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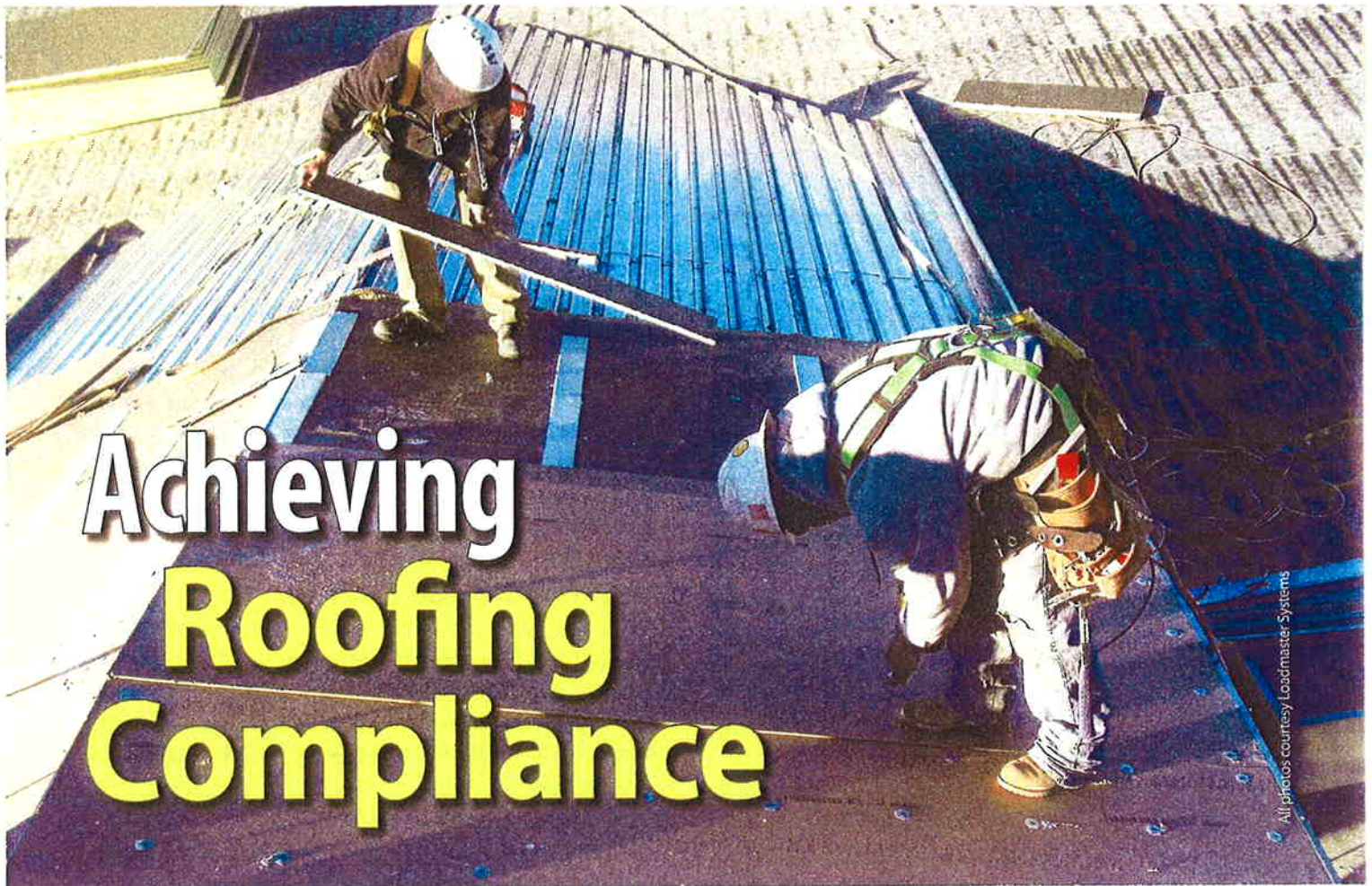
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ASCE 7's Legal Impact on Roofing

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Achieving Roofing Compliance

The legal impact of ASCE 7

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The *International Building Code (IBC)* relies heavily on American Society of Civil Engineers (ASCE) 7, *Minimum Design of Loads for Buildings and Other Structures*, with respect to wind loads on roof decks and coverings on buildings. Architects should be cognizant not only of this requirement, but also of the potential liability they face where a roof deck or covering is deemed noncompliant with the code, particularly if the assembly fails catastrophically.

Due to the complexities of understanding and testing for ASCE 7 compliance, architects may rely on other design professionals or roof deck/covering manufacturers for required testing. If an architect chooses this path to satisfy the ASCE 7 wind load determinations, he or she should understand how courts and juries in the United States have attributed fault between the architect and testing professional or manufacturer. Architects will likely face less legal liability by depending on another specialized professional or roof deck/covering manufacturer to ensure compliance with ASCE requirements.

As the dominant code regulating U.S. building construction practices, the *International Building Code* has been adopted at the state or local level in all 50 states, as well as Washington, D.C. Only Colorado, Tennessee, and Mississippi have not adopted the code as a statewide standard, although it has been implemented at certain local levels in all three states.¹ (For example, in Tennessee, the State Fire Marshal's Office has adopted the 2006 *IBC*.) Therefore, design professionals in every state should be familiar with *IBC* requirements.

This article focuses on the new wind load requirements under *IBC*, with respect to roof decks and coverings. It is important architects comply with these codes, while understanding the legal implications of delegating testing requirements for wind load compliance to other professionals.

IBC and ASCE 7

The *IBC* contains an array of requirements for roofing, including specific ones for covering installation, construction documents, and loads. With respect to wind loads, the primary requirement in the current (2006) version of *IBC*

is roof decks and coverings be designed to withstand wind pressures as determined by ASCE 7.² By relying on ASCE 7 to set wind load requirements, these standards have, in many respects, become more rigorous than those contained in the prior building codes.

By using the standards in ASCE 7, *IBC* now states a roof assembly must resist wind velocities of at least 137 to 145 km/h (85 to 90 mph)—speeds close to that of a Category I hurricane.³ This change is significant because the velocities dictated by the standards of the prior building codes were considerably lower. For example, one of *IBC*'s predecessors, the *Standard Building Code*, required a roof assembly be designed to withstand a minimum wind velocity of only 113 km/h (70 mph).⁴

Additionally, under *IBC* and ASCE 7, more stringent standards now apply to different sections of a roofing assembly. The roof's center has one standard, whereas another one may govern the roof perimeter and corners.⁵ *IBC* also added complexities to roof/wind load design, as the new codes now contain specific standards pertaining to wind load resistance for roof coverings, not just roof decking.⁶

Before *IBC* first took effect in 2000, the three previous building codes contained wind load requirements for buildings and roofs. Although *IBC* also contains codes applicable to wind loads for buildings and roofs, the recent 2006 version

was changed to rely almost entirely on ASCE 7 to set these requirements.⁷ This change diverges from 2003 *IBC*, which relied more partially on ASCE 7 in setting wind load requirements. More specifically, the 2003 *IBC* contained a section with certain calculations to arrive at wind load requirements for buildings 18 m (60 ft) and under.⁸ However, the 2006 *IBC* dropped this section, and refers now to ASCE 7 as the standard for buildings of all heights.

IBC's incorporation of ASCE 7 for wind load design requirements represents more rigorous standards for roof design. Consequently, architects and design professionals must satisfy these new, more complex requirements for both roof decks and coverings, or face potential liability.

Architect liability for code deficiencies

In most circumstances, U.S. courts have held architects responsible for ensuring buildings are code-compliant. Therefore, whenever a building's design causes code violations, most courts have held the architects legally liable for the deficiency. An architect's responsibility for code compliance may arise from:

- placement of the architect's seal on applicable plans;
- contractual provisions indicating the architect is responsible where a building was found to be noncompliant with codes;



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This worker fastens the roofing substrate board to a curved steel deck surface prior to installation of standing seam metal roof covering. Under IBC and ASCE 7, more stringent standards now apply to different sections of a roofing assembly.

- certifications stating the architect would be responsible for code compliance;
- other language in documents stating the architect is responsible for a project; or
- case law from some courts, where the architect was held responsible for code deficiencies.

Most states require building plans contain an architect's seal for a building permit to be issued. Once the seal is applied, the applicable state statutory provision may mandate the seal indicates an architect has verified the plans' adequacy—which would include compliance with applicable building codes. For example, the Georgia statute regarding an architect's seal states:

O.C.G.A. § 43-4-16. Sealing of documents by architect.

- Every architect registered under this chapter shall have a seal in the design authorized by the board, bearing the registrant's name, certificate number, and the legends "Registered Architect" and "State of Georgia."
- Plans, specifications, drawings, reports, or other architectural documents issued for the purpose of obtaining a building permit or for other requirements set forth by law shall be sealed by the architect and across the face of the seal shall be affixed the signature of the owner of the seal ...
- No registered architect shall affix his or her seal to any plan, specification, drawing, report, or other document unless he or she has assumed the responsibility for the accuracy and adequacy of the work involved.

In accordance with this Georgia statute, an architect must add his or her seal to plans and construction drawings for the owner or contractor to obtain a building permit—the seal indicates the architect has assumed “responsibility for the accuracy and adequacy of the work involved.” If an architect verifies “adequacy of the work” or is responsible for plans, a court may conclude he or she confirms a building conforms to applicable building codes.

The California legislature (*i.e.* Cal.Bus. & Prof.Code § 5536.1) has promulgated a similar statute, which states:

All persons preparing or being in responsible control of plans ... shall sign those plans ... and if licensed ... shall affix a stamp.

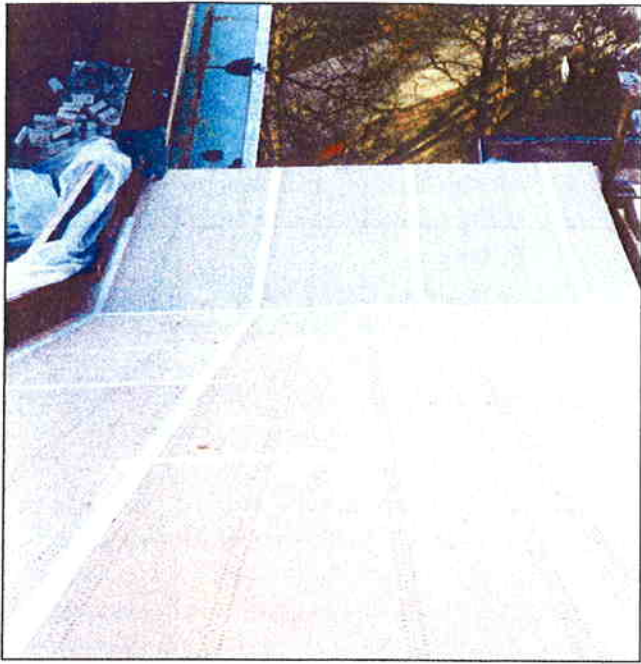
Like the Georgia statute, this one requires plans include the design professional's stamp or seal. By doing so, the California statute prevents the design professional from distancing him or herself from the plans—and makes liability more inevitable should the plans be found problematic or noncompliant with building codes.

An architect's overall responsibility for a building's compliance with code requirements may also arise from contractual language. For example, a contract between an architect and an owner or bank may specifically state the architect must verify work or plans comply with all applicable codes and ordinances. A court may also rely on other documents—such as letters written by the architect concerning a project in which he or she assumes responsibility for code compliance—to hold an architect liable for code violations.

In a case decided in a Florida Court of Appeals, *Atlantic Nat. Bank of Jacksonville v. Modular Age, Inc.*,⁹ the issue was whether the defendant contractor was liable where walls failed to meet applicable fire codes in a project, or whether liability should be assigned to the architect.¹⁰ A letter written by the architect and certifications issued by the architect's representatives were used to find the architect had assumed responsibility for the project and code compliance. More specifically, the architect had written a letter to the city building official, stating the plans conformed to applicable building codes.¹¹

The architect had also hired other architects to inspect relevant portions of the building, who issued certificates stating the building satisfied applicable codes.¹² Apparently relying on these facts, the court held that failure to satisfy the fire code attributable to fault by the architect, not the contractor. The court stated in the decision:¹³

It is [the architect's] responsibility to insure that the plans and specifications comply with the applicable building codes for the areas where the structure is to be built.¹⁴



This completed roof deck assembly is ready to receive the roof covering. Architects should be aware of the new wind load requirements for roof decks and coverings in the 2006 IBC.

Some courts have held the architect liable for design supervision based on language verifying his or her responsibility for plans or supervision over construction, even where the architect's seal was not affixed to the plans for the specific area at issue. For example, in a Louisiana Court of Appeals decision (*Nicholson & Loup, Inc. v. Carl E. Woodward, Inc.*),¹⁵ the architect did not place his seal on the plans' pages pertaining to the building foundation. However, the first page of the plans stated:

These plans and specification have been prepared by or under my close personal supervision and to the best of my knowledge and belief; they comply with all city requirements, that I am supervising the work.¹⁶

Based on this language and other facts, the court held the architect liable for the improperly designed foundation that damaged the building.¹⁷ Although this case does not concern building codes, it demonstrates an architect may be held responsible not only for building design, but also for portions of the plans designed by others, which may certainly include issues of code compliance. This liability may be determined by language rendering the architect responsible, even if his or her seal has not been affixed to the plans.

Some courts have found an architect liable for code violations, even though no statutory, contractual, or even documentary language stating the architect was responsible for code violations

was mentioned in the case opinion. In these cases, the architect simply admitted responsibility for code compliance.¹⁸

In several other cases, even in the total absence of evidence showing or proving the architects had agreed to adhere to applicable codes, courts have still found them liable for code violations. These courts have held architects are under a legal duty to comply with building codes; alternatively, a duty to comply with codes was found when another expert testified such was the customary standard for architects. As one court reasoned:

Architects and engineers represent themselves to be competent in the preparation of plans and specifications necessary to the construction of suitable structures, including but not limited to the knowledge of and compliance with applicable building codes, and where they fail to use reasonable care to provide a satisfactory structure in compliance therewith, they may be sued breach of an implied contract term or for negligence.¹⁹

Other courts have similarly ruled that mere proof of non-conformance with building or zoning codes makes an architect liable for negligence and breach of contract.²⁰ However, some courts have ruled proof of a building code violation, combined with expert testimony that such a violation constitutes failure to exercise appropriate care, is necessary to hold an architect liable for damages caused from non-compliance with a building code.²¹

It is clear an architect may be held liable where he or she is involved in plans where a building, or portions of it, are found to violate applicable codes or ordinances. Therefore, as a result of the almost nationwide adoption of *IBC*, a building failing to comply with ASCE 7 wind load requirements may result in architect liability.

Relying on another design professional

Due to the highly technical requirements of ASCE 7, architects involved in a building project may rely on other professionals to ensure roof decks and coverings comply with the standards. Architects may also use technical information supplied by manufacturers of roof decks and coverings, who in turn may depend on another engineer or professional to test for ASCE 7 compliance. Architects should understand how liability may be attributed when they have relied on information from another source.²²

Using pre-engineered building components—and relying on the engineering judgments that accompany such components—is generally recognized as legitimate practice. For example, the New Jersey State *Uniform Construction Code (UCC)* specifically provides for industrial/modular buildings and building components.²³ This should be distinguished from



Installation of long screws in a highly insulated roof deck assembly. If a roofing assembly or its parts fail to satisfy applicable code requirements, the architect can potentially be held liable.

the cursory affixing of a professional's seal on plans or designs drawn up by unlicensed individuals, a practice sometimes derogatorily referred to as 'plan-stamping.'

In a recent decision, the Supreme Court of Missouri held an architect did not violate statutes requiring his seal be affixed to documents "prepared by the licensee, or under such licensee's immediate personal supervision," when the architect took over a project from another architect. The successor architect had reviewed and revised plans prepared by the original architect, and then affixed his seal to the plans, which incorporated the work of the original architect with whom the new architect had no contact. The court found the applicable regulation was not intended to govern "situations in which two licensees work separately on a project." Moreover, the court also noted regulations allowed a licensee to place a disclaimer on sealed documents, specifying which portions the individual licensee was assuming responsibility for. (The successor architect had not employed such a disclaimer, thus assuming responsibility for the entirety of the plans.)²⁴

When a roofing assembly or its parts fail to satisfy applicable code requirements—and the problem cannot be blamed on inadequate installation, poor construction practices, or defective materials—the architect may be held liable, even if he or she used information supplied by others or delegated design responsibility to them.²⁵ However, the professional or manufacturer directly responsible for testing code compliance will likely share liability with the architect for code violations—

in fact, that party should be considered "primarily liable." Moreover, it is generally recognized in law throughout the country that "liability follows one's seal."²⁶ Thus, when a professional with direct responsibility for testing ASCE 7 compliance adds his or her seal to plans or specifications, that professional will likely be liable for resulting damages or non-compliance with codes.

Where an architect relies on another testing professional or manufacturer for technical advice, a court or jury may find the direct testing professional or manufacturer solely liable, rather than the architect. In *Mudgett v. Marshall*, 574 A.2d 867 (Me. 1990), the court held the professional directly responsible for the area at issue negligent. In this case, the court reasoned where the engineer in charge of the project had no duty to oversee the other professional's work, the former could not be held liable, even for vicarious liability.²⁷

In the *Mudgett* case, a contractor hired an engineering consulting firm, Paper Industry Engineers (PIE), for a project. The contractor also hired Megquier & Jones Corp., a steel supplier and fabricator, for the design and fabrication of the project's structural steel. Megquier subcontracted with William H. Marshall to design the steel members for the project. Due to Marshall's alleged calculation errors, the building frame collapsed. The court held Marshall liable for the resulting injuries, whereas Megquier and PIE were not held negligent, as no evidence indicated they had a duty to supervise the work.²⁸ Thus, at least one court was willing to let all liability fall on the professional directly responsible for the inadequate design. When the holding is applied to code compliance under ASCE 7 requirements, the engineer, professional, or manufacturer responsible for testing the roof deck and covering may be held solely liable for code violations.

Furthermore, where an architect is held liable and has relied on testing performed by another professional or manufacturer, the architect would likely have a right of contribution or indemnity against the directly responsible entity.²⁹ If an architect is found liable merely for vicarious liability (due to a manufacturer's product not complying with applicable codes), the architect may be entitled to full indemnity from the manufacturer and/or the testing professional/engineer.³⁰ Thus, if the architect assumes no real supervisory role or duties in certifying a roofing product is code-compliant and without defect, then as a matter of law, the architect may have a right of full recovery against the manufacturer and/or its engineer for any liability assessed against him or her. Through the contract with the owner or via other methods of communicating disclaimers, architects may limit their supervisory duties or responsibilities by indicating design responsibility flows to others, such as the manufacturer or testing professional. This practice should shift liability directly to those entities.



Installation of mineral board, insulation, and two additional layers of mineral board over a steel deck section. If an architect accepts portions of the roof assembly from different manufacturers, he or she may be responsible for ensuring the parts, when attached together, satisfy IBC requirements.

Through a contract, an architect may also agree with a manufacturer or testing professional (whose advice or representations the architect follows) that the latter must indemnify or provide contribution for injuries or damages flowing from liability for noncompliant portions of a building or roof. Undoubtedly, a written contractual agreement is the most certain method to secure an architect's right of contribution or indemnity where liability arises solely from another's failure to adequately test for *IBC* or any code compliance.

Manufacturer specifics

Although relying on a manufacturer or testing professional can shift liability in cases of code failure, difficulties arise where an architect accepts separate parts of the roof assembly from different manufacturers for a given project. For example, the architect may use a roof deck, roof insulation, and roof covering manufactured by different entities.

IBC requires the roof assembly in its entirety meet specified standards. The separate manufacturers' assurances of code-compliant products are probably insufficient to establish that the different parts, when combined with other components of the roof assembly, are code-compliant. Therefore, if an architect accepts portions of the roof assembly from separate manufacturers, the burden to test and duty to satisfy applicable code requirements could again shift to the architect—he or she would be responsible for determining whether the parts, when pieced together, meet *IBC* requirements. To avoid primary

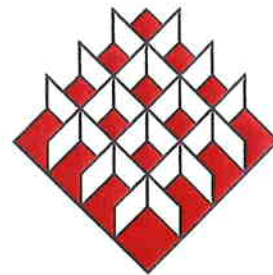
liability in these circumstances, an architect can retain a testing professional to check the roof assembly is code-compliant once constructed from the individual components.

Alternatively, for a given project, if an architect employs a whole roof assembly created by a sole manufacturer and sealed by its engineer, the architect may rely on that manufacturer's assurance, warranty, and engineer certification to conclude the roof assembly is code-compliant. No further testing by the architect is necessary to shift liability to the manufacturer or its design professional should problems arise with the roof assembly, including failure to satisfy *IBC* requirements. Regardless, when accepting a whole roof assembly from one manufacturer, the architect should require an appropriate engineer seal the system design. Such a practice would place responsibility for code compliance primarily on the manufacturer and its design professional rather than the architect.

Conclusion

Through the *International Building Code*, and particularly its 2006 version, ASCE 7 has become the dominant standard for wind loads in the construction of roof decks and coverings. Architects must certainly be familiar with its content, and understand failure to satisfy ASCE 7 may lead to liability (as with practically all applicable building codes).

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Given the more rigorous standards and complexities involved in understanding and testing for ASCE 7 compliance, architects may wish to rely on another professional or manufacturer for this task. If the roof deck or covering is ultimately found deficient or noncompliant, the testing professional or manufacturer may be found solely negligent. At the very least, the architect possibly facing liability should be comforted by understanding the right of contribution or indemnity against the testing professional or manufacturer is a likely and viable option. ♡

Notes

- ¹ Visit the International Code Council's (ICC's) Web site at www.iccsafe.org/government/adoption.html.
- ² The 2006 version of *IBC* requires compliance with wind loads determined by ASCE 7, subject to a few specified exceptions. See 2006 *IBC* §1609.5.2, see also §1504.3.1, §1504.3.2, and §1504.4.
- ³ See ASCE 7.
- ⁴ See *Standard Building Code* (1994), p. 382.
- ⁵ See Note 5.
- ⁶ Section 1609.5.2 of the 2006 *IBC* requires roof coverings be designed to withstand the same wind pressures as roof decks.

⁷ See 2006 *IBC* Sections 1609.5.1 and 1609.5.2.

⁸ See 2003 *IBC*, at Sections 1609.7.1 and 1609.7.2, applicable to roof decks and coverings, respectively. These sections, along with Sections 1609.6 and 1609.1.1, provided the roof deck and roof covering were to be designed to withstand wind pressures as set by ASCE 7, or, for buildings 18 m (60 ft) and lower, wind pressures as set by specific calculations referenced at Section 1609.6 were to be withstood.

⁹ 363 So.2d 1152 (Fla. App. 1st DCA 1978)

¹⁰ Id. at 1153.

¹¹ Id. at 1154.

¹² Id.

¹³ In this case, the contractor was the named defendant. However, the holding in the case, that the architect was responsible for the code problems, indicates claims against the architect would likely have been viable.

¹⁴ *Atlantic Nat. Bank of Jacksonville v. Modular Age, Inc.*, 363 So.2d 1152, 1155 (Fla. App. 1 DCA 1978), cert den., 372 So.2d 466 (Fla. 1979).

¹⁵ *Nicholson & Loup, Inc. v. Carl E. Woodward, Inc.*, 596 So.2d 374 (La. App. 4th Cir. 1992).

¹⁶ Id. at 388.

¹⁷ Id. at 389.

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Abstract

The dominant code for building construction now relies heavily on ASCE 7 for standards pertaining to wind loads on roof decks and coverings. Architects should understand this requirement, as well as the potential

liability they face when a roof deck or covering fails to meet the code—especially when they rely on another professional or manufacturer to satisfy ASCE 7 wind load determinations.

¹⁸ See *Himmel Corp. v. Stade*, 52 Ill.App.3d 294, 295, 367 N.E.2d 411, 413 (1977).

¹⁹ Id. at 414-415.

²⁰ See *Robsol, Inc. v. Garris*, 358 So.2d 865, 865 (Fla. App. 3rd DCA 1978); see also *Edward J. Seibert v. Bayport Beach and Tennis Club Assn.*, 573 So.2d 889, 892 (Fla. App. 2nd DCA 1991), noting "It is clear that [the architect] had a duty to design the second floor units and there exists in a manner that complied with the *Standard Building Code* and his failure to use due care in doing so would make him liable."

²¹ See *Garaman, Inc. v. Williams, AIA*, 912 P.2d 1121, 1124 (Wyo. 1996); see also *Simon v. Drake Const. Co.*, 87 Ohio App.3d 23, 621 N.E.2d 837 (1993).

²² See 5 Bruner & O'Connor Construction Law § 17:74 (Database updated May 2007), stating, "It is not uncommon for architects and engineers to depend upon technical information supplied by manufacturers."

²³ N.J. Admin. Code Title 5 §§ 23-4A.1 et seq.

²⁴ *Bird, PE v. Missouri Bd. Of Architects*, ___ S.W.3d ___, 2008 WL 2346195 (Mo. 2008).

²⁵ See *Atlantic Nat. Bank of Jacksonville v. Modular Age, Inc.*, 363 So.2d at 1155, stating "Though [the architect] did not personally design the walls in question, he delegated that responsibility to others. This duty of the architect cannot be avoided by

delegating the responsibility of insuring that portion of this design comport with the applicable laws and regulations."

²⁶ See 5 Bruner & O'Connor Construction Law § 17:75

²⁷ Id. at 870.

²⁸ Id. at 870.

²⁹ See 5 Bruner & O'Connor Construction Law § 17:74 (Database updated May 2007). See generally *City of Willmar v. Short-Elliott-Hendrickson, Inc.*, 512 N.W.2d 872 (Minn. 1994), discussing defendant engineer's right of contribution-indemnity against co-defendant manufacturer of allegedly defective product utilized in wastewater treatment plant project, cited in Bruner § 17:74.

³⁰ See *St. Patrick's Home for Aged and Infirm v. Latricrete Intern, Inc.*, 264 A.D.2d 652, 658 (N.Y. 1999), upholding inter alia, architect's claim for indemnity against manufacturer of allegedly defective wall panels utilized for nursing home building, where jury could find that architect liable merely for vicarious liability. See also *Grossman v. Sea Air Towers, Ltd.*, 513 So.2d 686 (Fla. 3rd DCA 1987), affirming jury verdict in favor of architect for full indemnity against structural engineers. Jury could have found architect only liable for vicarious liability, or "passive negligence," where architect hired structural engineers to design structural plans and deck collapsed due to insufficient load resistance.

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