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THROUGH THE CRACKS: FAILURES IN THE IMPLEMENTATION OF FIRE AND LIFE SAFETY STANDARDS IN THE SELECTION, SPECIFICATION, AND INSTALLATION OF INTERIOR CONTENT¹

My morning started badly. I took a break and read the newspaper. I read about the uphill battles of people involved in humanitarian efforts to end hunger and malaria or finding a cure for cancer. What was I doing? Designing spaces so that my clients would feel better about themselves? No, that wasn't all I was doing. I was potentially saving countless lives. And with luck, no one will ever realize it.

The first priority of interior designers must be the protection of the health, safety, and welfare of the public (American Society of Interior Designers, 2006, § 2.3; International Interior Design Association, 2009, ¶ 3).² This responsibility is paramount. Proper selection of interior content,³ the very issue with which interior designers—knowingly or unknowingly—grapple daily and for which many are specifically trained, is a primary determinant of whether accidents become tragedies (National Fire Protection Association, 1997).⁴ Uninformed choices can have devastating results. Yet, the value interior designers offer

- Is regulation of practice the best way to prevent harm? Does regulation of interior design truly protect the health, safety, and welfare of the public?



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for protection of life and property within the built environment is woefully underappreciated and largely unrecognized by the public, code officials, and allied professions—even by some within the field of interior design. Not

only is the interior designers' role often minimized during the design/construction process, but also their participation in the development and implementation of life safety codes is seldom sought.

SCOPE OF THE PROBLEM

This devaluation of the expertise and contribution of interior designers is surprising because there is overwhelming evidence that the fire and death rates in North America are among the deadliest in the industrialized world⁵ (International Association for the Study of Insurance Economics, 2008, pp. 4–6). A specially commissioned task force on fire and the built environment⁶ determined that two of the most significant reasons for the high fire mortality rate in the United States fell precisely within the interior designer's domain—interior content. These reasons were:

1. A failure of standards to control building content presents serious dangers, particularly when incremental occupancy or use changes occur; and

2. Most interior content modifications in existing buildings are governed by superseded codes until significant alterations trigger implementation of current standards (Federal Emergency Management Agency and U.S. Fire Administration, 1987).

Both issues underscore weaknesses in comprehensive life safety code enforcement over a building's life. Regulation of a building's interior content often slips through the cracks and, as a result, compromises the public's safety.

IMPEDIMENTS TO PRODUCTIVE COLLABORATION

The general public assumes that current legal, regulatory, and oversight systems adequately safeguard its health, safety, and welfare. Similar misconceptions are common among allied professionals (e.g., architects, engineers, interior decorators), often driven by lack of knowledge, perspective, institutionalized beliefs, and protectionist motives.

The interior design practitioners' ability to collaborate meaningfully is impeded by numerous factors. In particular, interior designers face a number of hurdles founded upon erroneous perceptions from outside and, interestingly, within their own profession.

Misconception #1: The practice of interior design does not impact public health, safety, and welfare because interior design services only pertain to aesthetics.

The rhetoric is familiar and all too common. A spokesperson for a coalition against interior design regulation stated, "Not a shred of evidence has ever been presented to support a conclusion that the unregulated practice of interior design places the public in any form of jeopardy whatsoever" (Morrow, 2008, p. 21). And, a national voice for architects railed against licensure of interior designers by stating, "... while bad taste might be offensive, there is no evidence that anyone has been killed by a bad color scheme" (Giattina, 2002, ¶ 8). Such statements are easily refuted. But, if not addressed, the myth becomes the reality. These statements imply interior designers have no impact on public health, safety, and welfare. And yet, according to the National Fire Protection Association (NFPA) (Assembly Occupancies, 2009), interior finishes and

SIGNIFICANT FIRE INCIDENT	DATE OF INCIDENT	CIVILIAN DEATHS	CIVILIAN INJURIES
The Station, West Warwick, RI	February 2003	100	200
Fraternity House Fire, Chapel Hill, NC	May 1996	5	3
Board and Care Fire, Mississauga, ON	March 1995	8	12
Stadium Fire, Atlanta, GA	July 1993	0	0
Stadium Fire, Atlanta, GA	October 1993	0	0
Private Club Fire, Indianapolis, IN	February 1992	1	4
Board and Care Fire, Colorado Springs, CO	March 1991	25	8
Hotel Fire, Miami Beach, FL	April 1990	9	21
Fraternity House Fire, Berkeley, CA	September 1990	3	2
Fatal Board and Care Fire, Bessemer, AL	September 1990	4	—
Fatal Office Building Fire, Atlanta, GA	June 1989	5	20
High Rise Apartment Fire, Manhattan, NY	January 1988	4	9
First Interstate Bank Building, Los Angeles, CA	May 1988	1	—
Rooming House Fire, Massapequa, NY	August 1986	5	—
DuPont Plaza Hotel Fire, San Juan, PR	December 1986	97	140
Haunted Castle Amusement Fire, Jackson Township, NJ	May 1984	8	—
Boarding House Fire, Beverly, MA	July 1984	15	9
Hotel Fire, Peterson, NJ	October 1984	13	70
Central Community Home Fire, Worcester, MA	April 1983	7	—
Annandale Village Fire, Gwinnett County, GA	August 1983	8	—
Hotel Fire, Dayton, OH	November 1983	1	20
Hotel Fire, Las Vegas, NV	February 1981	8	350
Hotel Fire, Las Vegas, NV	November 1980	85	700
Hotel Fire, Cambridge, OH	July 1979	10	—
Hotel Fire, Greece, NY	November 1978	10	—
Beverly Hills Supper Club, Southgate, KY	May 1977	165	70
Night Club Fire, New Orleans, LA	June 1973	32	12
Totals		629	1632

FIGURE 7.1. Design tragedies: proof of interior content as contributor to fire loss. NFPA fire investigations indicate interior finish and content are consistent, direct contributors to loss of life and property in these and other fires.

furnishings in public assembly spaces⁷ have more impact on the protection of life and property than any other issue except the actual fire ignition source itself.

Since the early 1940s, the fire investigations division of the NFPA has investigated and analyzed fires of technical or educational significance in the interest of loss prevention.⁸ Even a cursory examination of these reports provides

compelling evidence that interior content is a significant contributor to loss of life and property. Twenty-seven fires in public and other high-risk occupancies⁹ specifically point to one or more aspects of interior finishes, furnishings, and arrangement of furniture as significant contributing factors in the loss of 629 lives (see Figure 7.1). Furthermore, the use of highly combustible interior finishes, content,

and/or overwhelming interior fuel loads, especially in access or exit corridors, exacerbates loss through rapid flame spread and smoke development (NFPA, Fire Investigations, pp. various).¹⁰

A more detailed look at fire data for specific occupancy types reveals causal relationships between interior content and fire loss (Ahrens, 2006). Interior content in public and high-risk occupancies is responsible for more than 1,400 fires, 100 civilian injuries, and 16 civilian deaths every month (see Figure 7.2). The percentage of fires in which interior content is a first ignition source is 12% of all fires; the percentage of deaths (32%) and injuries (20%) where interior content is a first ignition source is much greater. To the point, if interior content is a first ignition source, risk of injury and death dramatically increases, particularly in occupancy types that present the greatest challenges in code compliance and enforcement over the useful life of the building.

A more comprehensive measure of loss from substandard interior content is provided by an examination of the extent of damage. The ability to contain fire (to object, room, floor of origin, or beyond) is an indicator of the speed at which fire and smoke spreads. The rates of flame spread and smoke development are determined in large part by the interior fuel load (consisting of wall, ceiling, and floor finishes; window treatments; movable partitions; furniture, decoration, accessories; and other content). Abnormal and improper fuel loads impede the ability of occupants to exit safely and can be devastating in the loss of life and property (Fitzgerald, 1997, pp. 1–26–27). For example, in Figure 7.2 the two occupancy types Rooming/Boarding/Lodging and Hotels/Motels have a significantly high proportion of deaths, 46% and 38%, respectively, that occur in spaces well beyond the fire origin even though the number of fires first ignited by interior content in these occupancies is low, 20% and 24%, respectively.

Simply stated, proper design, selection, installation, and maintenance of interior content are critical to the health, safety, and welfare of the public (Hall & Coté, 1997, pp. 1–12). This is knowledge in which trained interior designers excel, regardless of the color scheme.

Misconception #2: Interior content may pose a hazard to the health, safety, and welfare of the public in high-risk occupancies; however, the risk of harm is mitigated by participation of licensed professionals and code officials within the existing regulatory environment.

The position of the American Institute of Architects (AIA) is symptomatic of this attitude. Its public policy states:

that it is in the public interest for architects to design all structures primarily intended for human habitation or use. There are considerable differences between architecture and other licensed professions that significantly affect public health, safety, and welfare. The architect's comprehensive education and training encompass the impact of design and technology on the health and well-being of the public and on the built and natural environments. Each jurisdiction has a responsibility to its citizens to ensure that structures used or occupied by the public are designed by licensed architects. (2007, p. 6)

The built environment is not quite this simple nor the architects' scope of services and knowledge often this comprehensive.

There is a typical regulatory path for new construction and substantial building renovation: contract documents, signed and sealed by a licensed architect or engineer, are reviewed by code enforcement officials, and projects are visited periodically during construction to check regulatory compliance. However, the public (and many oversight participants) is largely unaware of the magnitude and

OCCUPANCY TYPE	TOTAL ANNUAL FIRES (AVG)	FIRES INVOLVING FIRST IGNITION OF INTERIOR CONTENT (ANNUAL AVERAGE)				EXTENT OF DAMAGE (LOSS OUTSIDE FLOOR OF ORIGIN)
		ANNUAL FIRES	CIVILIAN DEATHS	CIVILIAN INJURIES	DIRECT PROPERTY DAMAGE	
Rooming, Boarding/ Lodging	1,830	370 (20%)	8 (62%)	44 (44%)	\$5.6 mil (32%)	46% deaths 27% injuries
Hotels/ Motels	4,550	1,110 (24%)	4 (25%)	61 (31%)	\$18.9 mil (22%)	38% deaths 20% injuries
Dormitories, Fraternities/ Sororities, Barracks	2,340	310 (13%)	3 (100%)	29 (36%)	\$16.9 mil (53%)	33% deaths 9% injuries
Religious and Funeral Properties	1,760	260 (15%)	1 (100%)	5 (25%)	\$25.3 mil (26%)	100% deaths 20% injuries
Public Assembly Occupancies	3,890	490 (13%)	2 (100%)	14 (33%)	\$22.9 mil (28%)	50% deaths 23% injuries
Eating and Drinking Establishments	9,910	600 (6%)	0 (0%)	4 (3%)	\$14 mil (12%)	100% deaths 19% injuries
Educational Properties	7,070	640 (9%)	—	15 (13%)	\$10 mil (9%)	3% injuries
Care for Aged Facilities	3,680	560 (15%)	3 (27%)	70 (41%)	\$3.4 mil (27%)	0% deaths 5% injuries
Health Care Facilities	3,150	350 (11%)	0 (0%)	36 (41%)	\$2 mil (9%)	0% deaths 6% injuries
Store/ Mercantile	17,200	2,000 (12%)	1 (11%)	27 (9%)	\$245 mil (38%)	67% deaths 27% injuries
Office Properties	4,900	460 (9%)	1 (25%)	3 (6%)	\$13 mil (9%)	50% deaths 8% injuries
Multi-Family Properties	91,300	9,800 (11%)	160 (3%)	890 (19%)	\$198 mil (18%)	31% deaths 23% injuries
Totals	151,580	16,950 (12%)	183 (32%)	1,198 (20%)	\$575 mil (21%)	

FIGURE 7.2. Causal relationship: interior content and fire loss; annual averages for high-risk occupancies (1999–2002). Fires in which interior content is a first ignition source are a small percentage of total fires, but a high percentage of those that cause damage, injury, and death.

Small, incremental modifications implemented by untrained participants can have severe repercussions. One small drip of the faucet does not cause damage; it's the cumulative body of water that overflows the sink.

Emblematic of this problem was the 1988 fire at the First Interstate Bank in Los Angeles, California (construction completed in 1973). The fire investigation proved to be "of great technical significance" with respect to interior content (Klem, 1988, p. i). The close, geometric configuration of the workstations, which provided a greater than average fuel load, in concert with the large open space, accelerated the fire (Klem, 1988, p. 29).¹⁴ The fire resulted in one fatality, nearly 40 injuries, and total loss of the use of the 62-story structure for more than six months. The actual monetary loss has been estimated to be in the hundreds of millions of dollars.¹⁵

One might ask why anyone, trained or not, can specify, reconfigure, or install workstations, regardless of content or layout, in any high-rise building without the oversight of a licensed professional. Successful fire protection is based on a balanced, redundant system that allows for failure of any one of the multiple approaches (Hall & Coté, pp. I-11-12). In the United States, emphasis is often placed on fire suppression and response rather than on comprehensive preventative measures, perhaps in part because of such gaps in the delivery of interior content. A trend toward lessening more passive fire safety restrictions in buildings with sprinklers may point to a dangerous overreliance on automatic fire suppression systems. The problem inherent in this approach is epitomized by a 2001 recall of 35 million potentially faulty sprinkler heads (Mayer, 2001, p. H-01).

To return to the AIA's public policy, the members of the AIA are not (nor would one imagine they really want to be) the sole purveyors of life safety protection for interior content. As the life safety cracks in the regulatory framework expand in number and scope, interior

designers should embrace, fill, and work to correct these voids. Otherwise, the codes are at best a tool to help find fault after a disaster has already occurred.

Misconception #3: The interior design field and its collective participants are prepared to share the mantle of public health, safety, and welfare responsibility.

The first two misconceptions recount distorted impressions of interior design harbored by allied professions. The interior design community rallies in near unanimity to counter these attitudes that facts discredit. But, an objective, introspective reflection of interior design practice proves much harder to solicit complete agreement. Are the collective participants truly ready to "share the mantle of responsibility?" If one gauges the readiness by its pursuit of regulatory accountability, then the practice is indeed equipped and ready to transition to the new archetype: interior designers as recognized, licensed professionals in the design industry.

A tremendous effort over decades has developed a thoroughly documented body of knowledge (Martin & Guerin, 2006), advanced academic curricular standards (see Council for Interior Design Accreditation at www.accredit-id.org), and a comprehensive competency examination (see National Council for Interior Design Qualification at www.ncidq.org). However, within the interior design field is a large group of practitioners who call themselves "interior designers"¹⁶ but who have disparate definitions of the nomenclature than those developed for the professional licensure track. With an absence of regulation, and acting independently, they have few practice norms and no discernable standard of care. More importantly, their commitment to an evolving, regulated profession varies from apathy to downright hostility. These attitudes accentuate the public's confusion about what is an interior designer, a confusion made worse by the excessive exposure in the

media of interior design as mere entertainment (HGTV among others). Such superficial perceptions return the argument full circle to misconception number one, interior designer as color picker.

One might say there is a widening gulf within the interior design field, pitting those in favor of professional accountability against those in favor of an absence of regulation. It becomes a matter of differentiation of services—those interior designers who prepare for and want to apply their knowledge in these challenging life

safety conditions and those who choose other paths of participation in the interiors industry. The issue is not a casual disagreement. As building and life safety requirements become more stringent, all parties must realize that licensure of the profession—or some portion of it—will be necessary to improve protection in public and high-risk occupancies. The issue becomes one of survival in an area of practice: interior content in public and high-risk occupancies, for which interior designers are well qualified.

SEALING THE CRACKS

For a long time, many interior designers have sought to convincingly prove that they can play a vital role in protecting public health, safety, and welfare. A segment of the available proof has been provided here. The interior design profession, by its unique position in the delivery of interior content, provides essential knowledge and expertise that can protect property and lives, especially within the unregulated fissures in the implementation and enforcement of fire and life safety codes. And, practitioners who choose to seek licensure supported by their education, training, examination, and experience should participate as equal partners with other professions designing and maintaining health, safety, and welfare within the built environment. But, the interior design profession must effectively communicate this necessity, and it must marshal the fortitude to address difficult questions.

- Is the collective interior design establishment equipped and committed to provide the cohesive leadership and resources necessary to make a forceful argument for licensure? Is it dedicated to the accountability and full participation in the larger design community once licensure is attained?

- Is the establishment willing to acknowledge and accommodate distinct, complementary, professional paths within the field? Should licensure establish qualifications not only for the practice of interior design but also, not unlike the paralegal or the nurse practitioner, for those distinct complementary participants whose work contributes to the broad spectrum of interior design?
- Is the profession prepared to fully contribute as respected participants in a regulated environment? Can those practitioners assume their responsibility to the public and work to *seal the cracks*?

The answers to these and other questions likely will change the face of the interior design profession. One thing is certain: the future for all interior design professionals will be different than the current status quo. To have a seat at the table and to continue to participate in the design of an ever more complex built environment, the interior design profession must collectively take a more proactive role in its own destiny.

1. Although fire and life safety compliance are essential in all occupancy types, this article focuses on compliance with respect to public and other high-risk occupancies.
2. Similar ethical requirements are included in most jurisdictional legislation where the title or the practice of interior design is regulated.
3. For the purposes of this article, interior content includes the selection, specification, arrangement, and/or installation of interior finish materials and interior space content such as furniture, fixtures, and equipment provided as part of a scope of interior design services as defined by National Council for Interior Design Qualification (NCIDQ, 2004, pp. 1–2), accepted in current title and practice legislation and included in model legislative language (NCIDQ, Core Provisions, p. 1).
4. Section 6-5 Interior Finish cites the following few examples of the “deadliest U.S. fires” in which interior finish has been a significant factor in rapid flame spread: 2003 The Station Nightclub, Warwick, RI; 1989 Office Building, Atlanta, GA; 1986 DuPont Plaza Hotel, San Juan, PR; 1981 Hilton Fire, Las Vegas, NV; 1979 Holiday Inn, Cambridge, OH; 1978 Holiday Inn, Greece, NY; 1972 Nursing Home Fire, Springfield, IL, 1970; Pioneer International Hotel, Tucson, AR (pp. 319–322).
5. The United States has the 5th highest number of fire deaths per 100,000 persons out of 26 industrialized nations despite the fact it outspends all but one nation for fire protection (an estimated 12% of the total national cost of building and construction for private nonresidential structures). U.S. fire death rates continue to fall slowly—at a rate of less than 1% a year from 2003 to 2005, largely due to advances in building and fire safety codes as well as improvements in fire analysis (Intl. Assn. for the Study of Insurance Economics, 2008, pp. 4–8).
6. One of seven task forces assembled for a 1987 conference conducted by United States Fire Administration (USFA) / Federal Emergency Management Agency (FEMA), which included individuals from business and governmental organizations with an interest in fire protection. The purpose of the workshop was to achieve a consensus on the nature of the U.S. fire problem, review progress since the 1974 America Burning report (published by the 1971 National Commission on Fire Prevention and Control) and to develop recommendations to reduce further the loss of life and property due to fire. A follow-up commission formed in 1999, *America at Risk: America Burning Recommissioned*, echoed many of the same concerns expressed over the preceding decades (Federal Emergency Management Agency, 2002).
7. The NFPA defines an assembly occupancy as “an occupancy (1) used for a gathering of 50 or more persons for deliberation, worship, entertainment, eating, drinking, amusement, awaiting transportation, or similar uses; or (2) used as a special amusement building, regardless of occupant load. Assembly occupancies might include the following: armories, assembly halls, auditoriums, club rooms, dance halls, drinking establishments and exhibition halls among others” (National Fire Protection Association, 1997, *Assembly Occupancies*, ¶ 1).
8. NFPA fire investigation documentation includes “details of fire ignition, growth, and development; contributions of building construction, interior finish and furnishings; fire detection and suppression scenarios; performance of structures exposed to the fire; smoke movement and control; human reaction (response) and evacuation; fire fighting and rescue; fire propagation as a function of human reaction time; and the extent of life loss, injury and property damage” (National Fire Protection Association, 2009a, *Fire Investigations*, ¶ 2).

9. For the purposes of this examination, public and high-risk occupancies are defined as occupancies to which the public has access as passive users—they have had no input in space design decisions—and/or spaces that carry special risk to the occupants during an emergency, and, therefore, are subject to stricter code requirement and enforcement standards. Examples include high-rise buildings because of the complications of rescue in structures where heights exceed that of typical fire department ladder units or the length of time it takes to evacuate non-ambulatory patients in a healthcare setting. Specific occupancies in this compilation include: assembly, residential board and care, business, healthcare, high-rise, hotels/motels/dormitories, lodging/rooming house, mercantile, and multifamily housing including apartments and condominiums.
10. Data review was limited to online NFPA publications of fire investigations in public and high-risk occupancies (National Fire Protection Association, 2009a, Fire Investigations, various). The fire investigation reports for the fires listed above or enumerated in instruction about impact of interior finish in the Life Safety Code Handbook (National Fire Protection Association, 1997, pp. 319–322) clearly identify interior finish materials and/or content as directly contributing to the loss of life or property. Other fire investigations report impact of substandard interior content but do not expressly identify it as a direct contributor to loss. For relevance, only fires since 1973 are listed.
11. Annual averages are national estimates of fires reported to U.S. municipal fire departments during the four-year period of 1999–2002. Data exclude events of September 11, 2001. Fires reported only to federal or state agencies or industrial fire brigades are excluded. Fires are rounded to the nearest ten and direct property damage is rounded to the nearest hundred thousand dollars. Property damage has not been adjusted for inflation (Ahrens, 2006, p.3).
12. Even allowing for a sharp cutback on new commercial office construction starts because of recent economic conditions, a 51% drop over the previous year period, placing new office construction at approximately 1% of the available office space (Cushman & Wakefield, 2008, pp. 1–2).
13. Figure 3 is intended to be illustrative of relationships only.
14. NFPA's fire analysis listed one of the major factors contributing to the loss of life and the severity of the First Interstate Bank Building Fire was the “[r]apid initial growth, development, and spread of the fire due to the combustible nature and geometric arrangement of the office furnishings in a large, open floor plan” (Klem, First Interstate Bank Bldg., p. iii).
15. The NFPA fire investigation report states that “the intensity of the fire was so severe at the First Interstate Bank that the incident commander feared that structural collapse of the [62-story] building might occur. It also took 64 companies and 383 firefighters 3½ hours to eventually get ahead of the floor-to-floor fire spread and knock the fire down . . . ” (Klem, 1988, p. 37).
16. In jurisdictions that do not regulate the practice of interior design, anyone may use the title regardless of qualifications. A “[r]uling in the late 1990s by the 11th Federal Circuit [Court] on a lawsuit filed by a Tennessee unlicensed person resulted in the ruling that “Interior Designer” could not be regulated and restricted to only licensed persons since it had been used without restriction and without regulation for a long period of time. At that time, Tennessee’s Board [of Architectural and Engineering] Examiners succeeded in gaining their legislature’s cooperation in changing their title to “Registered Interior Designer,” which could be restricted, regulated, and upheld in court” (NCIDQ, Core Provisions, §. forward). Similar cases continue to be filed in states where interior design regulations use the broad term “interior designer.”

REFERENCES

- Ahrens, M. (2006). *U.S. fires in selected occupancies*. Quincy, MA: National Fire Protection Association.
- American Institute of Architects. (2007). *Directory of public policy and position statements: As amended by the board of directors December 2007*. Retrieved May 9, 2009, from <http://aia.org/aiaucmp/groups/aia/documents/pdf/aia078449.pdf>
- American Society of Interior Designers. (2006). *ASID code of ethics and professional conduct*. Retrieved May 8, 2009, from <http://www.asid.org/about/ethics>
- Cushman & Wakefield, Inc. (2008). United States office report. *Marketbeat*. Retrieved February 27, 2009, from http://www.cushwake.com/cwglobal/docviewer/US_OFF_2Q08.pdf?id=c21400023p&repositoryKey=CoreRepository&itemDesc=document&cid=c16500002p&crep=Core&desc=BinaryPubContent&Country=GLOBAL&Language=EN&Country=US&Language=EN
- Federal Emergency Management Agency. (2002, June). *America at risk: America burning recommissioned, FA-223*. Washington, DC: U.S. Government Printing Office.
- Federal Emergency Management Agency, & U.S Fire Administration. (1987). *America burning revisited: National workshop, Tyson's Corner, Virginia, November 30–December 2, 1987*. Washington, DC: U.S. Government Printing Office.
- Fitzgerald, R. (1997). Fundamentals of fire safe building design. In A. Coté (Ed.), *Fire Protection Handbook* (18th ed.). Quincy, MA: National Fire Protection Association.
- Giattina, J. (2000). A report from the president. *Direct Connection*, 3(1). National Council of Architectural Registration Boards. Retrieved January 14, 2009, from <http://www.ncarb.org/NewsClips/may00.htm>
- Hall, J., & Coté, A. (1997). America's fire problem and fire protection. In A. Coté (Ed.), *Fire Protection Handbook* (18th ed.). Quincy, MA: National Fire Protection Association, pp. 1–12.
- International Interior Design Association. (2009). *IIDA code of ethics*. Retrieved May 15, 2009, from <http://www.iida.org/i4a/pages/index.cfm?pageid=304>
- International Association for the Study of Insurance Economics. (2008). World fire statistics: Information bulletin of the world fire statistics. T. Parish (Ed.), *Geneva Association Information Newsletter*. Geneva, Switzerland: The Geneva Association.
- Mayer, C. (2001, July 29). Sprinkler recall sounds alarm: Some safety officials fear buildings depend too heavily on systems. *Washington Post*, p. H–01.
- Martin, C., & Guerin, D. (2006). *The interior design profession's body of knowledge, 2005 edition*. Grand Rapids, MI: Council for Interior Design Accreditation, American Society of Interior Designer, Interior Designers of Canada, International Interior Design Association, and the National Council for Interior Design Qualification.
- Morrow, P. (2008, November). Anti-licensing: Insurgence of the independents. *Window Fashions Vision*. Retrieved May 7, 2009, from http://idpcinfo.org/Patti_Morrow__Insurgence_of_the_Independents.pdf
- National Commission on Fire Prevention and Control. (1974). *America burning: The report of the national commission on fire prevention and control*. Washington, DC: U.S. Government Printing Office.
- National Council for Interior Design Qualification. (2004). *NCIDQ definition of interior design*. Washington, DC: Author.
- National Council for Interior Design Qualification. (2008). *Core provisions of interior design registration: Model legislation*. Washington, DC: Author.
- National Fire Protection Association. (1997). In R. Coté (Ed.), *Life safety code handbook* (7th ed.). Quincy, MA: Author, pp. 319–322.
- National Fire Protection Association. (2009). *Fire investigations*. Retrieved January 10, 2009, from <http://www.nfpa.org/categoryList.asp?categoryID=241&URL=Research/Fire%20investigations>

AUTHOR'S NOTE

The following reports and investigations were used for background information:

- Best, R., & Demers, D. (1982). *Investigation report on the MGM Grand Hotel Fire: Las Vegas, NV, November 21, 1980 (Rev Jan. 15, 1982)*. Quincy, MA: National Fire Protection Association. Retrieved May 12, 2009, from <http://nfpa.org/>
- Best, R. (1983). *Summary investigation report: Central community home fire: Worcester, MA, April 19, 1983*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Best, R. (1978, January). Tragedy in Kentucky. *Fire Journal*. Quincy, MA: National Fire Protection Association. Retrieved May 16, 2009, from <http://nfpa.org/>
- Bouchard, J. (1984). *Investigation report: Haunted castle amusement facility fire: Jackson Township, NJ, May 11, 1984*. Quincy, MA: National Fire Protection Association. Retrieved May 16, 2009, from <http://nfpa.org/>
- Comeau, E. (1995). *Fire investigation report: Board and care fire: Mississauga, ON, March 21, 1995*. Quincy, MA: National Fire Protection Association. Retrieved May 16, 2009, from <http://nfpa.org/>
- Coté, R., & Timoney, T. (1984). *Investigation report: Elliot Chambers boarding house fire, Beverly, MA, July 4, 1984 (Rev. Oct. 15, 1984)*. Quincy, MA: National Fire Protection Association. Retrieved May 12, 2009, from <http://nfpa.org/>
- Demers, D. (1981). *Fire investigation report: Hotel fire: Las Vegas, NV, Eight fatalities, February 10, 1981 (Rev. Nov. 20, 1981)*. Quincy, MA: National Fire Protection Association. Retrieved May 12, 2009, from <http://nfpa.org/>
- Duvall, R. (2006). *NFPA case study: Night club fires*. Quincy, MA: National Fire Protection Association. Retrieved May 9, 2009, from <http://nfpa.org/>
- Isner, M. (1988). *Investigation report: Apartment high-rise fire: Manhattan, NY, January 11, 1988*. Quincy, MA: National Fire Protection Association. Retrieved May 16, 2009, from <http://nfpa.org/>
- Isner, M. (1989). *Fire investigation report: Fatal office building fire: Atlanta, GA, June 30, 1989*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Isner, M. (1990). *Fire investigation report: Fraternity house: Berkeley, CA, September 8, 1990*. Quincy, MA: National Fire Protection Association. Retrieved May 15, 2009, from <http://nfpa.org/>
- Isner, M. (1991). *Fire investigation report: Board and care facility fire: Colorado Springs, CO, March 4, 1991*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Isner, M. (1992). *Fire investigation Report: Private club fire: Indianapolis, IN, February 5, 1992*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Isner, M. (1993). *Summary fire investigation report: Two stadium fires: Atlanta, GA, July 20, 1993 & Irving, TX, October 13, 1993*. Quincy, MA: National Fire Protection Association. Retrieved May 10, 2009, from <http://nfpa.org/>
- Isner, M. (1996). *Fire investigation summary: Fraternity house fire: Chapel Hill, NC, May 12, 1996*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Klem, T. (1983). *Investigative report: Travel Master Inn motel fire: Dayton, OH, November 23, 1983*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Klem, T. (1986). *Investigation report on the DuPont Plaza Hotel fire: December 31, 1986, San Juan, Puerto Rico*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>

- Klem, T. (1988). *Fire investigation report: First Interstate Bank building fire, Los Angeles, CA, May 4, 1988*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Klem, T. (1990). *Summary fire investigation report: Fatal board and care fire: September 19, 1990*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Kyte, G. (1986). *Fire investigation report: Rooming house fire: Massapequa, NY, August 23, 1986*. Quincy, MA: National Fire Protection Association. Retrieved May 12, 2009, from <http://nfpa.org/>
- National Fire Protection Association (2009). *Fire safety in assembly occupancies*. Quincy, MA: National Fire Protection Association. Retrieved January 9, 2009, from <http://nfpa.org/>
- Peterson, C. (1984). *Investigation report: Alexander Hamilton Hotel fire: Patterson, NJ, October 18, 1984*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Robertson, J. (1990). *Fire investigation report: Hotel fire: Miami Beach, FL, April 6, 1990*. Quincy, MA: National Fire Protection Association. Retrieved May 11, 2009, from <http://nfpa.org/>
- Swartz, J. (1979). Human behavior in the Beverly Hills fire. *Fire Journal* May 1979. Quincy, MA: National Fire Protection Association. Retrieved May 15, 2009, from <http://nfpa.org/>
- Timoney, T. (1983). *Summary investigation report: Annandale Village fire, Gwinnett County, GA, August 31, 1983*. Quincy, MA: National Fire Protection Association. Retrieved May 16, 2009, from <http://nfpa.org/>
- Willey, A. E. (1974, January). The upstairs lounge fire. *Fire Journal*. Quincy, MA: National Fire Protection Association. Retrieved May 17, 2009, from <http://nfpa.org/>