs
www.asid.org/about/ethics

AMERICAN SOCIETY OF INTERIOR DESIGNERS

ASID Code of Ethics and Professional Conduct

1.0 PREAMBLE

Members of the American Society of Interior Designers are required to conduct their professional practice in a manner that s the interest's respect of the general public, their clients, fellow professional designers, as well as suppliers of goods and services to the profession. It is the individual responsibility of every member of the Society to uphold this Code of Ethics and Professional Conduct and the Bylaws of the Society.

2.0 RESPONSIBILITY TO THE PUBLIC

2.1 Members shall comply with all federal, state and local laws, rules, regulations and codes governing business procedures and the practice of interior design in the jurisdictions in which they practice ("Applicable Laws").

2.2 Members shall not seal or sign drawings, specifications, or other interior design documents except where the member or the member's firm has prepared, supervised or professionally reviewed and approved such documents, as allowed by Applicable Laws.

2.3 Members shall at all times consider the health, safety and welfare of the public in spaces they design. Members agree, whenever possible, to notify property managers, landlords, and/or public officials of conditions within a built environment that endanger the health, safety and/or welfare of occupants.

2.4 Members shall not engage in any form of false or misleading advertising or promotional activities.

2.5 Members shall neither offer, nor make any payments or gifts to any public official, nor take any other action, with the intent of unduly influencing the official's judgment in connection with an existing or prospective project in which the members are interested.

2.6 Members shall not assist or abet improper or illegal conduct of anyone in connection with a project.

3.0 RESPONSIBILITY TO THE CLIENT

3.1 Members' contracts with a client shall clearly set forth the scope and nature of the project involved, the services to be performed and the method of compensation for those services.

3.2 Members may offer professional services to a client for any form of legal compensation.

3.3 Members shall not undertake any professional responsibility unless they are, by training and experience, competent to adequately perform the work required.

3.4 Members shall fully disclose to a client all compensation which the Member shall receive in connection with the project and shall not accept any form of undisclosed compensation from any person or firm with whom the member deals in connection with the project.

3.5 Members shall not divulge any confidential information about the client or the client's project, or utilize photographs of the project except as is expressly allowed by agreement between the Member and client.

3.6 Members shall be candid and truthful in all their professional communications.

3.7 Members shall act with fiscal responsibility in the best interest of their clients and shall maintain sound business relationships with suppliers, industry and trades.

4.0 RESPONSIBILITY TO OTHER INTERIOR DESIGNERS AND COLLEAGUES

4.1 Members shall abide by common law and statutory prohibitions against tortuous interference of contract and will not unlawfully interfere with another interior designer's existing contractual relationships.

4.2 Members shall avoid making any intentionally false communication, either written or spoken, that harms another interior designer's reputation or otherwise disparages their character.

4.3 Members may, when requested and it does not present a conflict of interest, render a second opinion to a client, or serve as an expert witness in a judicial or arbitration proceeding.

4.4 Members shall not endorse the application for ASID membership and/or certification, registration or licensing of an individual known to be unqualified with respect to education, training, experience or character, nor shall a Member knowingly misrepresent the experience, professional expertise or moral character of that individual.

4.5 Subject to the provisions of section six, members shall only take credit for work that has actually been created by that Member or the Member's firm, and under the Member's supervision.

4.6 Members shall respect the confidentiality of sensitive information obtained in the course of their professional activities.

5.0 RESPONSIBILITY TO THE PROFESSION

5.1 Members agree to maintain standards of professional and personal conduct that will reflect in a responsible manner on the Society and the profession.

5.2 Members shall seek to continually upgrade their professional knowledge and competency with respect to the interior design profession.

5.3 Members agree, whenever possible, to encourage and contribute to the sharing of knowledge and information between interior designers and other allied professional disciplines, industry and the public.

6.0 RESPONSIBILITY TO THE EMPLOYER

6.1 Members leaving an employer's service shall not take drawings, designs, photographs, data, reports, notes, client lists, or other materials relating to work performed in the employer's service except with permission of the employer.

6.2 Members shall not divulge any confidential information obtained during the course of their employment about the client or the client's project.

7.0 ENFORCEMENT

7.1 The Society shall follow standard procedures for the enforcement of this Code of Ethics and Professional Conduct as approved by the Society's Board of Directors.

7.2 Members having a reasonable belief, based upon substantial information, that another member has acted in violation of this Code of Ethics and Professional Conduct, shall report such information in accordance with accepted procedures.

7.3 Any deviation from this Code of Ethics and Professional Conduct, or any action taken by a Member which is detrimental to the Society and the profession as a whole shall be deemed unprofessional conduct subject to discipline by the Society's Board of Directors.

(Adopted by the National Board 8/94)

PROCEDURES FOR FILING AN ETHICS COMPLAINT

ASID procedures regarding a complaint filed against a member of
ASID are as follows:

1. The individual against whom an ethics complaint is made must be a current member in the Society (the "member"). The complaint must be in writing, signed by the complaining party (the "complainant"), shall state the matter complained of in detail, and be accompanied by all materials the complaining party wishes to bring to the attention of the Society (collectively referred to as "complaining materials ").

2. The complaining materials must be sent to Society headquarters within two years of the occurrence of the conduct which is the subject matter of the complaining materials.

3. The complaining materials are forwarded to the Society 's legal counsel for review and to determine if the conduct complained of involves a possible violation of the Society 's Code
of Ethics, or might otherwise constitute conduct detrimental to the Society or the profession.

4. If legal counsel decides the complaining materials do not involve a possible violation, the complainant is informed and the matter is closed. If legal counsel decides the complaining
materials may involve a possible violation, the complaining materials are sent by the Society to the member with a request for a written

response from the member to the complaining materials within 21 days. The response shall be in writing, signed by the member, and shall be accompanied by all materials the member wishes to bring to the attention of the
Society in response to complaining materials ("responding materials").

5. The complaining and responding materials are then reviewed by the Society 's ethics committee to determine whether there is sufficient evidence to warrant a disciplinary proceeding. In making their determination, the ethics committee may request additional information from either the complainant or the member. A copy of any such additional information provided by a party will, if the matter proceeds to a disciplinary hearing, be provided by the Society to the other party prior to the date of the hearing.

6. If the ethics committee concludes that a disciplinary hearing is not warranted, both parties are informed in writing of such determination and the matter is closed.

7. If the ethics committee determines that a disciplinary hearing is warranted, then the Society shall send a notice of the disciplinary hearing to the parties by certified mail, return receipt requested, (with a copy by ordinary mail) not less than 45 days prior to the date of

the disciplinary hearing. The notice of disciplinary hearing shall specify the date, time and place of the hearing.

8. Either party may submit such other written materials they wish to bring to the attention of the disciplinary committee ("additional materials"), provided such additional materials are received at Society 's headquarters no later than 20 days preceding the hearing date. A copy of additional materials submitted by a party must be sent by the submitting party to the other party by certified mail, return receipt requested, so that the same materials will be received by the other party no later than 20 days preceding the hearing date.

9. The Complainant shall be required to participate in the hearing in the manner described below. If the Complainant fails to participate in the hearing for any reason, the complaint will be dismissed as against the Complainant with prejudice to Complainant's right to file another complaint against the accused member in connection with the subject matter that was set forth in the complaint. The complainant and the accused member may appear personally and by counsel and may produce such witnesses as they determine (revised 1/98). Alternately, the complainant and the accused may elect to participate in the hearing via video teleconferencing or telephone conference call, provided such technology is available at the

site of the hearing and all costs as reasonably determined by the Society are paid in advance by the party to the complaint requesting either video teleconferencing or a conference telephone call. In such regard, the complainant and the member shall each provide the Society with written notice, no later than 20 days prior to the hearing date, containing information as to how they plan to participate in the hearing, a telephone number where they may be reached on the date of the hearing, and a list of witnesses if applicable. Each submitting party must also send a copy of the written notice to the other party by certified mail, return receipt requested, so that the same information will be received by the other party no later than 20 days preceding the hearing date.

10. No stenographic transcript of such hearing shall be made unless it is specifically requested and paid for in advance by the requesting party.

(Amended 12/13)

I | I D | A

INTERNATIONAL
INTERIOR DESIGN
ASSOCIATION

IIDA Code of Ethics for Professional and Associate Member Conduct

1.0 PREAMBLE

Professional and Associate Members of the International Interior Design Association shall conduct their interior design practice in a manner that will encourage the respect of clients, fellow interior designers, the interior design industry and the general public. It is the individual responsibility of every Professional and Associate Member of IIDA to abide by the Code of Professional Ethics and Conduct, Bylaws, Policies and Position Statements of the Association.

2.0 DEFINITIONS

The terms used in this Code shall be defined in the same manner in which they are defined in the Bylaws, Policies and Position Statements of the Association.

3.0 RESPONSIBILITY TO THE PUBLIC

3.1 In performing professional services, Professional and Associate Members shall exercise reasonable care and competence, and shall conform to existing laws, regulations and codes governing the profession of interior design as established by the state or other jurisdiction in which they conduct business.

3.2 In performing professional services, Professional and Associate Members shall at all times consider the health, safety, and welfare of the public.

3.3 In performing professional services, Professional and Associate Members shall not knowingly violate the law, or counsel or assist clients in conduct they know, or reasonably should know, is illegal.

3.4 Professional and Associate Members shall not permit their name or signature to be used in conjunction with a design or project for which interior design services are not to be, or were not, performed under their immediate direction and control.

3.5 Professional and Associate Members shall not engage in any form of false or misleading advertising or promotional activities and shall not imply, through advertising or other means, that staff members or employees of their firms are Professional or Associate Member unless such is the fact.

3.6 Professional and Associate Members shall not make misleading, deceptive or false statements or claims about their professional qualifications, experience, or performance.

3.7 Professional and Associate Members shall not, by affirmative act or failure to act, engage in any conduct involving fraud, deceit, misrepresentation or dishonesty in professional or business activity

3.8 In performing professional services, Professional and Associate Members shall refuse to consent to any decision by their clients or employers which violates any applicable law or regulation, and which, in the Professional and Associates Members' judgment, will create a significant risk to public health and safety.

3.9 Professional and Associate Members shall not attempt to obtain a contract to provide interior design services through any unlawful means.

3.10 Professional and Associate Members shall not assist any person seeking to obtain a contract to provide interior design services through any unlawful means.

4.0 RESPONSIBILITY TO THE CLIENT

4.1 Professional and Associate Members shall undertake to perform professional services only when they, together with their consultants, are qualified by education, training or experience to perform the services required.

4.2 Before accepting an assignment, Professional and Associate Members shall reasonably inform the client of the scope and nature of the project involved, the interior design services to be performed, and the method of remuneration for those services. Professional and Associate Members shall not materially change the scope of a project without the client's consent.

4.3 Prior to an engagement, Professional and Associate Members shall disclose, in writing, to an employer or client, any direct or indirect financial interest that they may have that could affect their impartiality in specifying project-related goods or services, and shall not knowingly assume or accept any position in which their personal interests conflict with their professional duty. If the employer or client objects to such financial or other interest, Professional and Associate Members shall either terminate such interest, or withdraw from such engagement.

4.4 Professional and Associate Members shall not reveal any information about a client, a client's intention(s), or a client's production method(s) which they have been asked to maintain in confidence, or which they should reasonably recognize as likely, if disclosed, to affect the interests of their client adversely. Notwithstanding the above, however, Professional and Associate Members may reveal such information to the extent they reasonably believe is necessary (1) to stop any act which creates a significant risk to public health and safety and which the Professional or Associate Member is unable to prevent in any other manner; or (2) to prevent any violation of applicable law.

5.0 RESPONSIBILITY TO OTHER INTERIOR DESIGNERS AND COLLEAGUES

5.1 Professional and Associate Members shall pursue their professional activities with honesty, integrity and fairness, and with respect for other designers' or colleagues' contractual and professional relationships.

5.2 Professional and Associate Members shall not accept instruction from their clients which knowingly involves plagiarism, nor shall they consciously plagiarize another's work.

5.3 Professional and Associate Members shall only take credit for work that has actually been created by the Member or the Member's firm or under the Member's immediate direction and control.

6.0 RESPONSIBILITY TO THE ASSOCIATION AND INTERIOR DESIGN PROFESSION

6.1 Professional and Associate Members agree to maintain standards of professional and personal conduct that will reflect in a responsible manner on the profession.

6.2 Professional and Associate Members shall seek to continually upgrade their professional knowledge and competency with respect to the interior design profession

6.3 Professional and Associate Members shall, wherever possible, encourage and contribute to the sharing of knowledge and information among interior designers, the interior design industry, and the general public.

6.4 Professional and Associate Members shall offer support, encouragement, and information to students of interior design.

6.5 Professional and Associate Members shall, when representing the interior design profession, act in a manner that is in the best interest of the profession.

6.6 Professional and Associate Members may only use the IIDA appellation in accordance with current Association policy.

6.7 Professional and Associate Members shall not knowingly make false statements or fail to disclose any material fact requested in connection with their applications for membership in the Association.

Chapter 28. The Impact of Facility Design on Patient Safety

John Reiling, Ronda G. Hughes, Mike R. Murphy

Background

Recent attention in health care has been on the actual architectural design of a hospital facility, including its technology and equipment, and its effect on patient safety. To address the problems of errors in health care and serious safety issues, fundamental changes of health care processes, culture, and the physical environment are necessary and need to be aligned, so that the caregivers and the resources that support them are set up for enabling safe care. The facility design of the hospital, with its equipment and technology, has not historically considered the impact on the quality and safety of patients, yet billions of dollars are and will be invested annually in health care facilities. This provides a unique opportunity to use current and emerging evidence to improve the physical environment in which nurses and other caregivers work, and thus improve both nurse and patient outcomes.

Human Error and Cognitive Functioning by Design

Cognitive psychologists have identified the physical environment as having a significant impact on safety and human performance.[1, 2] Understanding "the interrelationships between humans, the tools they use, and the environment in which they live and work"[3] is basic to any study of the design a health care facility and its effect on the performance of the nurses and other caregivers who interface with the facility and its fixed (e.g., oxygen and suctioning ports on the wall of a patient room) and moveable (e.g., a patient bed) equipment and technology. Humans do not always behave clumsily and humans do not always err, but they are more likely to do so when they work in a badly conceived and designed[4] health care setting.

Organizational/system factors that can potentially create the conditions conducive for errors are called latent conditions. According to Reason,[1] latent conditions are the inevitable "resident pathogens" that "may lie dormant within the system for a long time, only becoming evident when they combine with other factors to breach the system's defenses. Latent conditions can be identified and remedied before an adverse event occurs." Examples of latent conditions are: poorly designed facilities, including the location of technology and equipment; confusing procedures; training gaps; staff shortages or improper staffing patterns; and poor safety culture. A specific example of a latent condition effecting patient safety would be the impact of low lighting levels in the medication dispensing areas that are associated with some medication errors but not others.[5] These and other conditions occur at what Reason describes as the "blunt end," where administrators, the work environment, and resources determine the processes of care delivery. Latent conditions are present in all organizations and can be unintentionally created by those who are responsible for designing systems, ensuring adequate staffing, creating and enforcing policies, and so on.

The design of a facility/structure with its fixed and moveable components can have a significant impact on human performance, especially on the health and safety of employees,

patients, and families.[6] In a review of more than 600 articles, researchers found that there was a link between the physical environment (i.e., single-bed or multiple-bed patient rooms) and patient (e.g., fewer adverse events and better health care quality) and staff outcomes (e.g., reduced stress and fatigue and increased effectiveness in delivering care).[7] Efforts to improve patient and staff outcomes can target latent conditions for clinicians by using evidence-based designs to decrease distractions, standardize locations of equipment and supplies, and ensure adequate space for documentation and work areas. The research done by Reason[1] and Leape[2] describes the value of practices based on principles designed to compensate for human cognitive failings. Thus, when applied to the health care field, human factors research (i.e., an area of research that includes human performance, technology design, and human-computer interaction; this topic is covered in chapter 5, "A Human Factors Framework," by Henriksen and colleagues), which has emphasized the need for standardization, simplification, and use of protocols and checklists, can be used to improve health care outcomes.

By targeting human factors through facility design and ensuring that latent conditions and cognitive failures that lead to adverse events are minimized, patient safety will improve. This requires a multifaceted approach, including developing a strong safety culture, redesigning systems or facilities with their equipment and technology, focusing on eliminating the conditions of cognitive errors, and helping caregivers correct/stop an error before it leads to harm or mitigate it if it occurs.[1, 2]

Factors Influencing the Built Environment

With human factors in mind, there are several aspects of the built environment that should be considered. In a review of the literature by Henriksen and colleagues,[8] the following design elements were identified as critical in ensuring patient safety and quality care, based on the six quality aims of the Institute of Medicine's report, *Crossing the Quality Chasm: A New Health System for the 21st Century*:[9]

- *Patient-centeredness*, including
  - using variable-acuity rooms and single-bed rooms
  - ensuring sufficient space to accommodate family members
  - enabling access to health care information
  - having clearly marked signs to navigate the hospital
- *Safety*, including
  - applying the design and improving the availability of assistive devices to avert patient falls
  - using ventilation and filtration systems to control and prevent the spread of infections
  - using surfaces that can be easily decontaminated
  - facilitating hand washing with the availability of sinks and alcohol hand rubs
  - preventing patient and provider injury
  - addressing the sensitivities associated with the interdependencies of care, including work spaces and work processes
- *Effectiveness*, including
  - use of lighting to enable visual performance
  - use of natural lighting
  - controlling the effects of noise

- *Efficiency*, including
  - standardizing room layout, location of supplies and medical equipment
  - minimizing potential safety threats and improving patient satisfaction by minimizing patient transfers with variable-acuity rooms
- *Timeliness*, by
  - ensuring rapid response to patient needs
  - eliminating inefficiencies in the processes of care delivery
  - facilitating the clinical work of nurses
- *Equity*, by
  - ensuring the size, layout, and functions of the structure meet the diverse care needs of patients

There have been five other significant reviews of the literature relating to the physical environment and patient outcomes. Nelson and colleagues[10] identified the need to reduce noise pollution and enhance factors that can shorten a patient's length of stay (e.g., natural lighting, care in new/remodeled units, and access to music and views of nature); according to their study, patients can benefit from the skillful utilization of music and artwork. Ulrich and colleagues[7] found research that demonstrated that the design of a hospital can significantly improve patient safety by decreasing health care associated infections and medical errors. They also found that facility design can have a direct impact on patient and staff satisfaction, a patient's stress experience, and organization performance metrics. Three other reviews found that hospital design, particularly when single-bed rooms are employed, can enhance patient safety and create environments that are healthier for patients, families, and staff by preventing injury from falls, infections, and medical errors; minimizing environmental stressors associated with noise and inefficient room and unit layout; and using nature, color, light, and sound to control potential stressors.[11–13]

Nurse staffing levels. Preventable adverse events such as falls and complications have been found to be related to both the design of health care facilities and nurse staffing levels. Patient falls in acute care settings can result from slippery floors, poor placement of handrails, inappropriate door openings, furniture heights,[14] and inadequate nurse staffing.[15, 16] Infection rates have been found to be lower in patients, particularly critically ill patients, when there are higher staffing levels.[17, 18, 19] High rates of postoperative infections, especially related to wounds among patients ages 65 to 70, have been found to be associated with facilities that were overcrowded, had few private rooms, lacked individual bathrooms and toilets, had no isolation facilities, and had deficient ventilation systems.[16] Without effective ventilation systems, efforts to avoid ventilator-associated pneumonia—such as patient positioning, oral health, and airway management[20, 21]—have a greater potential of not being as beneficial. Then again, the greater risk for health care associated infections may be associated with nurses not implementing evidence-based practices,[22] such as aseptic technique or washing hands appropriately[18] to prevent infections, as well as nurse understaffing;[23–26] how much is not known. These are only some of the examples that indicate that there are fewer adverse events when appropriate nurse staffing levels are met, and operational costs are lower because the rates of adverse events are lowered.[27] Thus, adequate staffing must be addressed to enable the benefits of well-designed health care facilities.

Structural obstacles and the nature of work for nurses. Several factors have been identified as physically being in the way of the work of nurses. An assessment of the organization of nurses in medical and surgical units in hospitals in France found that the work of

nurses was dependent upon the spatial configuration of the unit. For purposes of this study, nurses' work areas were divided into four categories: the patients' rooms, the nurses' area, the corridor, and other specialized areas such as a storage room. Nurses were found to have generally followed three paths in their trips: different points of the nurses' area, trips between the patients' rooms and nurses' area, and trips between the patients' rooms. Trips were organized according to spatial and functional logic. The majority of the activities performed by nurses were found to last less than 2 minutes. On the surgical unit, nurses during one shift were found to perform 3,855 trips that lasted approximately 3 minutes and 25 seconds each; this was fewer than the 4,521 trips performed by nurses on the medical units, each lasting approximately 3 minutes and 9 seconds. The constant movement by nurses varied based on the spatial organization of the unit as well as the temporal structure of the tasks. On the surgical unit, nurses were interrupted, an average of once every 20 minutes; on the medical unit, nurses were interrupted an average of once every 12 minutes.[28]

One approach to address these obstacles and to better meet patients' needs is to not have one central nursing station. Instead, there would be several decentralized nursing work stations throughout the unit with supplies, linens, and equipment areas. Appropriately distributed supplies and equipment could reduce fatigue and improve efficiency of nurses[29] by minimizing the time associated with finding supplies and equipment and moving from one location to another. Patients could benefit from more time with nurses and increased surveillance opportunities that require nurses to visually monitor patients—a benefit enhanced further by using single-bed rooms in hospital design.[30]

Single-bed and variable-acuity rooms. Debate continues as to whether hospitals should have single-bed rooms or semiprivate rooms for patients. Research over the past 10 years has compared single to semiprivate rooms and, in so doing, has provided greater insight into cost implications, patient satisfaction, and impact on patient care and outcomes. Several reviews of the literature found that single-bed rooms were more conducive for infection control and patient care,[7, 31, 32] were associated with reduced stress and improved outcomes for patients,[33] and increased privacy and accessibility for patients and families.[34] Noise levels and catheter-related infections have been found to be lower for critically ill infants in single-bed rooms.[35] Comparatively, environmental risk factors for patients in multiple occupancy include lack of privacy[36] and higher noise levels that can affect their comfort and recovery.[37] Environmental noise and light as well as patient interruptions can cause sleep disturbance,[36] especially in intensive care unit patients.[38]

Patients and families tend to be more satisfied with single-bed rooms. In one study, patient satisfaction among low-risk maternity patients was found to be higher with single rooms because of having their privacy respected; patients felt they were in a comfortable environment and felt that they received more support and education.[39] Clinicians have also been found to prefer single rooms for maternity patients[40] and neonatal intensive care patients.[35]

The availability of single-patient rooms has been found to control the spread of infection from patients infected with methicillin-resistant Staphylococcus aureus,[41–43] gram-negative bacteremia in burn patients,[44] and respiratory and enteric infections requiring contact isolation in pediatric units.[45] Single-bed isolation rooms, intended to prevent the spread of infectious agents by using pressure differentials to contain them, are effective only if the room is tightly sealed.[46] Thus, in terms of controlling infection in isolation rooms and other patient rooms, the greater risk may be associated with nurses not implementing evidence-based practices regarding hand washing and aseptic technique to prevent infections.[18]

The design of a patient room that allows flexibility and can be adapted to meet changing acuity and care needs of patients has been found in some institutions to contribute to decreased medication errors and falls.[47, 48] A well-designed patient room has also been found to be a factor in improving care delivery processes for clinicians by providing more private patient consultations,[36] improving patient and clinician satisfaction,[48] decreasing length of stay,[29] and facilitating continuity of care during a hospital stay.[39]

Traditionally, the bed charge has been higher for single rooms and the capital investment greater. Yet research has found that single rooms and flexible/adaptable rooms for maternity care and intermediate and intensive care offered cost savings, particularly because of shorter lengths of stay and a decrease in the number of transfers within the hospital.[40, 49] Such rooms are more likely to be filled[47] and can avoid the costs of transfers when the room is acuity adaptable.[36]

Lessons From Best-Practice Designs

There are several examples of the impact of evidence-based design in acute care settings; a few will be discussed here. Research in the early 1970s found that unit efficiency was determined by the design of the unit, not room size or occupancy.[50] Research conducted since then has continued to emphasize the importance of designs. One study[51] began with a systematic evaluation of best practices in 19 intensive care units (ICUs), built between 1993 and 2003, that received a design award from the Society of Critical Care Medicine, the American Association of Critical Care Nurses, and the American Institute of Architects. The reviewer found positive characteristics of the ICUs to include single-bed rooms for improved patient care, safety, privacy, and comfort; bed locations that provided easy access for clinicians; hand-washing sinks and waste disposal in the patient rooms; and use of natural lighting. Negative characteristics were found to be renovation projects that posed health and safety hazards during the construction; mixed-service units with safety and staffing problems; overall layout—and layout of work areas for staff—that lacked a common design solution; and family space that was often located outside the unit and provided the family with limited access.

The Pebble Project, supported by the Center for Health Design and funded by the Robert Wood Johnson Foundation, includes several hospitals across the country. As part of this project, evidence-based designs are used and empirical evidence is assessed to measure outcomes such as safety (visit the Center for Health Design's Web site at www.healthdesign.org). Findings from the Pebble Project are expected to advance the evidence base by increasing our knowledge of design features that can ensure a safe healing environment where the best quality of care can be provided. The project is intended to have a ripple effect and influence other health care facilities nationwide.[52]

There are several examples of hospitals involved in the Pebble Project, such as Children's Hospital in San Diego, which opened a long-term, convalescent hospital designed to promote the care needs for permanently disabled children. The design included out-of-sight wheelchair storage in patients' rooms, private spaces outside the patient rooms for parents to hold their children, and an improved ventilation system to decrease respiratory infections. The Methodist Hospital in Indianapolis opened a 56-bed cardiovascular critical care unit where patients are admitted directly to their rooms from the emergency room, admitting, physicians' offices, or the Lifeline helicopter. Patient rooms are private and patients are in control of the temperature and light. Each room also has an interior window that can become opaque to increase privacy. The design also enabled nurses to observe patients better, resulting in half as many patient falls, and the need for patient transfers has decreased substantially from 200 per month to an average of 20

per month. Bronson Methodist Hospital in Michigan opened a new facility with private patient rooms and increased patient access to nature (e.g., indoor gardens, natural light, and landscape views) and decreased patient stress using of positive distractions such as music, water sounds, artwork, and daylight. The Barbara Ann Karmanos Cancer Institute renovated several hospital areas to be patient-centered and to provide a more pleasant environment, where patient rooms were made larger and an emphasis was placed on lighting and acoustics. In doing so, administrators and clinicians have seen a decrease in the use of pain medication and medication errors on these units. Thus, by incorporating private rooms into their designs, these four hospitals and patients they have served have experienced successful outcomes in their new and renovated facilities.[53]

Research Evidence

There were 10 original articles that met the inclusion criteria for this review. Four articles described investigations with nurses in relation to the work and built environment, five were about patient's perspectives, and two were about specific built environment projects; one study investigated both staff and patient perceptions of the built environment.

Nurses' Perspective

Four studies assessed hospital nurses' perspectives on factors associated with the built environment using cross-sectional surveys. Two surveys intended to assess the work environment and challenges prior to moving forward with specific changes.[54, 55] When asked about performance obstacles, nurses reported: work environments; distractions from families; hectic and crowded work environments; delays in getting medications from the pharmacy; amount of time spent teaching families; equipment not being available; patient rooms not well stocked; insufficient workspace for completing paperwork; time spent seeking supplies or patients' charts; receiving many phone calls from families; delays in seeing new medical orders; and misplaced equipment.[54] When asked about what physical changes were problematic in the layout of the current unit, including patients' rooms, pediatric nurses reported that they were not satisfied with: the size of residents' closets, showers, and activity room; the actual size, aesthetics, and location of the break room and dining room; the available space for medical equipment; the available space for charting; and the outdoor recreation area. Not only did nurses share similar concerns with parents, the facility aesthetics and work environment were found to be associated with higher satisfaction and better coworker relationships among nurses.[55]

The other two surveys assessed the perceptions of nurses about single versus multiple bed rooms. A very small sample of nurse managers and unit directors (n = 7) in best-practice ICUs reported the benefits of single-bed rooms as enhanced patient safety, ensured privacy for patients, increased access to patient status information, and more space for family members.[56] In the other survey, administrative and nursing staff (n = 77) reported that they favored single-occupancy rooms because of their flexibility, being more appropriate for patient examination, improved quality of patient monitoring and scope of patient surveillance, and improved patient comfort level and patient recovery rate. Helpful characteristics of single-occupancy rooms were reported as: the more favorable layout of the room, including the availability of extra space in the room making arrangement of furniture easier and providing storage for clean and dirty supplies in the room; better privacy for patients and more space for family members; and better lighting

and temperature control and lower noise levels. A little over half of the respondents believed that health care acquired infections were low or very low in single-occupancy rooms, but that there was no difference in the number of patient falls or the need for pain-reducing or sleep-inducing medications between the two types of rooms. Conversely, helpful characteristics of double-occupancy rooms included proximity to the nursing station. However, being able to see patients for monitoring purposes was reported as problematic for both single and multiple occupancy rooms.[57]

Patients' Perspective and Impact

Five of the identified studies assessed the perspective of patients who received care in a purposefully built environment within hospitals. Two studies used focus groups to assess the patients' perspective, one with hospital inpatients,[58] and the other with patients and family members in ambulatory care, acute care, and long-term care settings.[59] A consistent theme among these studies was the preference for an environment that offered quality and comfortable personal space, rather than an environment that addressed only medical needs, but none were without some aspect that was not favorable.

Three studies assessed the perspectives of patients and family members in the United States and the United Kingdom. Patients and family members in the United States, across various settings, reported wanting a health care environment that facilitates connections to clinicians; fosters a sense of well-being; and is not dissociated from the world outside the hospital, outpatient setting, or long-term care setting.[59] Patients in the United Kingdom, hospitalized patients in various units (n = 51) reported feeling a loss of independence and control while hospitalized, but felt safer and at home when they had the TV close by, and were able to walk around. For these patients, the most important factors about the built environment were privacy, a homely environment, considerations for disabilities, and being able to see outside and get outside.[58] Patients in another study in the United Kingdom reported a relationship between the environment and internal areas of the hospital and how that made them feel comfortable, able to keep a sense of normalcy, and as having a positive affect on their feelings of well-being. Patients further reported that they felt that it was important to have good signage, controllable lighting and temperature, privacy, reduced noise levels, access to the natural environment, safety and security in internal and external areas, internal and external children's play areas, accommodations for visitors, shops and personal services, good 24-7 catering facilities, and good landscape designs with seating and garden areas.[60]

Patient perceptions were assessed after implementation of a built environment in a hospital. In one study, there were fewer patients who left against medical advice, aggression levels in patients decreased, and levels of benzodiazepine dosing decreased compared to measured occurrences before the new unit opened. It is not known if there was any assessment of patients' perceptions.[61] Parents (n = 40) in a children's hospital reported more satisfaction with the structure and facility aesthetics, but were not satisfied with space for showers/baths, the amount of closet space in the patient room, lack of sufficient private areas to be with their child or for outdoor recreation, location of the nurses station, and the low level of natural lighting.[55]

Acuity-Adaptable Rooms

One study investigated the impact of an evidence-based design of 56 new acuity-adaptable rooms for a combined coronary critical care and step-down unit.[62] Researchers found that two

different levels of acute care (intensive care and step-down care) could effectively be merged together into a single patient room by making the room acuity adaptable to accommodate the changing needs of patients. Once in the new single-bed acuity-adaptable unit, researchers found: a large reduction in clinician handoffs and transfers; a 70 percent reduction in medication errors; a reduction in patient falls; improvements in patient satisfaction; decreases in budgeted nursing hours per patient day; and increases in available nursing time for direct care without additional cost. Yet, clinicians felt more isolated by the increased size of the unit and with decentralized nursing stations; then again, the "isolation" gave nurses greater opportunity for autonomous decisionmaking.

Designed ICU

The implementation of a new neonatal intensive care unit, designed to have a more efficient floor plan, provide space for supportive family-centered care, and to use of natural light, used was assessed using multiple methods.[63] On this new unit, the majority of nurses were positive about the design features. Nurses reported the new unit as enabling efficiency, in part attributable to being able to move about the unit at a greater velocity, enabling them to spend more time with the infants and less time needed to walk about the unit in the course of their work. The nurses also reported that the new unit was more comforting, clean and quieter, and the new lighting was thought to have a positive impact on the patients. Additionally, nurses reported that they felt that families were utilizing the majority of space designated to them.

Addressing the Problem: A Case Study

One new 80-bed community hospital in Wisconsin has been designed to improve patient safety through research-based design. Following the report of the Institute of Medicine (IOM), *To Err Is Human: Designing a Safer Health System*,[64] the management and medical staff at St. Joseph's initially believed that adverse events applied to other institutions and not their own. When it became apparent that St. Joseph's, too, had preventable adverse events, top management authorized the design of a facility with the equipment and technology to lower or eliminate preventable adverse events—a design that could possibly be used as an example by other health care organizations that were building new facilities, remodeling, or expanding existing facilities.

The process began in April 2002, when leadership from SynergyHealth St. Joseph's Hospital met with national leaders representing health care administration, health services research, hospital quality improvement and accreditation, hospital architecture, systems engineering, medicine, nursing, and pharmacy.[65] Using personal experience, human factors principles, health care research, and research from other industries, it was agreed that a National Learning Lab, would be used to develop recommendations for facility design, define and create a roadmap for safety by design, including safe design principles, make recommendations for changes in care processes, and enhance safety culture for hospitals through facility design focused on patient safety. The specific safety design principles, intended to specifically address both latent conditions and active failures, included the following:

1. Automate where possible.
2. Design to prevent adverse events (e.g., patient falls, operative/postoperative complications and infections, and deaths associated with restraint use).
3. Design for scalability, adaptability, and flexibility.

4. Place accessibility of information in close proximity to the patient.
5. Improve visibility of patients to staff.
6. Involve patients in their care.
7. Minimize fatigue of staff.
8. Minimize patient transfers/handoffs.
9. Reduce noise.
10. Standardize.

These principles were substantiated by using failure mode and effects analysis throughout the design process, involving patients/families, and instituting an organizational culture of safety, these principles would enable designs that would support the anticipation, identification, and prevention of adverse events.[65]

Designing for Nursing Care

The first step for the National Learning Lab was an educational program about human error and its causes associated with latent conditions and active failures. The goal of this education was to gain commitment to the need for nurses to be active in the design phase. Then representatives of nursing were elected to a facility design committee. Design teams of nurses were also formed to assure formal input into the design. Mock-ups were also an important feature and prompted more input from the nurses. Many rooms were mocked up, and the medical-surgical room was modified multiple times by the involvement of nurses reviewing every detail to assure a safe design. Nurses' involvement in equipment and technology planning started immediately with the mock-ups. The interplay between the facility (with its equipment and technology) and nurses and patients creates safe or unsafe interactions, and the result is affected in large part by the facility design.

Once the National Learning Lab was over, St. Joseph's Hospital began the important process of implementing the Lab's recommendations. For St. Joseph's to implement the National Learning Lab's recommendations, senior leadership knew they needed to involve nurses in the facility design process because of nursing's essential role in caring for patients, and because nurses interface with all the systems of a hospital at the "sharp end," including equipment, technology, facilities, and patients—more so then any other care provider in a hospital. Not discounting the role of physicians, other clinicians, and health care staff, nurses provide care 24 hours a day, 7 days a week. As such, nurses providing care are most aware of the best way to design a patient room (for example) so the room design minimizes the potential for human error and harm to patients. St. Joseph's organized the design process to maximize the involvement of nurses.

Single-Patient Room

In many instances, including the need for patient isolation measures, double or multiple-occupancy rooms were viewed as not being conducive to patient safety and quality care. The floor plan shown in Figure 1 illustrates how a series of standardized single-patient rooms were laid out on both sides of a hallway in St. Joseph's Hospital. This perspective allows various features of the room to be seen in relation to each other. There are two entrances to the room, one from the hallway (along the lower edge of the picture), and one from the alcove on the right. In that alcove, also entered from the hallway, a desk, computer, and chair are provided for use by

staff. The alcove also contains a standardized storage area, so staff can find everything they need for the care of the patient adjacent to the patient room.

The interior of a single-patient room incorporates many of the recommendations relating to latent conditions and active failures in the design for safety (see Figure 2). The family area of the room is in the right corner of the room, by the window, and includes a couch/pull-out bed, chair, desk with Internet connection, and good natural lighting. The treatment area of the room is on the left side of the bed, with room all around the bed for patient care. It is intentional, also, that the patient is on the nurses' and other caregivers' right as that person enters the room from either door, so care can be more efficiently provided. Note that the bathroom is at the head of the patient's bed, allowing the patient to get to and from the bathroom without impediments, holding onto a rail all the way if necessary. At the head of the bed is the headwall with connections for various gases such as oxygen; on the wall to the left of the bed is a pull-down table the caregiver can use when it is needed. Although it is not shown in the illustration, there will also be a portable cart in each room, with a computer on it. Last but not least, in the lower right-hand corner of the room, between the two doorways, easily visible to the patient, there is a sink—an ever-present and convenient reminder to nurses, all staff, and visitors to wash their hands.

Figure 1. Floor Layout of Single-Patient Rooms in St. Joseph's Hospital

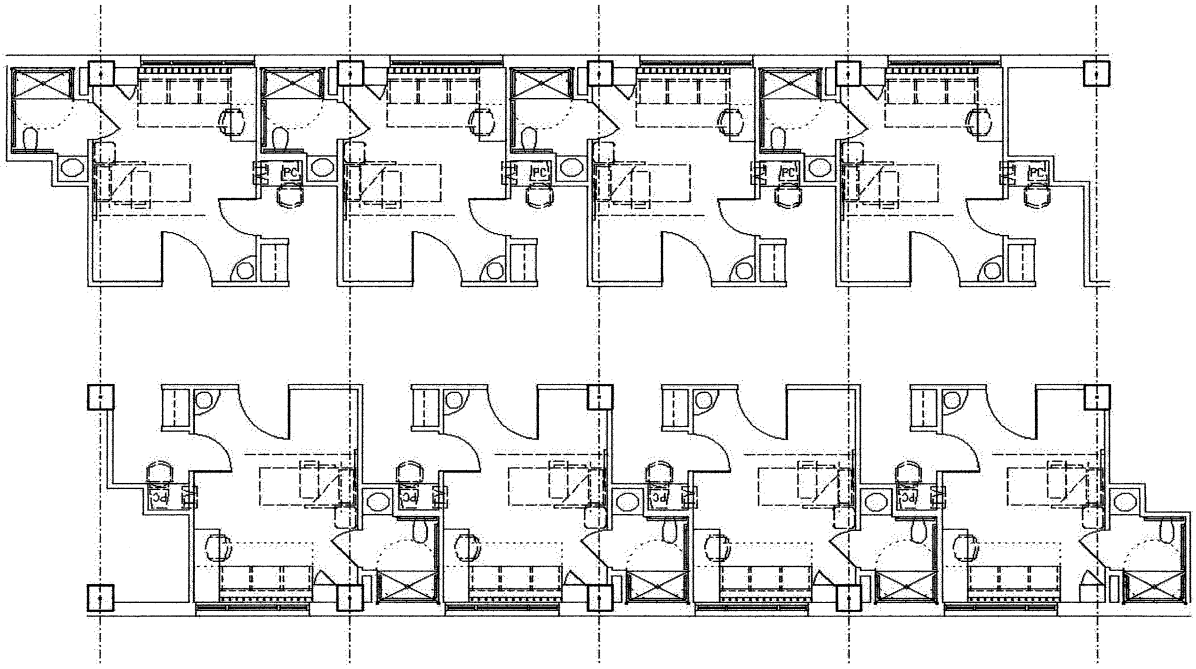
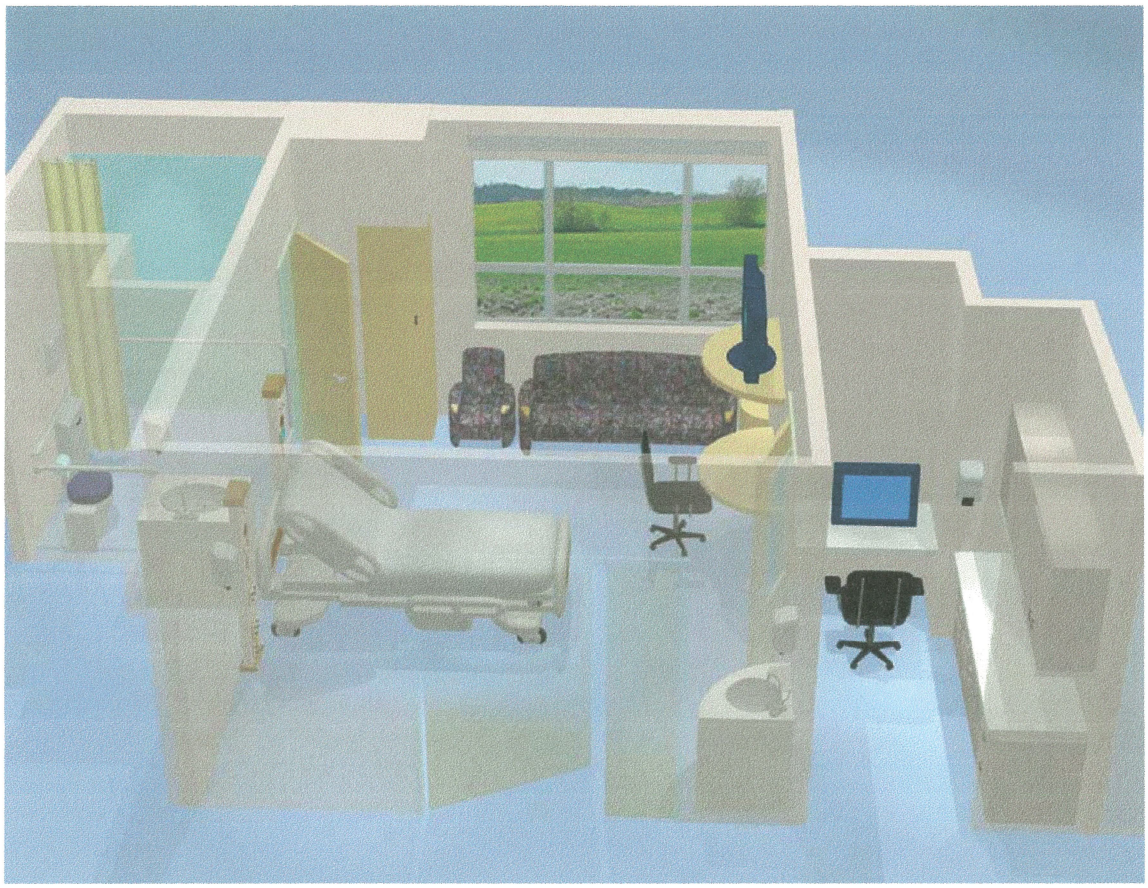


Figure 2. Single-Patient Room in St. Joseph's Hospital



Applying Knowledge of Active Failures and Latent Conditions to Room Design

The design process for St. Joseph's Hospital focused on safety, employing broad participation, including nurses, physicians, board members, administration, National Learning Lab participants, expert consultants, other health systems, health care writers, and design teams. The patient room was selected as a good example of how the design plan for the hospital came together in one location. To show how the room design was reached, each of the applicable latent conditions and active failures will be discussed, to explain how they relate to the plan for a single-patient room.

Noise reduction: Noise interferes with communication, creates distractions, affects cognitive performance and concentration, and contributes to stress and fatigue.[66] Particularly sensitive are mental activities involving working memory.[67] Noise can also adversely impact healing, alter quality of sleep, and reduce overall perceived patient satisfaction, yet the evidence at present is equivocal.[68] Since a standardized patient room has a material effect on noise, the bed in each single room in St. Joseph's is in the same location as the next room. In the traditional patient room style, called back-to-back, patient beds are on the same wall. Back-to-back plans create major transfer noise between rooms, and their use of the same oxygen, compressed room air, and

suction intensifies the transfer noise and vibration. In a truly standardized room, this does not occur. In addition, the walls between rooms are separated and insulated with airspace, minimizing transfer noise. This was designed into the structure early in the building design. In addition, vibration noise between floors and within a floor was minimized through design. The mechanical, electrical, and plumbing systems were designed to use the optimum materials for minimizing noise. This included using vibration isolation/dampening devices wherever vibration could be a factor.

The flooring in the patient room is rubber, second to carpet in sound reduction qualities. The reason carpet was not chosen (it was mocked up and tested) is because spills and mishaps needed to be cleaned up immediately. Carpet requires housekeeping to bring a carpet cleaner, which could take time and also could be embarrassing for the patient. Carpet was chosen, however, for the alcoves and hallways, with a low-nap, special carpet for hospital application. Special ceiling tiles that absorb noise better than regular ceiling tiles were chosen. Triple glazed windows were specified to minimize outside noises. No overhead paging system is used (except for public emergencies such as a tornado warning), and nurse call systems use minimal tone with vibrating features. As specific equipment and technologies were needed, manufacturers of that piece of equipment or technology were contacted and asked how they reduced noise in their products. That became one important criterion for selecting which company's equipment to use.

Scalability, adaptability, flexibility: Many design and construction concepts can be applied to achieve a scalable (e.g., the ability to expand or remodel easily) or adaptable (e.g., the ability to adapt space for different or evolving services) health care facility. At St. Joseph's, all rooms have higher-than-normal ceilings to allow changes to be incorporated in the future. Space around the bed is sized so procedures (e.g., colonoscopies) could be performed in the room in the future.

Visibility of patients to staff: The importance of being able to see patients is inherent to nursing care, a concept that was recognized early by Florence Nightingale, who advocated the design of open, long hospital wards to see all patients. The design of units and patient rooms should allow caregivers to be in visual proximity to patients; a pod structure can allow close proximity and enable quality care by improving efficiency and effectiveness. At St. Joseph's, each alcove door has a glass window with a blind so nurses can work in the alcoves and see the patient or check on the patient. The nurse can also check on the patient in the evening without opening the door and waking the patient. Each room is wired for cameras for observation. All materials, such as medication, linens, IV poles, and a rough-in for icemakers, are delivered to the alcove to allow nurses to spend more time with the patient. The chart will initially be in the room, but shortly after the new hospital opens, it will be replaced by electronic medical records with a workspace so nurses and other caregivers can spend more time with the patient. Furthermore, visibility also means lighting to see the patient. Natural light is maximized by large windows in every patient room. Light sources after hours are as close to natural light as can be achieved cost effectively. Canned lights are located over the patient for assessment. A total of 15 lights are located in every room, including the bathroom and alcoves.

Involving patients in their care: The IOM[9] found that many patients have expressed frustration with their inability to participate in decisionmaking, to obtain information they need, to be heard, and to participate in systems of care that are responsive to their needs. The availability of information for patients increases their knowledge regarding their illness and treatment options, and being informed gives patients the opportunity to participate in shared decisionmaking with clinicians and may help patients better articulate their individual views and preferences.[69–71] This reflects several dimensions of patient-centered care, including respect for

patients' values, preferences, and expressed needs, as well as providing information, communication, and education.[72]

At St. Joseph's, the patient room is designed with a treatment section near the door and a family section near the window. A couch folds outs into a bed; a desk with an Internet connection encourages family members or friends to stay with patients. This is intended to help patients to be more active with their care and better able to protect themselves from errors. A portable computer on a cart (same one used by staff) is located in each room so patients can have appropriate access to their chart.

Standardization: Standardization has been documented as an important human factors-based design strategy [4, 64] that can help lessen the number of errors. Standardization reduces reliance on short-term memory and allows those unfamiliar with a specific process or design to use it safely.[64] With a focus on improving the human-system interface by designing better processes and systems, standardization of patient rooms, treatment areas, equipment, and procedures can substantially reduce errors.[64]

There were many design elements that incorporated standardization as a physical attribute. The patient rooms in St. Joseph's may be the first patient rooms in the country to be standardized. The headwalls are standardized throughout the facility; a seven-drawer configuration was designed into every patient room or alcove to provide consistency of supply locations and to simplify the restocking of those supplies. This provides staff with a known constant, regardless of where they may be caring for a patient throughout the facility due to floating, a patient resuscitation, or some other emergent situation. The electronic medical record, use of bar-coding, computerized provider order entry, and other technologies will be standardized eventually, assisting in the development of standardized protocols and order sets. The facility materials distribution and routine nurse functions can also be standardized to match the facility.

Equipment is not fully standardized yet, but that is the goal, since fully standardized equipment provides the highest level of safety. The complexity and variety in equipment vendors and models is immense, and this complexity creates more errors. This weakness—the lack of equipment standardization—was pointed out continually in using failure and effects mode analysis. So St. Joseph's is evolving toward equipment standardization. The hospital was able to purchase limited new patient monitoring equipment, and took care to assure that new and existing equipment were from the same vendor to give the user a similar feel and functionality, regardless of which equipment they were using. The hospital will continue to utilize this process to guarantee long-term equipment standardization within the facility.

Automation where possible: The IOM identified health information technology solutions as a necessary component to improving patient safety.[9] As discussed in the chapter on health information technology, technologies such as electronic medical records can improve communication and information dissemination between providers.

At St. Joseph's, electronic medical records, bar-coding, physician order entry, a pneumatic tube system, two computers in every room (one in the alcove and one on a cart in the room), a sophisticated nurse call system, new patient beds, and patients lifts for every room are examples of automation. These applications are intended to allow caregivers to give care more efficiently and rely less on short-term memory. Many design features and technology applications have affected multiple latent conditions. This was one of the important criteria used at the matrix exercise to determine which design features to include. Technology applications were deemed to be a critical part of allowing St. Joseph's to design for safety.

Immediate accessibility of information, close to the point of service: In order to provide patients with the most accurate diagnosis and treatment possible, clinicians need to have complete, real-time information about the patient, care needs, and treatment options. Technologies such as the Internet, electronic medical records, and clinical decision-support systems can accomplish this. At St. Joseph's, electronic medical records were seen as the most useful way of making information accessible quickly at the point of service. When the hospital opened, the patient chart was 100 percent paper based. In traditional hospital environments, the patient chart changes location without regard to patient activities. Early mornings, a physician may come around and take the chart to a quiet dictation area to write notes and orders. The chart is often left there until another care provider requires the chart. Or, the chart may be left with the unit secretary to input/transcribe orders.

A transitional plan was developed to meet this guiding principle: When the hospital opened, a mandate was incorporated into the physician and staff orientation that the chart on the medical/surgical unit never leaves the alcove unless the patient leaves. This was surprisingly effective and compliance was unusually high. When an order is written, the physician uses a wall-mounted button labeled "New Order" or "Stat Order" to alert the unit clerk. The unit clerk then transcribes the order and does any necessary computer order entry in the alcove. The chart never leaves the alcove. Anecdotally, the physicians find this process useful to them. They can make rounds more efficiently, since they never have to look for a chart to write their notes or orders. They never have to "batch" their rounding and then look for all of the charts to document. Verbal orders are also reduced. For obvious reasons, this process will cease to be relevant when the electronic medical record is implemented.

Minimizing fatigue: Fatigue has been identified as a contributing factor to human error.[73, 74] While the effects of fatigue on patient safety is not known, fatigue has been found to have a negative impact on alertness, mood, and psychomotor and cognitive performance, which can have an impact on patient safety.[74–76] Some of the effects of long work hours and increasing workload can be mitigated by minimizing the distances staff must travel between patient rooms, and by using health information technology at the bedside to reduce reliance on short-term memory and thought processes. Other considerations in the design of St. Joseph's to minimize fatigue are carpeting and rubber flooring, a chair in the alcove, single rooms, keeping all materials in the alcove so nurses have to take fewer steps, less reliance on short-term memory, less noise, natural light, and strong lighting sources.

Minimizing patient transfers/handoffs: Transferring patients from one unit, room, or floor to another puts both the patient and staff at risk of harm, and it is disruptive to both patients and clinicians. Often these transfers involve handoffs, which, as described in another chapter in this book, also place the patient and clinician at risk for errors. Minimizing patient transfers and handoffs has design implications. Private single rooms with appropriate space around the beds, lifts, and other safety mechanisms allow more procedures to be performed in the room. This is similar to the model in obstetrics with Labor Delivery Recovery Post-Partum (LDRP) rooms, where the mother delivers the child and the child can remain with the mother in the same room for the entire stay. Another example is the physical therapy gym located on the med-surg unit—the patient never leaves the unit to obtain therapy, and their nurse is always in close proximity should a change in patient condition occur. Electronic medical records are another important tool. Bar-coding helps with continually and accurately identifying the patient.

Addressing the Root Causes of Precarious Events

The approaches used by St. Joseph's to address root causes for other types of at risk areas are described as follows:

Operative/postoperative complications and infections: Among the design features that will contribute to the reduction in operative/postoperative complications and infections are private rooms; a sink at the entrance to the medical/surgical patient rooms, which you must pass going in either door (to encourage hand washing); internal window blinds (to reduce accumulation of dust); a housewide air filtration system that includes central HEPA filters; ultraviolet lights in all clinical areas; airflow systems in which clean air passes the patient and is recycled and filtered again; and a radiant heat panel above or below every patient window to eliminate condensation. These are all features that minimize infection. Air supply and return grates that need cleaning have been upgraded to stainless steel so cleaning is more effective. However, the most important design element is the location of the sink, since lack of hand washing is the number one reason for hospital-acquired infections.

Inpatient suicides: Data from the Joint Commission indicate that out of the approximately 1,500 to 1,800 suicides that occur annually in hospitals, about 50 percent of those occur in medical/surgical units. The two most common methods are jumping and hanging. In a medical/surgical room, there are many things patients can use to hang themselves, such as bathroom curtain rods, showerheads, television brackets, or lights. Thus, St. Joseph's decided to use breakaway shower curtain rods and minimize other hanging risks by choosing lights and brackets that met the design needs of the room but would be less likely to be used for a suicide attempt. To minimize jumping, windows cannot be opened, and they are triple-paned, making them much harder to break through. If a suicide-risk patient is identified, that patient is transferred to the mental health unit, but increased visibility in all patient rooms helps staff keep a closer watch, which helps minimize the risk of suicides.

Death of patients in restraints, patient falls: St. Joseph's, like most hospitals, has minimized restraints. The new beds ordered for the hospital have eliminated many of the risks of deaths due to restraints. With less and less restraints, however, the risk of falls rises. Most patients fall at night or while walking with a nurse or other caregiver. Design elements that help reduce falls include fixed night lights in every room, beds that drop down to sixteen inches above the floor, locating the bathroom at the head of the bed with railings to the stool and shower, and utilizing bathroom lights that automatically turn on when anyone enters the bathroom. Besides the above-mentioned strategies, a bed-exit system is being explored using infrared technology. If a patient is identified as he is trying to get out of bed, then lights could turn on, an emergency call to the pager could occur, or a voice could ask the patient to wait for a caregiver. Such a system is in design at St. Joseph's.

Correct tube—correct connector—correct hole placement events, oxygen cylinder hazards: All connectors are a different size for different gases and color-coded. Storage and identification of portable gases employ the same identification program. All gases are in standardized locations to further minimize the risk of a gas-connecting error.

Wrong-site surgery: Operating room suites were standardized, using proper lighting and cable access to digital images and photographs of the surgery site.

Medication and transfusion-related adverse events: Bar-coding, unit doses at point of service, electronic medical records, and physician order entry are critical elements for medication

error reduction. Private rooms with alcoves that include medical records allow nurses to concentrate on one patient and document those efforts, before moving on to the next patient.

Bringing It All Together at St. Joseph's Community Hospital

The use of failure mode and effects analysis, patient focus groups, mock-ups with employee evaluation, and checklist safety design principles (latent conditions and active failures) helped St. Joseph's create the safest room they could envision. The patient room evolved over months of design. Over 27 different designs or refinements were made on the patient room. This room is not the only way a patient room can be designed for safety, but it is believed to be a good way, and it exhibits efficient, thoughtful features that meet National Learning Lab expectations.

The 2002 National Learning Lab had a powerful effect on St. Joseph's and is beginning to influence hospital facility development nationally. St. Joseph's Hospital implemented the recommendations of the Learning Lab, designing around latent conditions and active failures, and enhancing or creating a safety culture through facility design with its technology and equipment. The importance of nursing leadership in the whole process cannot be overstated. Without the commitment, knowledge, and perseverance of the nursing leadership, along with the chief executive officer, board, medical staff, architects, and the rest of the design teams, a safe design would not have occurred.

The effort of St. Joseph's is just the tip of the iceberg of the potential for improving safety of patients in hospitals as a result of facility development. The impact of the National Learning Lab recommendations on processes also offers an immense opportunity to improve the safety of patients in hospitals. The work of St. Joseph's should serve as a model for those health care leaders who share the vision that facilities, including equipment and technology, focused on safety will improve the health and well-being of the patients whom they serve.

The building of the new hospital was completed in 2005, and investigators are currently evaluating the impact of their designs on the frequency of adverse events and patient outcomes. Using innovative architectural and design features to enhance patient safety together with institutionalizing a nonpunitive safety culture can potentially have a greater impact than design features alone. Over the past few years, the National Learning Lab changed St. Joseph's Hospital and has begun to influence hospitals and health care throughout the country.

Leaders and clinicians at St. Joseph's found that the project, with its many safety enhancements, resulted in capital expenditures under budget—an important consideration in the business case. The National Learning Lab's process of identifying and addressing latent conditions was correlated with the Toyota Lean Principles. Standardization, visibility, continuous flow, value stream, minimizing handoffs/transfers will be created as a result of a safely designed facility. This should lead to less human error and potential harm and more efficient operations (process). Yet, one of the major difficulties of translating this efficiency and better outcomes into improved net income is the basic misalignment of financial incentives. Both the fee-for-service and the DRG (diagnosis-related group) introduce perverse incentives. Hospital revenues can actually be reduced as a result of improved safety, and savings can accrue to the insurance companies and not the institutions creating the improvements. Although there is some evidence of changes to improve these misaligned incentives, more dramatic changes are needed to encourage safe process redesign.

Practice Implications

The evidence base is growing in support of evidence-based design for renovations and new building. The new field of evidence-based design has emerged at a time when there is a health care construction boom.[77] There are many factors in the workplace that impact care delivery and work satisfaction, and they should be incorporated into designs. Based on the Gurses and Carayon study,[54] care processes will need to be modified to address inefficiencies caused by distractions (e.g., by family members), overly busy working conditions, delays in getting access to required resources (e.g., medications, patient medical records, supplies, and medical equipment), delays in seeing new medical orders, and misplaced equipment.[54]

Nurses need to be involved and have an active role in evaluating, planning, and testing the layout of patient units and patient rooms to ensure a healing and comfortable environment for both patients and clinicians. Lessons learned should be shared with others to enable improvements across the country, not just on one facility. Current laws and regulations will need to be modified to support new hospital standards and building codes.[10] As single-bed patient rooms are now considered the minimum standard for maternity/postpartum and intensive care units in general hospitals,[78] nurses will need to be involved in planning for transitions and assessing environmental and structural features that will improve the quality of care afforded patient.

Research Implications

The impact of the built environment will most likely be magnified by concurrent efforts to change organization culture and functionality as well as processes of care delivery, but future research would need to so demonstrate. Since the majority of the research on the impact of the built environment has been conducted in specific units in hospital settings, it will be important to investigate whether similar effects can be realized in general medical-surgical units and outpatient settings, including clinics and offices.

In a 2004 report commissioned by the Agency for Healthcare Research and Quality, *The Hospital Built Environment: What Role Might Funders of Health Services Research Play*,[10] the following gaps in the literature were identified: What are the effects of the built environment on the quality of communication and information sharing between clinicians, patients, and families? What is the relationship between environmental factors and the working conditions for clinicians? What are the best mechanisms and designs for facilitating effective hand washing? What is the effect of elements in the built environment that reduce staff fatigue, distractions, and stress? And what is the role of the built environment in decreasing infection rates across patient types? Nurses can have a critical role in addressing these and other research gaps. In this relatively new and exciting area of research in health care, nurses need to and should be actively involved throughout the research and quality improvement processes involving the design of the work environment space.

Conclusions

In the next few years, hospital leaders will be involved in new hospital construction projects to meet the changing marketplace demands associated with the growing demand of an aging population. Many clinicians, architects, and hospital administrators believe that the hospital built

environment can benefit the satisfaction of health care providers as well as patient satisfaction and outcomes. There is some evidence that the built environment may influence patient and family perceptions of the quality of and satisfaction with care received during a hospitalization. There is also some evidence that nurse satisfaction with the built environment was related to general well-being and job satisfaction, two factors that are critical because of their impact on patient care.

The evidence-base is emerging to support the business case that designing for safety and quality can improve patient outcomes and safety, promote healing, increase patient satisfaction, and reduce costs. It is thought that the cost of building or remodeling projects based on design evidence conducive to patient safety can result in organizational savings over time, without adversely impacting revenues.[8] Investigators with the Center for Health Design have been assessing hospitals involved in the Pebbles Project, and have found that the financial incentive for investing in evidence-based design using therapeutic design elements such as single-bed rooms and decentralized nursing stations added close to $12 million in costs to hospital reconstruction—but those costs would be recouped within one year of being operational.[79]

Those building new or remodeling current facilities should consider beginning with transitioning to a culture of safety, then using a safe design as a matter of focusing on maximizing the safety features without expending additional capital resources. While relatively new, evidence is growing in objective assessments of the impact of built environments, particularly around the issue of infection control. Some safety features will cost more than traditionally designed facilities (e.g., HEPA filters and ultraviolet lighting to improve air quality) while other safety features will cost less than a traditionally designed facility, most notably standardization. In all, most of the safety features of a built environment involve a reordering of functions in most "traditionally" designed facilities, minimally affecting capital costs, to improve the quality of care and patient outcomes.

Search Strategy

PubMed® was searched to locate studies and related literature on the built environment. Most of the articles identified in the literature search were primarily descriptive. Search terms included "built," "environment," "hospital design and construction," "interior design and furnishings," "patients' rooms," and "health care." Excluded from the review were articles published before 1999, non-English language articles, expert opinions, case reports, and letters. Three hundred abstracts were obtained. To be considered evidence in this review, the research had to involve nurses or patients in clinical settings, reported findings related to patient safety, and not be specific only to health information technology.

Author Affiliations

John Reiling, Ph.D., M.H.A., M.B.A., president and CEO, Synergy Health/St. Joseph's Hospital. E-mail: jreiling@snyergyhealth.org.

Ronda G. Hughes, Ph.D., M.H.S., R.N., senior health scientist administrator, Agency for Healthcare Research and Quality. E-mail: Ronda.Hughes@ahrq.hhs.gov.

Mike R. Murphy, R.N., B.S.N., M.B.A., vice president administration and CNO, Synergy Health/St. Joseph's Hospital. E-mail: mmurphy@stjosephswb.com.

References

1. Reason J. Making the risks of organizational accidents. Aldershot, England: Ashgate Publishing; 1997.

2. Leape LL. Error in medicine. JAMA 1994; 272:1851-7.

3. Weinger MB. Incorporating human factors into the design of medical devices. MAMA 1998; 280:1484.

4. Norman DA. The psychology of everyday things. USA: Basic Books; 1988.

5. Buchannan TI, Barker KN, Gibson JT, et al. Illumination and errors in dispensing. Am J Hosp Pharm 1991; 48:2137-45.

6. American Institute of Architects, Academy of Architecture for Health, The Facility Guidelines Institute (with assistance from the U.S. Department of Health and Human Services). Guidelines for design and construction of hospital and health care facilities. Washington, DC: AIA Press; 2001.

7. Ulrich R, Quan X, Zimring C, et al. The role of the physical environment in the hospital of the 21st century: a once-in-a-lifetime opportunity. Report to The Center for Health Design, for the designing for the 21st century hospital project, 2004. Accessed at www.healthdesign.org/research/reports/physical_environ.php.

8. Henriksen K, Isaacson S, Sadler BL, et al. The role of the physical environment in crossing the quality chasm. Jt Comm J Qual Patient Safety 2007; 33(11 Suppl):68-80.

9. Institute of Medicine. Crossing the quality chasm: a new health system for the 21st century. Washington, DC: National Academy Press; 2001.

10. Nelson C, West T, Goodman C. The hospital built environment: what role might funders of health services research play? Contract no: 290-04-0011. Rockville, MD: Agency for Healthcare Research and Quality; 2005 Aug. AHRQ Publication No. 06-0106-EF.

11. Joseph A. The role of the physical and social environment in promoting health, safety, and effectiveness in the healthcare workplace. Concord, CA: Center for Health Design; 2006. Accessed at www.healthdesign.org/research/reports/workplace.php.

12. Joseph A. The impact of light on outcomes in healthcare settings. Concord, CA: Center for Health Design; 2006. Accessed at www.healthdesign.org/research/reports/longtermcare.php.

13. Joseph A, Ulrich R. Sound control for improved outcomes in healthcare settings. Concord, CA: Center for Health Design; 2007.

14. Brandis S. A collaborative occupational therapy and nursing approach to falls prevention in hospital inpatients. J Qual Clin Pract 1999; 19(4):215-20.

15. Tutuarima JA, de Haan RJ, Limburg M. Number of nursing staff and falls: a case-control study on falls by stroke patients in acute-care settings. J Adv Nurs 1993; 18(7):1101-5.

16. Andersen BM, Rasch M. Hospital-acquired infections in Norwegian long-term-care institutions. A three-year survey of hospital-acquired infections and antibiotic treatment in nursing/residential homes, including 4500 residents in Oslo. J Hosp Infect 2000;46(4):288-96.

17. Hugonnet S, Chevrolet JC, Pittet D. The effect of workload on infection risk in critically ill patients. Crit Care Med 2007;35:76-81.

18. Archibald LK, Manning ML, Bell LM, et al. Patient density, nurse-to-patient ratio and nosocomial infection risk in a pediatric cardiac intensive care unit. Pediatr Infect Dis J 1997;16:1045-8.

19. Stegenga J, Bell E, Matlow A. The role of nurse understaffing in nosocomial viral gastrointestinal infections on a general pediatrics ward. Infect Control Hosp Epidemiol 2002;23:133-6.

20. Grap MJ, Munro CL. Preventing ventilator-associated pneumonia: evidence-based care. Crit Care Nurs Clin North Am. 2004 Sep;16:349-58, viii.

21. Lindgren VA, Ames NJ. Caring for patients on mechanical ventilation: what research indicates is best practice. Am J Nurs 2005;105(5):50-60; quiz 61.

22. Carson CL, Tyner T, Saunders S, et al. Nurses' implementation of guidelines for ventilator-associated pneumonia from the Centers for Disease Control and Prevention. Am J Crit Care 2007;16(1):28-36; discussion 37; quiz 38.

23. Dancer SJ, Coyne M, Speekenbrink A, et al. MRSA acquisition in an intensive care unit. Am J Infect Control 2006;34:10-7.

24. Bittner MJ, Rich EC, Turner PD, et al. Limited impact of sustained simple feedback based on soap and paper towel consumtion of the frequency of hand washing in a adult intensive care unit. Infect Control Hosp Epidemiol 2002;23(3):120-6.

25. Bittner MJ, Rick EC. Surveillance of handwashing episodes in adult intensive-care units by measuring an index of soap and paper towel consumption. Clin Perform Qual Health Care 1998;6(4):179-82.

26. Arenas MD, Sanchez-Paya J, Barril G, et al. A multicentric survey of the practice of hand hygiene in haemodialysis units; factors affecting compliance. Nephrol Dial Transplant 2005;20:1164-71. Epub 2005 Mar 15.

27. Cho SH, Ketefian S, Barkauskas VH, et al. The effects of nurse staffing on adverse events, morbidity, mortality and medical costs. Nurs Res 2003; 52(2):71-9.

28. Gadbois C, Bourgeois P, Goeh-Akue-Gad MM, et al. Hospital design and the temporal and spatial organization of nursing activity. Work Stress 1992;6(3):277-91.

29. Brown KK, Gallant D. Impacting patient outcomes through design: acuity adaptable care/universal room design. Crit Care Nurs Q 2006;29(4):326-41.

30. Institute of Medicine. Keeping patients safe: transforming the work environment of nurses. Washing, DC: National Academy Press; 2004.

31. Bobrow M, Thomas J. Multibed verses single-bed rooms. In Kobus R, Skaggs RL, Bobrow M, et al., eds. Building type basics for healthcare facilities New York: John Wiley & Sons; 2000.p.145-57.

32. Muto CA, Jernigan JA, Ostorowski BE, et al. SHEA guideline for preventing nosocomical transmissiln of multidrug-resistent strains of Staphylococcus aureus and Enterococcus. Infect Control Epidemiol 2003;24:362-86.

33. Knutt E. Healthcare design. Build for the future. Health Serv J 2005; 115(5940):35-7.

34. White RD. Individual rooms in the NICU—an evolving concept. J Perinatol 2003; 23 Suppl 1:S22-4.

35. Walsh WF, McCullough KL, White RD. Room for improvement: nurses' perceptions of providing care in a single room newborn intensive care setting. Adv Neonatal Care 2006;6(5):261-70.

36. Ulrich RS. Creating a healing environment with evidence-based design. Paper presented at the American Institute of Architects Academy of Architecture for Health Virtual seminar-Healing Environments. October 10, 2003.

37. Bayo MV, Garcia AM, Garcia A. Noise levels in a urban hospital and workers' subjective responses. Arch Environ Health 1995; 50(3):247-51.

38. Meyer TJ, Eveloff SE, Bauer MS, et al. Adverse environmental conditions in the respirator and medical ICU settings. Chest 1994; 105(4):1211-6.

39. Janssen PA, Klein MC, Harris SJ, et al. Single room maternity care and client satisfaction. Birth 2000;27(4):235-43.

40. Harris SJ, Farren MD, Janssen PA, et al. Single room maternity care: perinatal outcomes, economic costs and physician preferences. J Obstet Gynaecol Can 2004; 26(7):633-40.

41. Bracco D, Dubois MJ, Bauali R, et al. Single rooms may help to prevent nosocomial bloodstream infection and cross-transmission of methicillin-resitant Staphylococcus aureus in intensive care units. Intensive Care Med 2007; 33(5):836-40.

42. Rigenour GA, Wong ES, Call MA, et al. Duration of colonization with methicillin-resistant Staphylococcus aureus among patients in the intensive care unit: implications for intervention. Infect Control Hosp Epidemiol 2006; 27:271-8.

43. Herr CE, Heckrodt TH, Hofmann FA, et al. Additional costs for preventing the spread of methicillin-resistant Staphylococcus aureus and a strategy for reducing these costs on a surgical ward. Infect Control Hosp Epidemiol 2003; 24:673-8.

44. McManus AT, Mason AD Jr., McManus WF, et al. A decade of reduced gram-negative infections and mortality associated with improved isolation of burned patients. Arch Surg 1994; 129:1306-9.

45. Langley JM, Hanakowski M, Bortolussi R. Demand for isolation beds in a pediatric hospital. Am J Infect Control 1994; 22(4):207-11.

46. Saravia SA, Raynor PC, Streifel AJ. A performance assessment of airborne infection isolation rooms. Am J Infect Control 2007;35(5):324-31.

47. Bobrow M, Thomas J. Hospitals' prosperity should be by design. Mod Healthc 2000; 24(47):54.

48. Gallant D, Lanning K. Streamlining patient care processes through flexible room and equipment design. Crit Care Nurs Q 2001;24(3):59-76.

49. Besserman E, Teres D, Logan A, et al. Use of flexible intermediate and intensive care to reduce multiple transfers of patients. Am J Crit Care 1999;8:170-9.

50. Thompson JD, Goldin G. A Yale traffic index. In Thompson JD, Goldin G, eds. The hospital: a social and architectural history. New Haven, CT: Yale University Press; 1975. p. 282-95.

51. Rashid M. A decade of adult intensive care unit design: a study of the physical design features of the best-practice examples. Crit Care Nurs 2006; 29(4):282-311.

52. Sadler B. Design to compete in managed healthcare. Facilities Design and Management 2001 March:38-41.

53. Bilchik GS. A better place to heal. Health Forum J 2002;45(4):10-5.

54. Gurses AP, Carayon P. Performance obstacles of intensive care nurses. Nurs Res 2007; 56(3):185-94.

55. Varni JW, Burwinkle TM, Dickinson P, et al. Evaluation of the built environment at a children's convalescent hospital: development of the pediatric quality of life inventory™ parent and staff satisfaction measures for pediatric health care facilities. J Dev Behav Pediatr 2004; 25(1):10-20.

56. Rashid M. Developing scales to evaluate staff perception of the effects of the physical environment on patient comfort, patient safety, patient privacy, family integration with patient care, and staff working conditions in adult intensive care units: a pilot study. Crit Care Nurs Q 2007;30(3):271-83.

57. Chaudhury H, Mahmood A, Valente M. Nurses' perception of single-occupancy versus multioccupancy rooms in acute care environments: an exploratory comparative assessment. Appl Nurs Res 2006;19:118-25.

58. Douglas CH, Douglas MR. Patient-friendly hospital environments: exploring the patients' perspective. Health Expect 2004;7:61-73.

59. Fowler E, MacRae S, Stern A, et al. The built environment as a component of quality care: understanding and including the patient's perspective. Jt Comm J Qual Improv 1999;25(7):352-62.

60. Douglas CH, Douglas MR. Patient-centered improvements in health-care built environments: perspectives and design indicators. Health Expect 2005; 8(3):264-76.

61. Feeney L, Kavanagh A, Kelly BD, et al. Moving to a purpose built acute psychiatric unit on a general hospital site – does the new environment produce change for the better? Ir Med J 2007;100(3):391-3.

62. Hendrich AL, Fay J, Sorrells AK. Effects of acuity-adaptable rooms on flow of patients and delivery of care. Am J Crit Care 2004; 13(1):35-45.

63. Shepley MM. Predesign and postoccupancy analysis of staff behavior in a neonatal intensive care unit. Child Health Care 2002;31(3):237-53.

64. Institute of Medicine. To err is human: building a safer health system. Washington, DC: National Academy Press; 1999.

65. Reiling J. Safe design of healthcare facilities. Qual Saf Health Care 2006; 15(Suppl 1):i34-i40.

66. Belojevic G, Jakovljevic B, Slepcevic V. Noise and mental performance: personality attributes and noise sensitivity. Noise Health 2003;6(21):77-89.

67. Stansfeld SA, Matheson MP. Noise pollution: non-auditory effects on health. Br Med Bull 2003;68:243-57.

68. van de Glind I, de Roode S, Goossensen A. Do patients in hospitals benefit from single rooms? A literature review. Health Policy 2007; 84(2-3):153-161.

69. Safran DG, Karp M, Coltin K, et al. Measuring patients' experiences with individual primary care physicians. Results of a statewide demonstration project. J Gen Intern Med 2006;21(1):13-21.

70. Deyo RA. Tell it like it is. J Gen Intern Med 2000;15:752.

71. Wensing M, Grol R. What can patients do to improve health care? Health Expect 1998;2:82-92.

72. Gerteis M, Edgman-Levitan S, Daley J. Through the patient's eyes. understanding and promoting patient-centered care. San Francisco, CA: Jossey-Bass; 1993.

73. Ternov S. The human side of mistakes. In Spath PL, ed. Error reduction in health care. San Francisco: Jossey Bass; 2000. p. 97-138.

74. Jha AK, Duncan BW, Bates DW. Fatigue, sleepiness, and medical errors. In Shojania KG, Duncan BW, McDonald KM, et al., eds. Making health care safer: a critical analysis of patient safety practices. Evidence report/technology assessment, No. 43. Rockville, MD: Agency for Healthcare Research and Quality; 2002. chapter 40. Available at www.ahrq.gov/clinic/ptsafety/chap40.htm.

75. Gaba DM, Howard SK. Fatigue among clinicians and the safety of patients. N Engl J Med 2002;347:1249-54.

76. Hales BM, Pronovost PJ. The checklist – a tool for error management and performance improvement. J Crit Care 2006;21(3):231-5.

77. Hamilton DK. The four levels of evidence-based practice. J Healthc Des 2003 November;18-26;

78. American Institute of Architects (AIA). Guidelines for design and construction of health care facilities. Washington, DC: American Academy of Architecture; 2006.

79. Zimring C, Ulrich R. The role of the physical environment in the hospital of the 21st century: a once-in-a-lifetime opportunity. Concord, CA: The Center for Health Design; 2004.

Evidence Table

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Chaudhury 2006[57]	Single-occupancy rooms in acute care	Cross-sectional study	Survey of nurses about patient care, management, and infection control issues (Level 4).	77 administrative and staff nurses in 3 hospitals in Washington and 1 in Oregon	None	Nurses favor single-occupancy rooms because of their flexibility, being more appropriate for patient examination, quality of patient monitoring, improved patient comfort level, improved patient recovery rate, and scope of patient surveillance. 57 percent believed that health care acquired infections were low or very low in single-occupancy rooms. There was no difference in the number of patient falls, need for pain-reducing or sleep-inducing medications between the two types of rooms. Helpful characteristics of single-occupancy rooms were layout of the room; availability of space in the room; the arrangement of furniture; privacy; space for family members; storage for clean and dirty supplies; and the location of the sink, bathroom, door, and window; lighting; temperature control; and lower noise levels. Helpful characteristics of double-occupancy rooms were proximity to nursing station; visibility of patients for monitoring purposes; and the location of the sink, bathroom, door, and window.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Douglas 2005[60]	Built environment Patient-centered care	Cross-sectional study	Multiple methods, including 50 personal interviews, autophotographic study with 35 patients, novice-expert cohort of patients and clinicians, and a survey of past patients (Level 4).		None	Patients viewed the environment and internal areas of the hospital that made them feel comfortable and able to keep a sense of normalcy as having a positive effect on their feelings of well-being. Novices and experts considered the following important: good signage; controllable lighting and temperature; privacy; reduced noise levels; access to the natural environment; safety and security in internal and external areas; internal and external children's play areas; accommodations for visitors; shops and personal services; good 24-7 catering facilities; and good landscape designs with seating and garden areas. Patients reported the general atmosphere (e.g., feel of the environment, feeling safe and at home, having the TV close by, and being able to walk around) as important. Patients felt a loss of independence and control.
Douglas 2004[58]	Built environment	Cross-sectional study	Face-to-face interviews with hospital inpatients (Level 4).	21 patients in surgery, medicine, care of the elderly, and maternity in 1 hospital in the UK	None	Patients reported the general atmosphere (e.g., feel of the environment, feeling safe and at home, having the TV close by, and being able to walk around) as important. Patients interviewed felt a loss of independence and control Most important factors about the built environment were privacy, a homely environment, considerations for disabilities, being able to see outside, and to get outside.
Feeney 2007[61]	Built environment	Cross-sectional study	Assess the impact of a new, purpose-built acute unit on patients' behaviors and care needs (Level 4).	1 psychiatric unit in a hospital in Ireland	Implementation of a purpose-built acute psychiatric unit in a hospital in Ireland	After the new unit opened, there were fewer patients that left against medical advice, aggression levels in patients decreased, and levels of benzodiazepine dosing decreased.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Fowler 1999[59]	Built environment	Cross-sectional study	Conducted 9 focus groups with patients (Level 4).	Patients in ambulatory, acute care, and long-term care settings	None	Patients and family members look for an environment that facilitates a connection to staff and caregivers, is conducive to a sense of well-being, and facilitates a connection to the outside world.
Gurses 2007[54]	Effects of physical environment	Cross-sectional study	Survey of nurses in intensive care units (ICUs) (Level 4).	272 nurses in 17 ICUs in 7 hospitals in Wisconsin	None	Reported performance obstacles included noisy work environment, distractions from families, hectic and crowded work environments, delay in getting medications from pharmacy, amount of time teaching families, equipment not being available, patient rooms not well stocked, insufficient workspace for completing paperwork, time spent seeking supplies or patient's charts, receiving many phone calls from families, delay in seeing new medical orders, and misplaced equipment.
Hendrich 2004[62]	Acuity-adaptable rooms	Pretest, post-test	Implementation of new acuity-adaptable rooms (Level 3).	A coronary critical care unit and its step-down medical unit at 1 hospital in Indiana	Evidence-based design of 56 new acuity-adaptable rooms for the combined coronary critical care and step-down unit.	After the move, there was a large reduction in clinician handoffs and transfers; a 70 percent reduction in medication errors; a reduction in patient falls; improvements in patient satisfaction; decrease in budgeted nursing hours per patient day; increased available nursing time for direct care without additional cost.
Rashid 2007[56]	Effects of physical environment	Cross-sectional study	Development of a survey instrument about underlying effects of environmental features on staff perception of patient comfort, patient safety, patient privacy, family integration, and working conditions (Level 4).	Nurse managers/directors in 7 adult ICUs built between 1993 and 2003	None	Respondents reported that private patient rooms enabled patient safety; ensured privacy of patients; access to patient status information and space for family was important; and flexible patient charting locations and adequate work surface/space were important.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Shepley 2002[63]	Built environment	Pretest, post-test design	A multi-method approach using behavioral mapping; interviews; questionnaires; and calibrated measures of walking, noise, and temperature (Level 3).	21 nurses were observed, 10 completed the questionnaire, and 8 nurses were interviewed in a neonatal ICU in 1 hospital.	Implementation of a new neonatal ICU, where the new design focused on the development of a more efficient floor plan, the provision of space for supportive family-centered care, and the use of natural light	On the new unit, nurses were found to spend most of their time in active baby care, followed by walking, conversations, passive baby care, and charting. More time was spent taking care of the babies on the new unit than on the old unit. Those responding to the questionnaires perceived the new unit as comforting and clean but less secure than the old unit. Family-centered care was perceived as supportive of babies and their families, though its ratings were lower for the supportiveness of nurses and physicians. The unit was rated as generally being efficient and the new lighting was thought to have a positive impact on the patients. Those who were interviewed felt that families were utilizing the majority of space designated to them. They felt the design was efficient, lighting was improved, and noise levels were lower.
Varni 2004[55]	Built environment	Cross-sectional study	Development of a measurement instrument about the built environment (Level 4).	Parents and staff in a children's convalescent hospital	None	Parent satisfaction with the structure and facility aesthetics was associated with higher satisfaction with care. Staff satisfaction with the facility aesthetics and work environment was associated with higher satisfaction and coworker relationships.

UTAH DEPARTMENT OF HEALTH

VIOLENCE AND INJURY PREVENTION PROGRAM (VIPP)

FALLS AMONG OLDER ADULTS

Facts about older adult fall-related injuries in Utah

- **Falls are the leading cause of injury death and disability for Utahns ages 65 and older.[1]**
- **On average, 80 older Utahns die, 2,700 are hospitalized, and 7,100 are treated in emergency departments (ED) for fall-related injuries each year.[1]**
- **More than one-third of adults ages 65 years and older fall each year.[2]**

2001–2005 UTAH INJURY DATA, AGES 65+

SCOPE OF THE PROBLEM

WHAT

- 394 deaths[1]
- 13,557 hospitalizations[1]
- 35,599 ED visits[1]

WHO

- More males die from fall-related injuries than females (55% to 45%)[1]
- Females were treated for over 70% of the hospitalizations and ED visits for fall-related injuries[1]

HOW

- The leading causes of fall death were from fall on same level and fall from stairs/steps[1]
- The leading cause of fall hospitalization and ED visits was fall on same level from slipping, tripping, or stumbling[1]
- Falls are the leading cause of traumatic brain injuries in Utahns 65 and older[3]

WHERE

- Residents of Beaver, Juab, and Sevier counties had the highest rates of fall hospitalizations[1]

HOW MUCH

- Hospital charges for injuries from falls in Utah were over $205 million, for an average of $15,450 per patient[1]

PREVENTING FALLS IN THE HOME[4]

The majority of falls happen in or around the house. Therefore, it makes sense to reduce home hazards and make living areas safer. Seniors should:

- Remove things that can be tripped over (such as books and clothes) from stairs and walkways
- Remove small throw rugs
- Use non-slip mats in the bathtub and on shower floors
- Have grab bars put in next to the toilet and in the tub or shower
- Have handrails put in on all stairways
- Improve the lighting in the home
- Wear shoes that give good support and have non-slip soles; avoid wearing slippers

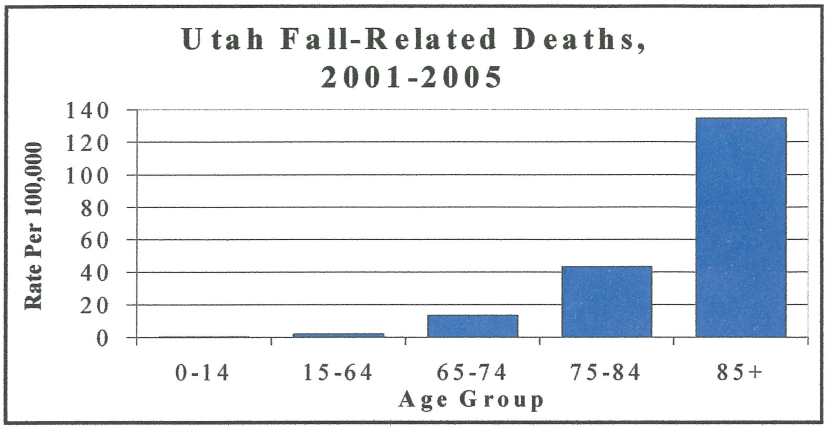
2007

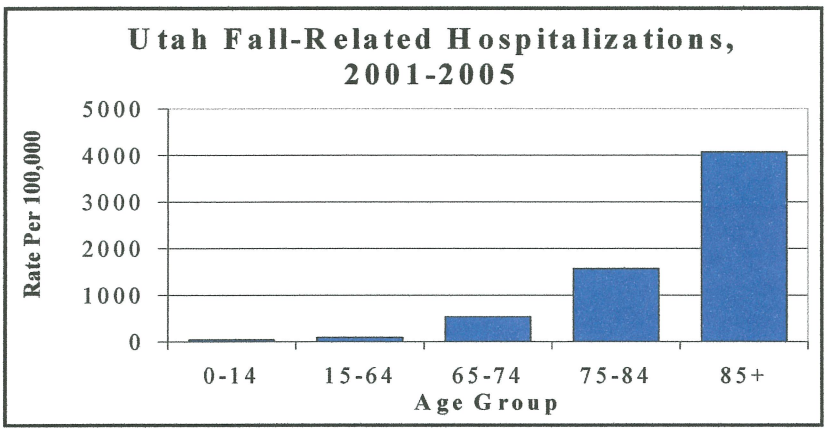
For more information, contact the Utah Department of Health VIPP at PO Box 142106 Salt Lake City, UT 84114-2106
http://health.utah.gov/vipp Telephone: (801) 538-6141 Fax: (801) 538-9134 E-mail: vipp@utah.gov.

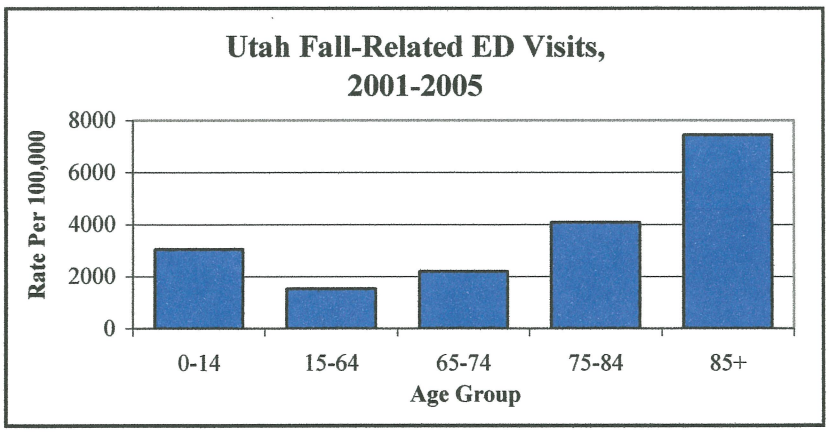
Violence & Injury Prevention Program

Falls by Age Group

The rate of fall-related injury and death increases with age, with the highest rates occurring among those 85 and older.[1]







FALL PREVENTION TIPS

Older adults can take several steps to protect their independence and reduce their risk of falling. They can:

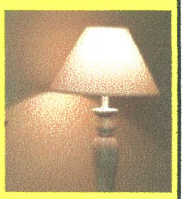
- Exercise regularly; exercise programs that increase strength and improve balance are especially good

- Reduce hazards in their home that can lead to falls

- Ask their doctor or pharmacist to review their medicines—both prescription and over-the counter—to reduce side effects and interactions

- Have their eyes checked by an eye doctor at least once a year

- Improve the lighting in their home; use more lamps and install nightlights[4]



BEGIN A REGULAR EXERCISE PROGRAM

Exercise is one of the most important ways to reduce your chances of falling. It makes you stronger and helps you feel better. Exercises that improve balance and coordination, like Tai Chi, are the most helpful.

Lack of exercise leads to weakness and increases your chances of falling.

1 Utah Department of Health, http:ibis.health.utah.gov. 2 *Archives of Physical Medicine and Rehabilitation* 2001;82:1050–1056. 3 VIPP, *TBI in Utah, 2004.*
4 Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

Universal Design and Aging in Place

Date: December 15, 2009

Time: 12:00 PM

Type: Webinar

Overview:

Aging in place inititives aim to keep seniors in their homes and involved in their communities as they face the various challenges of aging. Transportation, physical mobility, and in-home safety can present major problems that force elders into assisted living facilities too soon. Our presenter Louis Tenenbaum offers some solutions to keep older people independent and happily at home.

What You Will Learn:

- What roles will Universal Design and other technologies have in the future of Aging in Place
- What is the 'secret sauce' that allows Aging in Place to work?
- What barriers do clients face in Aging in Place?

Speaker:

Mr. Tenenbaum is a Certified Aging in Place Specialist (CAPS), a National Association of Home Builders program certifying contractors who focus on serving aging in place clients. He is also a Certified Active Adult Specialist (CAASH) and was a member of the American Society of Interior Designers Aging in Place Council. Mr. Tenenbaum, a carpenter and contractor, has been at the forefront of this important field for two decades. He is a frequent speaker to groups representing various disciplines and points of view on all aspects of aging in place and universal design. As a consultant, collaborator, and facilitator, he works with builders, developers, designers and planners, health and senior care professionals, and aging services organizations. He has appeared on World News Tonight, Home and Garden Television, and the Retirement Living Network. He has been quoted in numerous publications, including Kiplinger's Retirement Report, BusinessWeek, the Washington Post, and HousingZone.com.

Materials:

- Download the presentation (PowerPoint file)
- Recorded Presentation: To view and listen to the webinar as originally presented, enter Recording Registration information and click Submit.

Add to Calendar:

1901 L Street, NW, 4th Floor · Washington, D.C. 20036 · 202.479.1200

Interior Design Cost

How much does it cost to hire an interior designer?

The **costs associated with hiring an interior designer** will vary quite dramatically from job to job. One homeowner may ask for help with their entire home, while another wants some professional assistance in the family room. The American Society of Interior Designers stresses that there is "no such thing as a 'typical'...fee for an interior designer". They do indicate that most professionals will **charge in one of four ways**:

- **Cost plus** - this is a somewhat **traditional method** used in all types of assignments. In this approach, the designer purchases all of the materials for the job (including furnishings and accessories) and sells them to their client at an agreed upon markup or additional percentage. This percentage is the method by which the designer is paid for their work. A sample scenario would include:
  - Consultation with designer on a **bedroom decorating project**;
  - Agreement on **terms** of the arrangement, which is going to usually be in the area of **20%markup** on goods purchased from a wholesale distributor; and
  - Budget is set at **$6,000** and will include flat design fee, materials, vendors, and any contractors;
- **Fixed or flat fees** - this is the most likely way that a large job will be priced because it provides the designer with a streamlined method of billing for the work. It puts a single price on the entire job and is intended to cover all expenses that include everything from design and layouts through the final installation process. A sample scenario would include:
  - Consultation with designer on a **bedroom decorating project**;
  - Agreement on **terms** of the arrangement, which is going to usually include a discussion on the **costs per service** such as retainer amount, design fee, color selection, purchasing, etc; and
  - Budget is set at **$6,000** and will include all services
- **Hourly rates** - this is for a smaller project and pays the designer based on the actual amount of time that they contribute to a specific project. Current market prices vary between **$50 and $200 per hour**, depending on the designer; and
- **Square foot basis** - this is usually the manner by which commercial work is done and it pays the designer a fixed amount per square foot of space.

Additional considerations and costs

When deciding to work with an interior decorator it is best to have a **very clearly-defined project in mind**. The ASID warns that "how you work with your designer will have tremendous impact on the final cost". Generally this will mean that making changes late in a project or deciding to expand the scope of the work is going to frustrate the decorator and also increase the price of the project.

The smartest approach is to **meet with a few designers**, take a look at their portfolios, discuss the project you need assistance with and hear what their thoughts are on the work. You can then **request a bid** for the work, and wait until you have three candidates from which to choose.

Many professionals require their clients to pay a **retainer** fee, which is usually a small percentage of the total estimated budget, and will also ask for a **contract**. This is to ensure that any changes in the work and any schedules established will be dealt with in an amicable and clear-cut manner. A contract should protect both parties, and if this is required by the designer in order to do the work it is a wise idea to have a legal professional review the document.

Most homeowners and interior decorators understand that any project will need to occur in **controlled stages**. This is to ensure that the work is done in a timely fashion and that any **budgetary** concerns can be addressed immediately. If the designer is going to work with **subcontractors** for the project, they should be consulted with about the **schedules** to ensure they can meet their obligations. They too might need to sign a **contract** in order to adhere to the terms of the project and ensure that estimated costs are fair and reasonable.

Like many other household contractors, however, any interior decorator should be willing to provide customers with **references**. It is always a good idea to ensure that no complaints have been filed against the provider, or any of the **contractors** they have brought in for the project as well.

How much does it cost to hire an interior designer in my city?

Costs to hire an interior designer may vary depending on the state or city. To get free estimates from local contractors, please indicate yours.

Enter the city name or zipcode

Continue »

Typical costs

$6,000
(e.g. for a bedroom)

Low: $50 - $200 (per hour, small project) **Medium:** $6,000 (e.g. for a bedroom)

Cost to hire an interior designer may vary depending on the state or city. Get free estimates from interior designers in your city.

Get Free Estimates »

Related topics

- Home office remodeling (/costs/home-office-remodeling)
- Home inspection (/costs/home-inspection)
- Basement remodeling (/costs/basement-remodeling)
- Home appraisal (/costs/home-appraisal)
- Home staging (/costs/home-staging)
- Bathroom remodeling (/costs/bathroom-remodeling)
- Bedroom remodeling (/costs/bedroom-remodeling)
- Architect (/costs/architect)
- Kitchen remodeling (/costs/kitchen-remodeling)
- Structural engineer (/costs/structural-engineer)
- Disability remodeling (/costs/disability-remodeling)

Interior designers

Alexandria, VA (/va/alexandria/designers-decorators/)
Atlanta, GA (/ga/atlanta/designers-decorators/)
Boston, MA (/ma/boston/designers-decorators/)
Brooklyn, NY (/ny/brooklyn/designers-decorators/)
Chicago, IL (/il/chicago/designers-decorators/)
Dallas, TX (/tx/dallas/designers-decorators/)
Hempstead, NY (/ny/hempstead/designers-decorators/)
Jersey City, NJ (/nj/jersey-city/designers-decorators/)
Long Beach, CA (/ca/long-beach/designers-decorators/)
Mesa, AZ (/az/mesa/designers-decorators/)
New York, NY (/ny/new-york/designers-decorators/)
Oakland, CA (/ca/oakland/designers-decorators/)
Phoenix, AZ (/az/phoenix/designers-decorators/)
Riverside, CA (/ca/riverside/designers-decorators/)
Saint Petersburg, FL (/fl/saint-petersburg/designers-decorators/)
San Francisco, CA (/ca/san-francisco/designers-decorators/)
Santa Ana, CA (/ca/santa-ana/designers-decorators/)
Silver Spring, MD (/md/silver-spring/designers-decorators/)
Stockton, CA (/ca/stockton/designers-decorators/)
Washington, DC (/dc/washington/designers-decorators/)

Anaheim, CA (/ca/anaheim/designers-decorators/)
Aurora, CO (/co/aurora/designers-decorators/)
Bronx, NY (/ny/bronx/designers-decorators/)
Charlotte, NC (/nc/charlotte/designers-decorators/)
Cincinnati, OH (/oh/cincinnati/designers-decorators/)
Denver, CO (/co/denver/designers-decorators/)
Houston, TX (/tx/houston/designers-decorators/)
Littleton, CO (/co/littleton/designers-decorators/)
Los Angeles, CA (/ca/los-angeles/designers-decorators/)
Milwaukee, WI (/wi/milwaukee/designers-decorators/)
Newark, NJ (/nj/newark/designers-decorators/)
Philadelphia, PA (/pa/philadelphia/designers-decorators/)
Portland, OR (/or/portland/designers-decorators/)
Sacramento, CA (/ca/sacramento/designers-decorators/)
San Diego, CA (/ca/san-diego/designers-decorators/)
San Jose, CA (/ca/san-jose/designers-decorators/)
Scottsdale, AZ (/az/scottsdale/designers-decorators/)
Staten Island, NY (/ny/staten-island/designers-decorators/)
Vancouver, WA (/wa/vancouver/designers-decorators/)
West Palm Beach, FL (/fl/west-palm-beach/designers-decorators/)

Fixr

About Fixr (/info/about_us.html)
Service Provider Index (/service-provider-index.html)
Contact Us (/contactUs.html)

INTERIOR DESIGN RESEARCH: A REVIEW OF THE LITERATURE

Carla DUMESNIL, M.A., A.S.I.D.
Assistant Professor
Family & Consumer Studies
University of Utah
215 Alfred Emery Building
Salt Lake City, Utah 84112

Interiors research since 1966 is reviewed. Interior research is defined as data-based research applicable to the field of interior design. The only publications considered are those currently applicable and appropriate for the design professions: interior design and architecture. A discussion of applicability of design research is presented first. Then, an organization is developed to include basic knowledge, the design process (people, places and process) and analysis. Next, the important contributions of research are presented according to the organization that had been developed. Finally, conclusions and recommendations are made.

Applicability of Interior Design Research

Published research contributing to the field of interior design is found primarily within the disciplines of Anthropometry, Architecture, Environmental Psychology, Housing and Home Economics, and Human Factors (called ergonomics outside the United States). At least thirty other disciplines or subject areas have provided research related to interior design problems. Other contributing fields include Acoustics, Anthropology, Art, Cartography, Computer Science, Demography, Ecology, Engineering, Ethology, Geography, Gerontology, Illuminating Engineering, Industrial Design, Landscape Architecture, Law, Linguistics, Medicine, Operations Research, Opthalmology, Optics, Orthopedics, Physiology, Psychiatry, Sociology, and Urban Planning (Kleeman, 1981, p. ix).

Anthropometry began as a field within physical anthropology that researched human body size. Today, it is considered a field within itself and often overlaps the works in ergonomy. Architecture is a discipline and profession concerned with building and planning structures. Environmental Psychology developed out of Social Psychology. "Environmental Psychology is a discipline that is concerned with the relationship between human behavior and the physical world." (Heimstra,McFarling, 1978, p.2) It deals with all aspects of the physical environment (the built and natural environment); of which interiors is only one part.

Housing is the area of study concerned with buildings or parts of buildings "designed for occupancy by a single family or individual." (Keiser, 1978, p. 3) The interior is called the micro-environment in the field of housing. The interior aspect of this field addresses activities or processes taking place within the space. It also considers symbolism, socialization, mental health and ambient factors: lighting, temperature, acoustics, sanitation, and safety.

Home Economics is the study of the family as a social and consumer unit with areas of specialization including food and nutrition, home management, child and family development, interiors and housing.

Ergonomics, called human factors in the United States, is "the study of the relation between people and their work environment." (Aberg, 1977) It is an applied field that primarily deals with place and people problem-solving as it interfaces with process.

Each discipline is conerned with the quality of life for humans within the physical environment. Environmental psychology provides a theoretical framework of the environment and social behavior with the concepts of crowding, personal space, territoriality, privacy and density. (Heimstra, McFarling, 1978, p. 181-2)

Ergonomists are concerned with the well-being of humans. They consider many environmental factors: physical, chemical, physiological (both physiology and perception), psycho-social (freedom/confinement, communication, social contact, independence, responsibility and safety.) (Aberg, 1977)

A special contribution by ergonomists is a job design process that includes many integrative phases including data-collection. They have input from users, decision-makers and organizers. Their goal is to optimize the design for the whole system. See Appendix 1 for the ergonomists stages of project work: the technical part and the human contact part. (Aberg, 1977)

The fields of interior design and interior architecture would benefit from a translation of the interiors research. This research is scattered and written in discipline dialects that are unavailable and unintelligible to practicing designers. Even many educators and academicians in the field of interior design grapple for understanding, appropriateness and clarity. The goal of this paper is to develop an organization for interior design research appropriate to the field of interior design and to discuss the relevant conclusions of the current research.

Organization of Interior Design Research.

Interior design research can be applied to three aspects of design: basic knowledge, the design process and analysis of design. As research is translated for designers, usability of research is of primary consideration after the evaluating the validity of the research. Since interior design research is in its infancy stage, the aforementioned criteria and organization can provide a framework for further interior research and research translation.

"Basic knowledge" is the first category of this framework. This is commonly presented in book form. Environmental psychology has made a major contribution to this area. Issues like privacy, crowding, territory, personalization and personal space are aspects of human behavior relating to environment. They are definable objectives in human behavior used by people to maintain one's culture and one's mental health.

The second category is the"design process." This is the work of professional designers, including client identification, activity definition, and exploration of the space and its function. This is called programming and

involves all work prior to the actual designing of space; it is the process that precedes the drawing, model-making, critiquing, and installation. All of the aforementioned procedures are part of an interior designer's work. The most appropriate use of research in this aspect of design is the development of design guidelines.

The third category for interior design research is "analysis." This includes studies of human behavior and human responses to the built interior environments: portions of the design field recognize the importance of post-occupancy studies for testing quality design. Such successful studies are conducted both within six weeks and after 6 months of occupancy. Likewise, environmental psychologists often conduct analysis studies within interior environments in order to find probable human responses and behavior patterns in certain situation.

Finally, facility planning and management also deals with analysis, especially for office spaces. They are the generalists (and the environmental psychologists are the researching academics.) The facility planner integrates company objectives, management planning, human factors and the effects of the interior environment. They understand that place affects an organization as much as personnel and the work process. The facilities planner mades decisions on space design in order to improve business organization and functioning. (Facilities Management Institute, 1982) The environmental psychologist researches the "relationships in which the environment has an effect on" (Heimstra, McFarling, 1978, p. 6) human behavior.

Applicable contributions of the literature since 1966.

BASIC KNOWLEDGE

Within the category of "basic knowledge", few publications have provided the data-based information needed by designers. A significant contribution is The Challenge of Interior Design by Walter Kleeman. This 1981 publication represents research contributions from 30 disciplines (and subdisciplines). The text looks at general problems in interior design: legalality of quality interiors, differences in various population groups, elements of design and health, seating, desk design and non-verbal communication. Also, Kleeman addresses certain facilities: elderly spaces, mental health facilities, residences, offices, learning spaces and outer space. He, then closes the book with six case studies. This book addresses varied human factors. (Kleeman, 1981)

Two other publications providing important adjacent, data-based information are in the field of environmental psychology: The Environment and Social Behavior by Irwin Altman and Environmental Psychology by Heimstra and McFarling. Altman "presents an analysis of privacy, crowding, territory, and personal space." (Altman, 1975, p. viii) Through direct application to interior design is not made, the integrative presentation provides important base-line knowledge. Environmental Psychology presents the discipline that is concerned with the relationships of the physical environment and human behavior. This book discusses research methods and human behavior in specific places: rooms and housing, offices, hospitals, social institutions, college dormitories, schools, and other commercial spaces. (Heimstra, McFarling, 1978)

The field of housing, an area of specialty within home economics, has also made some contributions. Marjorie Keiser in Part Three of Housing deals with the microenvironment: the interior. She addresses issues of personal activities (dressing, for example), work space (food preparation, laundry, etc.), leisure activities, organization and ambient factors. Numerous drawings, charts, plans and sections integrated into the text can provide the designer easy access to much of the data presented. Wheelchair mobile persons are considered, too. Zoning is developed into five sections: semi private, operative, semiprivate, circulation and private. Also adjacency of zones is discussed. Finally, in part three is concluded with ambient factors. (Keiser, 1978) Within part four of Housing Perspectives, selected readings are found appropriate to interiors. Issues of symbolism, socialization, safety, mental health and evaluation of floor plans are presented.

An additional important contribution to basic knowledge is A Pattern Language (Alexander, et. al., 1977). This publication develops design criteria and gives solutions for building elements associated with interior spaces.

Finally, Human Dimension and Interior Space makes an important contribution in the field of anthropometrics, the study of human body measurements on a comparitive basis. This book deals with actual human body interfacing with individual parts of interior spaces. The first section introduces the designer to the field of anthropometry and its theories, limitations and applicability. The second section presents the hard data in the form of tables and illustrations. The third and final section presents the designer with design reference standards. These are scaled drawings of floor plans and wall sections showing appropriate space planning criteria according to anthropometric data. His book directly addresses itself to the interior designer and architect. (Panero, Zelnik, 1979)

DESIGN PROCESS

Within the organizational category of the design process, contributions of interior design research must be presented in the form of design guidelines. This form of presentation should be similar to other reference materials. The architectural and interior design professions have reference materials dealing with space planning and designing: for example, the Architectural Graphic Standard. The design process developed during this century has included the use of these reference materials; there is a long standing history of using reference books. The professional designing interiors use interiors research when data is translated and presented in the form of guidelines or design reference standards.

Interior design research organized under the following categories: people, places and process, (Armstrong, D. and Dent, J.B., 1981) would well serve the design professions.

People

"People" refers to the various population groups that, at this point in time, are barely or recently considered in interior design, i.e. children,

handicapped, elderly. The publication Out of the Celler and into the Parlour: Guidelines for the Adaptation of Residential Space for Young Children is the outstanding example of the guideline approach. This publication organizes the guidelines according to various rooms in the residence. East section is preceded by a concise report of basic knowledge in the subject. It also presents the research methodology in its appendix. (Johnson, Shack, and Oster, 1980)

Again Human Dimension and Interior Space makes a major contribution when dealing with elderly and phsyically disabled people: chairbound and ambulant disabled people as well as mobile persons. Also, it presents charts of body size for men and women, boys and girls at interval years. It includes stature, eye height, elbow height, sixteen sitting dimensions, body reach, breadth and depth. The illustrated design standards are given for the full range of places. (Panero, Zelnik, 1979)

Designing for the handicapped calls for barrier-free design, standards development and compliance, and specialized theraputic environments. (Schneekluthon and Hunter, EDRA 12, 1981) Designing for the Elderly integrates floor plans and sections with the written text. The chapters on programming, design, and technical standards would be most useful to the interior designer and architect. (Green, A.I.A. et. al., 1975) Spacial Behavior of Older People (Pastalan and Carson, 1980), also presents many major considerations for the design of the elderly.

Furniture arrangements preferred by the elderly are symmetrical and against the wall. (Epp, 1981) Lighting should be full spectrum in order to help maintain the elderly person's biochemical process. Also, the lighting plan should avoid excessive brightness, disability glare and reflections. (Hughes and Neer, 1981). "A review of published design standards, guidelines and recommendations about bedrooms in housing for the elderly. . .demonstrate that much remains to be done." (Parsons, 1981)

The design consideration of "places" related to the kind of space being designed. The major space breakdowns are residential (homes), commercial (places of business: offices, stores, restaurants, hotels and motels) and institutional (health care facilities, groups residences and educational facilities). Also, individual rooms as a specialty space are considered within this category.

Two rooms that have been research are the bathroom (Kira, 1976) and the elevator. A study of crowding in an elevator may be suggesting to the designer to develop other things for passengers to stare at especially materials that give a larger sense of space. The use of murals could be used and tested, as well as existing materials like clear glass and mirrors.

Residential design refers to the design process for where people live or at least store their clothes. The home environment can indirectly and directly contribute to accidents and safety. Take, for example, the fact that an "increased portion of the population who are in good physical condition" are also more likely to avoid injury if an accident does happen, (Neutra, 1972). Therefore one might assume allowing

space for recreation and exercise in homes could indirectly encourage safety. Often the environment can directly prevent accidents. For example, the materials chosen for bathroom flooring and bathtubs could be slip-proof. Also electrical outlets could be designed so small, children could not insert small metal objects. Electrical outlets in bathrooms increase the chance of electricution occurring. Therefore, designing bathrooms without the electrical outlet (or having them far away from water sources) would be appropriate. Also often the sinks and toilets act as a foot ladder for children reaching the medicine cabinet. Proper storage within children's reach should be low and easy to open. In the kitchen, designs are often arranged so one has to reach over the stove to get something out of an upper cabinet or storage unit. It may be wise to have no storage unit over the stove. Tempered glass could reduce injury from glass accidents. Using fire-proof unholstery and slip-cover fabric would minimize burn injuries. Fewer corners on furniture could help young and old to have less injuries when they fall, (Neutra, 1972).

Falling is a major problem for home injury. Forty percent of the home accidential deaths are due to falls. Young children have the most falls. Small children learning to crawl and walk often create lots of anxiety for parents of young children as they approach stairs. The other group of people who fall often are the elderly. Falls especially involve stairs, slipping, and tripping over objects. The cushioning of a fall by using padding and carpeting might reduce injuries in the home. Adequate handrails are another issue. Handrails for showers, handrails for tubs, handrails for stairs are all important for elderly and handicapped and general safety. Poison is also a problem in American homes. But rarely is a home designed with special locking storage units for poisons that are used in the home, (Neutra, 1972).

Two rooms that are well-researched are the bathroom and the bedroom when compared to other rooms in a home whether a house or apartment. The Bathroom does a good job of analyzing bathroom use. One problem with this book is that very few of the recommended fixtures are available on the market. Also, the recommendations involve major changes in cultural habits which are very slow to change.

The bedroom was studied by a thorough review of the literature, including Altman, Kinsey and Consumer Reports. Parsons looked at activities of bedroom users including sleeping, lying behavior, sexual activity, housekeeping, sitting, and observing. Also, he looked at ambience factors, decor, and furnishings, as well as, consumer information dealing with bed coverings and bed construction. He believes that more studies need to be done in the areas of sleep, bedding, and how a bedroom is used. (Parsons, 1976).

Office design is becoming the most richly researched space. Unfortunately much of the research is conducted by firms who have not made public their results. Noise in the office environment has been a subject of some concern. One paper (Montegomery et. al., 1981) presents noise standards and various design alternatives. The acoustic consultants of BOH, Beranek and Newman, Inc. has prepared a find document on this subject. (Curtis, 1979). It analyzes speech, noise and privacy, defines terms, and explains noise measurements. Finally, it provides advise to the designer.

Anthropomorphic design guidelines for posture are published. (Ayoub, 1973) It considers the physical well-being of the user during various tasks. Along the same line, but more in depth, is the book, Fitting The Task to the Man (Grandjean, 1978). It outlines the ergonomic approach to the design of the work environment.

Libraries have been researched very little. One study shows that design factor preference by user varies according to use: studying and social. A business-like environment isn't used much; whereas, an attractive environment isused for social reasons. (Krupat, and Altaffer, 1976)

One study on museums (Melton, 1972) found that visitors pay attention to the related positions of objects in museums, groupings of objects when referenced to eye level and the quantity of objects. Also double row display is less effective than single row display. The recommendation for a curator is to place as many objects as possible in a sigle row, a few inches apart.

An appropriate study of classrooms deals with desk design (Hira, 1980). Hira's article presents outstanding ideas for a functional desk designed for the many student activities. Much research remains to be done on places in building.

Process is the third consideration within the area of the design process. It relates to the activities and/or job being performed in a particular space. Also, it includes what people do and what activities and functions they perform.
The Bathroom (Kira, 1976) represents a most thorough study measuring people's activities commonly performed in American bathrooms. Many recommendations are made for designing bathroom fixtures. The design field should have such studies for all aspects of human activity.

An other important publication is Visual Display Terminals - A Manual Covering Ergonomics, Workplace Design Health, Safety and Task Organization. (Cakir, Hart and Stewart, 1980) This book is the result of a two-year study by leaders in their field. It has five parts: VDT Basics, Light, Vision and Optical Characteristics of Visual Displays, Ergonomic Requirements for VDT's, Ergonomic Requirement for VDT Workplaces and the Health, Safety and Organizational Aspects of Working with VDT. Also, useful appendices are included.

Analysis

Analysis of an interior environment usually occurs after the space is completely constructed and installed. Some work has been done using scale models for spatial behavioral research. (Kleeman, 1981, p. 184-187) There is a long history of scaled models being used for aesthetic analysis in architecture.

Evaluation of environments may be post-occupancy evaluation. A number of monographs of completed post-occupancy studies are available through the Institute for Environmental Education at the University of New Mexico, Albuquerque, New Mexico.

Clouis Heimsath in Behavioral Architecture begins to address accountability in design. Since this book is written by an architect, it presents the psychological contribution to this design field in the language of the architect. It emphasizes analysis within the design process.

For the social scientists point of view, one could review Inquiry by Design: Tools for Environment Behavior Research (Zeisel, 1981). It takes a serious look at research design interaction and presents six significant research methods. Whether one is concerned with post-occupancy studies, behavior patterns, design analysis or human response to interior space, information on analysis is available. Often, design researching firms will specialize in these apsects of interior design research.

Conclusions

Interior design research is beginning to make a mark on the design professions of interior design and architecture. Applicability to professional practice, validity and reliability of the data-base research are equal in importance. Academic contributions can be categorized in the following areas: basic knowledge, the design process (guidelines and designs standards), and analysis. Often published literatures will extend into more than one of the categories of people, places, and process. "Professional transformation will largely depend on the future endeavors made in interior design education and professional research." (Raetzman, Kleeman, and Giesey, 1977)

Recommendations

Additional interior research is needed in most areas. The practicing designer requires translation of academic literature and the establishing of reference guidelines and standards. These reference materials need to be categorized according to people (children, aged, handicapped), places (rooms, residential, commercial and institutional spaces) and processes (functions and activities people perform). Cross-referencing is needed for overlapping literature. Continuing development of design analysis will provide research methods for design evaluation and accountability. Translated research needs to be published in journals that practicing designers read. Also, this information should be presented at professional conferences.

Appendix 1
Erogomist's Stages of Project Work
(Easily adapted for Interior Design)

Technical Part

"Preparation stage: physical measurements, interviews, organization studies, criteria, financing, restriction
Idea stage: lay-out, allocation, spacial conceptions
Priorities and selection: technical feasibility, cost, benefit, time aspect
Construction and development: experiments, drawing and design, models, computing, prototype, partial tests
Industrial adaptation: safety, production, learning, patents, strength of materials
Education: physical measurements, interviews, criteria achievement

Human Contact Part

"Preparation stage: sponsors, interested industry, management, production personnel
Idea stage: Industrial Reference Group, Industrial Specialists
Priorities and selection: sponsor, industrial specialists, shop steward, trade union, production personnel, reference group
Construction and development: reference group, workers, management, production engineers, process engineers.
Industrial adaptation: workers, shop steward, trade union, sponsors, production engineers, safety engineers, management, patent engineers, construction companies
Evaluation: management, trade union (Aberg, 1977).

Bibliography

Aberg, U., "Job Design for an Ergonomist", Eronogics, Vol. 20, No. 1 (1977), pp. 1-10.

Alexanda, C. et. al, A Pattern Language, New York: Oxford University Press, 1977

Altman, I., The Environment and Social Behavior, Monterey California: Brooks/Cole Publishing Company, 1975

Armstrong, D. and Dent, J.B., "Facility Management: The Growing Importance of Place," Concepts, Autumn, 1981

Ayoub, M.M., "Work Place Design and Posture," Human Factors, Vol. 15, No. 3 (1973) pp. 265-268

Curtis, Jack Taking the Guesswork out of Office Acoustics, Cambridge, Mass.: Bolt, Beranek and Newman Inc., 1979

Cakin, A, Hart, D.J. and Stewart, T.F.N., Visual Display Terminals - A Manual Covering Ergonomics, Workplace Design Health, Safety and Task Organization, New York: John Wiley & Son, Ltd., 1980

Epp, G., "Furnishing the Unit from the Viewpoint of the Elderly, The Designer and HUD," Design Research Interactions (EDRA 12), 1981, p.312

Grandjean, E. Fitting the Task to the Man, London: Taylor and Frances, Ltd., 1980

Green, I., et, al. Housing for the Elderly, New York: Reinhold Company, 1975.

Heimsath, C., Behavioral Architecture, New York: McGraw-Hill, 1977

Heimstra, N.W. and McFarling, F.H., Environmental Psychology, 2nd ed., Monterey, California: Brooks/Cole Publishing Company, 1978

Hira, D.S., "An ergonomic appraisal of educational desks," Ergonomics, Vol. 23, No. 3 (1980) pp. 213-221.

Hughs, P.C. and Neer, R.M. "Lighting for the Elderly: A Psychological Approach to Lighting," Human Factors, Vol. 23, No. 1 (1981) p. 65

Johnson, L., Shack J., and Oster, K., Out of the Cellar and Into the Parlor. Toronto, Ontario: Canada Mortgage and Housing Corporation, 1980

Keiser, M.B., Housing, New York: Macmillan Publishing Co., Inc, 1978

Kira, A., The Bathroom: Criteria for Design, New York: Viking Press, 1976

Kleeman, W.B. Jr., The Challenge of Interior Design, Boston, Mass.: CBI Publishing, Inc., 1981

Krupat, E. and Altaffer, F., "Satisfaction and Use of Two Environments: A Comparative Study of College Libraries," Priorities for Environmental Design Research (EDRA 8), 1978 p.254

Melton, A.W., "Visitor Behavior in Museums: Some Early Research in Environmental Design," Human Factors, Vol. 14, No. 5 (1972) pp.393-403

Miller, S., "Coping with Crowding in an Elevator: Staring at the Floor Numbers is not Enough." Design Research Interactions (EDRA 12), 1981, p.235-240

Montegomery, B., et, al., "Noise in the Office Environment: The Problems and the Alternatives," EDRA 12 Design Research Interactions (EDRA 12), 1981, p. 462

Neutra, R., "Accident Epidemiology and the Design of the Residential Environment," Human Factors, Vol., 14, No. 5 (1972) pp. 405-420

Panero, J., and Zelnik, M., Human Dimension and Interior Space, New York: Whitney Library of Design, 1979.

Parsons, H.M., "Residential Design for the Aged," Human Factors, Vol. 23, No. 1 (1981) p. 39

Parsons, H.M., "The Bedroom", Human Factors, Vol. 14, No. 5 (1972), pp. 421-450.

Pastalan, L.A. and Carson, D.H., Spacial Behavior of Older People, Ann Arbor, Michigan: Institute of Gerontology, University of Michigan, 1970

Schneekluth, S.L. and Hunter, J., "Handicapped Persons and the Environment," Design Research Interaction, (EDRA 12), 1981, p. 418

Raetzman, R., Kleeman, W., and Giesey, M. "Interior Design: A Look at the Profession. The Behavioral Basis of Design, (EDRA 7), Community Development Series, 1977

Wedin, C.S. and Nygren, L.G. Housing Perspectives, Minneapolis, Minnesota: Burgess Publishing Company, 1976

Zeisel, J., Inquiry by Design: Tools for Environment - Behavior Research, Monterey, California: Brooks/Cole Publishing Company, 1981

INTERIOR ENVIRONMENTAL RESEARCH: A REVIEW OF THE LITERATURE

Abstract

Interiors research since 1966 is reviewed. Categories of research include: ergonomics, environmental psychology, research methods, specific types of environments in residential and commercialspaces. This research has implications for the nature of interior environments within the context of basic knowledge, programming, and analysis. These areas are interwoven with issues pertinent to people, process and places. Recommendations are made for research translation into design guidelines.

LA INVESTIGACIÓ D'AMBIENTS INTERIORS: UNA REVISIO DE LA LITERATURA

Resum

Hom revisa la investigació d'interiors des de 1966. Les categories de la investigació inclouen: aspectes ergonòmics, psicologia de l'environament, mètodes d'investigació i tipus específics d'environament en espais residencials i comercials. Aquesta investigació té implicacions en la natura dels environaments interiors en un context de coneixements bàsics, programació i anàlisi. Aquestes àrees estan vinculades a qüestions relatives a persones, procediments i llocs. Es fan recomenacions per aplicar la investigació a les línies-guia del disseny.

LA INVESTIGACION DE AMBIENTES INTERIORES: UNA REVISION DE LA LITERATURA

Resumen

Se revisa la investigación de interiores desde 1966. Las categorias de la investigación incluyen: aspectos ergonómicos, psicología del entorno, métodos de investigación y tipos específicos de entorno en espacios residenciales y comerciales. Esta investigación tiene implicaciones en la naturaleza de entornos interiores en un contexto de conocimientos básicos, programación y análisis. Estas áreas están vinculadas a cuestiones concernientes a personas, procedimientos y lugares. Se hacen recomendaciones para aplicar la investigación a las líneas-guía del diseño.