

CHAPTER 8

TRADITIONAL SHOP DRAWING LIABILITY AND LIABILITY THAT ARISES FROM SHARED OR DELEGATED DESIGN

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§ 8.01 TRADITIONAL SHOP DRAWING LIABILITY**[A] Introduction**

This chapter analyzes liability that arises from the preparation and review of shop drawings in the traditional shop drawing review process. In addition, this chapter discusses liability that may arise from the shop drawing process in the nontraditional shared and delegated design process.

Shop drawings have different purposes depending on the project. Any submittal may be considered a shop drawing even though a particular submittal satisfies only an administrative obligation to supply training manuals or progress schedules. For purposes of this chapter, the term “shop drawing” generally refers to a supplier’s, specialty contractor’s, or fabricator’s detailed depiction of information shown in the plans and specifications that explains or illustrates fabrication and installation. Such shop drawings are typically not prepared by the primary design professional. Rather, they are prepared in the chain of contractors and suppliers; and thus, they typically include not only an illustration of the fabrication and installation details for a particular component or system of a building, but also an indication of the coordination of that component with other building components to ensure constructability in the field.

By definition, the shop drawing process represents a basic form of delegated design. The shop drawing process involves suppliers and contractors in the design process by requiring them to design the individual components of the project for which they are responsible. In designing a building, a design professional simply cannot design every detail of every component and system. It would be a monumental task for the project architect to design every connection and the interaction of every component and system.

In the shop drawing process, for instance, the steel fabricator provides shop drawings that identify each piece of steel, and how and where the pieces connect to each other. Moreover, the HVAC contractor often provides shop drawings that show the location of all duct work that it will install. A project architect cannot be expected to design down to this level of detail. Not only would the cost to the owner be prohibitive, but most architects do not possess the expertise to provide such a level of detailed design. Thus, it is not always in the owner’s best interest to require the architect to furnish an ultimate or complete design. The owner would likely run into delays caused by constructability issues and perhaps more frequently discover design defects.

Architects also sometimes design a component or system by merely identifying what the component should look like and its performance requirements. For example, an architect’s design of a curtain wall system may show the wall’s appearance and specify the wind loads and lateral resistance requirements, but the architect will leave the design of the curtain wall, specifically the means of attachment and dimensions, to the curtain wall subcontractor who likely has greater expertise in the design of such components.

Shop drawings provide the architect and contractor the opportunity to review and approve what the supplier or subcontractor intends to supply and construct before it proceeds with fabrication or construction. In the traditional design-bid-build project delivery system, the contractor reviews the shop drawings provided by subcontractors and suppliers to ensure that the subcontractor and supplier intends to supply work and material consistent with the contract requirements. Likewise, the architect reviews the shop drawings to ensure that the building component or system that the supplier or subcontractor intends to supply or install is consistent with the architect's intent or design concept for the structure.

[B] Shop Drawings Defined in Standard Form Contracts

The American Institute of Architects (AIA) defines shop drawings as:

[D]rawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.¹

The AIA A201 General Conditions suggest that the purpose of submitting shop drawings is to “demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals.”² In other words, shop drawings illustrate how the contractor intends to implement the architect's design.

Although the AIA provides separate definitions, the term “Shop Drawings” may be interpreted to subsume “Product Data” and “Samples.”³ The term “Product Data” is defined as “illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.” The term “Samples” is defined as “physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.” For either term, an “illustration” may constitute a drawing prepared for the work, which in turn is encompassed by the term “Shop Drawings.”

For instance, the AIA suggests that shop drawings should not include reprinted manufacturer diagrams. Such diagrams, however, arguably fall under the definition of product data, which in turn arguably falls under the definition of shop drawings. Such contradictory suggestions or ambiguities provide sufficient reason for contractors to be aware of liability for manufacturer diagrams as shop drawings. Since such diagrams would likely be deemed shop drawings more readily than contract documents, the AIA seemingly gives the owner the right to pursue the contractor or the manufacturer for product defects.

¹ AIA General Conditions of the Contract for Construction § 3.12.1 (2007 ed.).

² AIA Document A201, General Conditions of the Contract for Construction § 3.12.4 (2007 ed.).

³ AIA Document A201, General Conditions of the Contract for Construction §§ 3.12.4-3.12.10.

The AIA attempts to make it clear that shop drawings, product data, and samples are not considered part of the contract documents. The AIA likely excludes these submittals from the contract documents because the owner typically does not have the opportunity to review specialty designs. Thus when submittals are sent to the architect, they cannot represent the mutual agreement of the architect and owner to the same degree as the contract documents.⁴

Shop drawings are defined by the Engineers' Joint Contract Documents Committee General Conditions of Construction as:

All drawings, diagrams, illustrations, schedule and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.⁵

Like A201, the EJCDC's definition may be interpreted to include product data and samples.

For federal government projects, shop drawings are broadly defined in the Federal Acquisition Regulations (FAR) as:

[D]rawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract.⁶

Depending on project specifications, this FAR definition may be interpreted broadly or narrowly. But either way, the definition prompts the contractor to seek review of its shop drawings or coordination from the structural engineer of record.

[C] Traditional Shop Drawing Liability

Liability can arise from the traditional preparation of shop drawings, particularly from the coordination and review of the shop drawings by the contractor or design professional, or from a failure to timely review the shop drawings. Shop drawing liability generally flows from the failure of the trade contractor or supplier to adequately design its work in the shop drawing or its failure to supply

⁴ AIA A201 Document Commentary; *but see* Cast-crete Corp. v. West Baro Corp., 339 So. 2d 413 (La. Ct. App. 1976) (treating shop drawings as part of the contract documents).

⁵ Engineers' Joint Contract Documents Committee, Standard General Conditions for the Construction Contract, Art. I (1990 ed.).

⁶ 48 C.F.R. § 52.236-21(d).

what is required by the contract documents. Likewise, contractors and design professionals may incur liability by failing to adequately review shop drawings for conformity to the contract documents or by delaying the shop drawing review process.

Thus, liability arising from the coordination and review of shop drawings in a traditional design-bid-build program generally falls into three categories:

- (1) Failure to properly prepare shop drawings so that the specialty contractor or supplier fails to supply what is required by the contract documents;
- (2) Failure to adequately review and verify that the information in the shop drawings is consistent with what is required in the contract documents, and the systems or information described in the shop drawings are adequate to perform their intended function; or a failure to properly coordinate the various trade contractors' and suppliers' drawings so as to ensure that the components fit and work together; and
- (3) Failure to timely review and approve drawings, thereby causing project delay and damages to the contractor.

[D] Coordination and Review of Shop Drawings

[1] Contractor Liability

Virtually all industry form contracts, including those drafted by the AIA, the Engineer's Joint Contract Documents Committee and the ConsensusDOCS provide a process whereby suppliers and subcontractors submit shop drawings, submittals and samples to the contractor, which in turn are reviewed and approved by the contractor and then submitted to the design professional for review.⁷ Because the contractor is responsible for the means and methods of construction and verification of field dimensions, the contractor is required to review shop drawings to coordinate the work of the subcontractors and to verify that the project can be constructed as designed. The contractor also is typically required to review the shop drawings for compliance with the design professional's drawings and specifications.

The AIA imposes the primary responsibility of the shop drawing review on the contractor. Moreover, the AIA General Conditions require the contractor to review shop drawings "for compliance with the Contract Documents, and approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by Architect. . . ."⁸

⁷ For example, see AIA General Conditions of the Contract for Construction § 3.12.4 (2007 ed.).

⁸ AIA General Conditions of the Contract for Construction § 3.12.5 (2007 ed.).

The AIA several conditions further provide that the contractor's submittal of shop drawings to the design professional constitutes a representation by the contractor to the owner and architect that the contractor has:

- (1) reviewed and approved the shop drawings;
- (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so; and
- (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.⁹

Thus, a contractor's review and approval of shop drawings pursuant to the AIA General Conditions essentially constitutes a representation and probably a warranty that the systems depicted in the shop drawings are consistent with the requirements of not only the contract documents, but also the requirements of the work in place. If the contractor does not indicate its approval on the submittal, then the architect may return the submittal.

The AIA General Conditions prohibit the contractor from performing any portion of the work for which the contract documents require submittal and review of shop drawings, product data, samples or similar materials until the respective submittal has been approved by the architect.¹⁰ In other words, the architect's duty to review and approve the shop drawings arises only after the contractor has reviewed and approved them.

The ConsensusDOCS Standard Form of Agreement Between Contractor and Subcontractor ("ConsensusDOCS Agreement") imposes responsibility on the contractor to review and approve shop drawings but removes the architect even further from the process. The ConsensusDOCS require the contractor to "submit to the Owner, and, if directed, to its Architect/Engineer, for review and approval of all shop drawings, samples, product data and similar submittals required by the Contract Documents."¹¹ ConsensusDOCS also states that the "Contractor shall be responsible to the Owner for the accuracy and conformity of its submittals to the Contract Documents,"¹² which likely constitutes an express or implied warranty by the contractor to the owner that the work depicted in the shop drawings conforms to the contract documents.

Like the AIA, the ConsensusDOCS also requires the contractor to expressly identify in writing all changes, deviations or substitutions from the requirements of the contract documents. Moreover, the review and approval of any contractor submittal is not deemed to authorize changes or substitutions from the requirements of the contract documents unless the owner specifically authorizes the change or substitution. Thus, there is a theoretical line that is drawn between shop drawing submittals and approved change orders or contract modifications.

⁹ AIA General Conditions of the Contract for Construction § 3.12.6 (2007 ed.).

¹⁰ AIA General Conditions of the Contract for Construction § 3.12.7 (2007 ed.).

¹¹ ConsensusDOCS Standard Form of Agreement Between Contractor and Subcontractor, § 3.14.1.

¹² *Id.*

In federal government projects, the Federal Acquisition Regulations require the prime contractor to coordinate, review and approve all shop drawings:

If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review.¹³

Even through the government's contracting officer must review shop drawings, the prime contractor still bears responsibility for the quality of the shop drawings, even if the contracting officer has approved the drawings. Like the AIA and ConsensusDOCS, any variations in the shop drawings from the contract requirements must be separately identified:

Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f).

...

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submissions. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.¹⁴

An example of a contractor held responsible for improperly prepared shop drawings is *Fabi Construction Co., Inc. v. Secretary of Labor*.¹⁵ In *Fabi Construction Co.*, a concrete subcontractor was cited by OSHA after the collapse of a parking garage under construction for the Tropicana Hotel and Casino in Atlantic City, New Jersey. The shop drawings used by the concrete subcontractor failed to detail the proper placement of reinforcing steel, which was a cause of the garage collapse. The concrete subcontractor attempted to argue that because it had subcontracted the preparation of shop drawings to another entity, it could not be held responsible for OSHA violations. The D.C. Circuit rejected this argument, finding that because the concrete subcontractor had reviewed the shop drawings and even directed a revision in them, it had assumed responsibility for ensuring that the shop drawings were prepared correctly.

[2] Designer Liability

Compared to the contractor's duty to review shop drawings to ensure conformity to the contract documents, the architect bears much less of a burden, and

¹³ 48 C.F.R. § 52.236-21(e).

¹⁴ 48 C.F.R. § 52.236-21(e) and (f).

¹⁵ 508 F.3d 1077 (D.C. Cir. 2007).

correspondingly less liability, with regards to the shop drawings review and approval process. The AIA Standard Form of Agreement Between Owner and Architect (2007 ed.) requires the design professional to “review and approve or take other appropriate action upon the Contractor’s submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.”¹⁶ Indeed, this language attempts to shift liability arising from the shop drawing review liability process to the contractor:

[The architect’s] [r]eview of such submittals is not for the purpose of determining the accuracy and completeness of other information such as dimensions, quantities and installation or performance of equipment or systems, which are the Contractor’s responsibility . . . The architect’s approval of a specific item shall not indicate approval of an assembly of which the item is a component.¹⁷

Moreover, in the AIA form architect-owner agreement, the architect is not required to ferret out design changes that occur in a shop drawing. The Agreement provides that the architect’s approval of shop drawings does not constitute approval or acceptance of design changes set forth in shop drawings, “unless the Contractor has specifically informed the Architect in writing of such deviation at the time of the submittal and (1) the architect has given written approval to the specific deviation as a prior change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation.”¹⁸ This process is reinforced in section 3.12.9, which requires the contractor “to direct specific attention in writing, or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those required by the Architect on previous submittals,” and “[i]n the absence of such written notice, the Architect’s approval of a resubmission does not apply to the revisions.”

Current efforts by design professionals to contractually limit their responsibility to review shop drawings are a response to the liability that design professionals traditionally have borne for failures to verify that the shop drawings conform to the contract document requirements. In *Jaeger v. Henningson, Durham and Richardson, Inc.*,¹⁹ the contract between the owner and design professional required the architect to review and approve shop drawings and other submissions for conformance with information contained in the specifications, blueprints and drawings prepared by it. Thus, the architect was required to both review the shop drawings to verify conformance with the design concept of the project and for compliance with the information given in the contract documents.

¹⁶ AIA B101, Standard Form of Agreement Between Owner and Architect § 3.6.4.2 (2007 ed.) (emphasis added)

¹⁷ AIA B101, Standard Form of Agreement Between Owner and Architect § 3.6.4.2 (2007 ed.).

¹⁸ AIA 201, General Conditions of the Contract for Construction § 3.12.8 (2007 ed.).

¹⁹ 714 F.2d 773 (8th Cir. 1983).

The shop drawings submitted by the steel fabricator stated that the staircase landing pans would be fabricated from 14 gauge steel. This was inconsistent with the architect's specifications that required the landing pans to be fabricated from 10 gauge steel with angle supports. The architect failed to notice this discrepancy in its review of the shop drawings and approved the shop drawings by placing a stamp on the drawing with a notation to "furnish as noted." The 14 gauge steel landing pan installed by the contractor collapsed under the weight of two ironworkers, who sought recovery from the architect for their injuries. The verdict in favor of the ironworkers against the architect was upheld by the Eighth Circuit, which determined that the architect's failures were sufficiently apparent to the lay person that the ironworkers did not need expert testimony to establish the standard of care of a design professional in reviewing shop drawings. Perhaps the architect could have shielded itself from this kind of unexpected liability by providing language in its approval stamp that even if not rejecting the shop drawing, the architect will not be liable for deviations from the specifications.

In *Waggoner v. W&W Steel Co.*,²⁰ the court reached a different conclusion than Jaeger, partly due to the more protective language contained in the AIA form owner-architect agreement at issue there, and partly due to the accident occurring as a result of the means and methods of construction. In *Waggoner*, the architect was sued by two ironworkers who were killed and a third who was injured when the structure they were working on collapsed. The claim alleged that the architect was negligent in approving shop drawings that failed to show temporary connections, the absence of which contributed to the collapse. The Oklahoma Supreme Court affirmed the trial court's directed verdict in favor of the architect, and held that the contractor, not the architect, had the duty to review the shop drawings for construction means and methods, including such temporary connections. The court ruled that it was the duty of the contractor, not the architect, to review the shop drawings for the purpose of ensuring that they included the necessary temporary connections, as those details are construction means and methods for which the contractor is traditionally responsible, not the architect. The court also gave credence to the AIA form contract shop drawing review provisions, which only required the architect to review shop drawings for conformance with the design concept of the project and with the information provided in the contract documents. Perhaps the notable difference in contract language is that the architect is responsible for "approving" rather than "assuring" or "certifying" conformance with the "design concept," distinguished from "the project design."

In *Great American Ins. Co. v. North Austin Municipal Utility District No. 1*,²¹ a contractor, was required to refurbish a dry well as part of a contract for the construction of a waste water treatment plant. When one of the dry well's walls collapsed, the owner brought an action against the contractor for the cost to repair the well. The contractor asserted that the owner's engineer was responsible

²⁰ 657 P.2d 147 (Okla. 1982).

²¹ 902 S.W.2d 488 (Tex. 1993).

for the damage because he designed the refurbishment and designated the means and methods of construction. The court rejected this argument because the engineer had merely specified that the “thickness of the sidewalls shall be determined by the structural requirements for the depth of the burial.”²² The court, moreover, determined that the contractor bore responsibility for determining the appropriate thickness of the side walls. The contractor argued that the project engineer’s approval of the contractor’s shop drawings, which identified the thickness of the side walls, constituted an approval of the contractor selected side wall thickness. The court rejected this argument based on the terms of the contractor’s agreement with the owner, which provided that the engineer’s review and approval of shop drawings would not relieve the contractor of responsibility for deviations from drawings or specifications, or for errors in the shop drawings.

Similarly, the Court in *D.C. McClain, Inc. v. Arlington County*,²³ also enforced a contract provision that limited the architect’s shop drawing review responsibility to ensuring conformance to the project’s design concept. There, a contractor agreed to construct a bridge for Arlington County using post-tensioning. After it was determined that the contractor lacked sufficient space to post-tension the bridge using conventional methods, the contractor proposed using “blockouts” to post-tension the bridge in its shop drawings, which were submitted to the county and its design professional for review. Both the county and the design professional approved the shop drawings; but the shop drawings proved to be defective and the bridge thus could not be constructed using the post-tensioning method depicted in the shop drawings. After the county terminated the contractor, the contractor sought damages from the county. The county counter-claimed for its own damages. The Virginia Supreme Court affirmed the trial court’s judgment in favor of the county, rejecting the contractor’s argument that the county’s engineer’s approval of the shop drawings shifted responsibility for the defective design to the county. The court relied on the parties’ contract, which stated that, “[c]hecking and/or approval of shop drawings will be general, for conformance with the design concept of the Project and compliance with the information given in the Contract Documents, . . . Approval shall not be construed as permitting any departure from contract requirements . . . nor as relieving the Contractor of the responsibility for any error in details, dimensions or otherwise that may exist.”²⁴ The term “design concept” seemingly prevents the contractor from effectively arguing that the architect integrated the contractor’s submittal into the actual design. The term suggests that the contractor submittal remains extraneous to the contract documents. If a contractor wants to argue that certain shop drawings were incorporated into the contract documents, for purposes of shifting liability to the designer, then the contractor would likely need to avoid vague terms like “design concept.”

²² 902 S.W.2d 488, 496.

²³ 249 Va. 131, 452 S.E.2d 659 (1995).

²⁴ 249 Va. 131, 138, 452 S.E.2d 659, 663.

Design professionals also generally will not be held liable for claims arising from their review of shop drawings that relate to a contractor's means and methods. Section 3.12.10 of the AIA General Conditions reinforces this concept. It provides, "[t]he Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures." Thus, the AIA General Conditions continue to place design responsibility for construction means and methods on the contractor and overall design responsibility on the architect. The contractor will be responsible for the design of scaffolding, shoring and other construction means for which the contractor traditionally bears responsibility as construction means and methods.

A design professional also will not be liable for shop drawings that do not adequately detail aspects of the project, as long as the architect's responsibility is contractually limited to ensuring conformance with the design concept. Moreover, a design professional may not bear responsibility for approving shop drawings where the defects are not readily apparent from the shop drawings.

In *John Grace & Co. v. State University Construction Fund*,²⁵ the general contractor brought an action against State University Construction Fund for the cost of repairs to heat exchangers which were part of a high temperature water distribution system installed on campus. The Construction Fund impleaded the engineer who was engaged by the general contractor to provide services necessary to complete the design and construction of the project. The court ultimately held that the general contractor was not liable for repairs to the heat exchangers because the repairs involved a design defect, which was outside of the general contractor's contractual responsibility and expertise, and there was no evidence that the general contractor damaged the units during installation or otherwise improperly installed them. The court also held that the engineer was liable to the Construction Fund because the engineer, in approving the design which led to the introduction of dissimilar metals in heat exchangers deviated from good practice, and the engineer failed to inquire into the qualifications of the manufacturer of the heat exchangers before recommending the manufacturer.

Although design professionals sometimes incur liability for shop drawing approvals that fail to conform to the design intent; similar to construction means and methods, design professionals generally will not bear responsibility for failing to verify field measurements, as that is the contractor's responsibility.²⁶ The contractor's duty to review shop drawings for conformance with field conditions also can lead to liability for the contractor. Indeed, as stated above, the AIA General Conditions expressly require the contractor to determine and verify materials, field measurements, and field construction criteria.

²⁵ 872 N.Y.S.2d 757 (1984).

²⁶ *McDevitt Mech. Contractors v. United States*, 21 Cl. Ct. 616 (1990).

In *Fenestra, Inc. v. Merle Patnode Co., Ltd.*,²⁷ a supplier entered into a contract with a contractor to supply metal roof panels for the construction of a post office for the General Services Administration (GSA). The supplier submitted shop drawings to the general contractor that contained dimensions for the roof panels, but requested the general contractor to verify the length of the panels and other dimensions shown on the shop drawings. The general contractor approved the shop drawings and forwarded them to the GSA, who also approved the shop drawings. The supplier shipped the panels in the lengths specified in its shop drawings. The panels were too short and could not be used for the post office. The supplier sued the general contractor for the purchase price of the panels and ultimately prevailed.

The contract between the general contractor and roof panel supplier did not expressly require the supplier to verify field dimensions, but the general contractor attempted to argue that the supplier was bound by the general contractor's contract with the GSA which incorporated the general contractor's requirement to verify all dimensions. The court deferred to the evidence introduced at trial of the custom and practice in the industry for the general contractor to verify field measurements for material suppliers—especially material suppliers located some distance from the project site. This evidence of custom and practice, together with the supplier's express request that the general contractor verify the field dimensions, was sufficient to hold the general contractor responsible for verifying the field dimensions for the supplier. Contractors, and probably not design professionals, will bear liability for failures to properly review shop drawings that lead to the fabrication of materials that are the wrong dimension.

[E] Liability Arising from the Failure to Timely Review and Approve Shop Drawings

A contractor making a delay claim against the owner due to the extended duration of the project often blames at least some part of the delay on the architect's failure to timely review shop drawings, or a subcontractor or supplier may blame the contractor for delay in reviewing shop drawings. If a contractor is delayed on a project, the contractor's delay claim often contains a category allocating some part of the owner-caused delay to the architect's failure to review shop drawings within the period prescribed in the owner-contractor contract or the period deemed reasonable by the contractor. In *Tampa v. Thornton-Tomasetti, P.C.*,²⁸ the city of Tampa contracted with a general contractor for the construction of a performing arts center. The general contractor made a delay claim against the city, which alleged delays due to errors and discrepancies in the design and failures to review, revise, and coordinate shop drawings. That case ultimately settled with a \$9.5 million payment by the city, and the city pursued an action against the

²⁷ 40 Wis. 2d 453, 162 N.W.2d 23 (1968).

²⁸ 646 So. 2d 279 (Fla. App. 1994).

architect, with whom it was in privity, and against the architect's consultants with whom it was not in privity. The city's action against the consultants was ultimately dismissed based on the economic loss doctrine, a doctrine which bars tort damages when risks are allocated by contract.

A good example of liability arising from a failure to timely review shop drawings in *Sterling Millwrights, Inc. v. United States*,²⁹ the Department of the Army engaged a contractor to build a chrome plating facility. The Army suspended performance of the contract and made a delay claim against the contractor. The Army then terminated the contractor for cause. The contractor's schedule established a five-working day review period for shop drawings. The Army's review of each shop drawing took at least double that time, which significantly impacted the contractor's ability to comply with the schedule. The court of claims ruled in favor of the contractor and converted the termination for cause into one for convenience, thereby permitting the contractor to recover the profit that it anticipated earning on the contract.

In the traditional shop drawing review process, liability is often borne by a single participant; either the shop drawings were improperly prepared, there was something that should have been rejected as part of the review process as inconsistent with the design intent or contract documents, or the design professional or contractor took too long to review the drawing. As one would expect, the liability that accompanies the shop drawing process in shared or delegated design is not as black and white as traditional shop drawing liability. Due to the shared nature of the shop drawing process in delegated design, more than one party may bear responsibility for a faulty design.

§ 8.02 LIABILITY ARISING FROM THE SHOP DRAWING PROCESS IN A SHARED OR DELEGATED DESIGN SYSTEM

[A] Introduction

There is an increased use of shared or delegated design as a result of innovative project delivery systems and technical advances in building construction that have made buildings increasingly complex creatures that demand more specialized design. The increasingly complex nature of construction requires that the entities that possess the most expertise play a more significant role in the design process. This often means less of a role for the design professional engaged by the owner, and a more collaborative process with more substantive input from specialty trade contractors that possess the most experience with, and knowledge of, the systems and components that they are supplying.

The design input from different design professionals and trade contractors intersects at the shop drawing process. As discussed in the prior section on traditional shop drawing liability, specialty trade contractors and suppliers have long

²⁹ 26 Ct. Cl. 49 (1992).

participated in the design process by furnishing shop drawings that often provide the substantive design details for specific systems or components of buildings. However, modern delegated or shared design requires the involvement of these parties sooner in the process and at a more involved level. With this higher level of design responsibility by nontraditional design professionals comes increased exposure of those involved in the shop drawing process.

No discussion of shop drawing liability would be complete without reference to the Kansas City Hyatt Regency skywalk collapse in 1981 that killed 114 people and injured 186. During a tea dance at the Kansas City Hyatt Regency, two suspended walkways filled with people collapsed. It was ultimately determined that the collapse was caused by a design defect in the connections of the steel rods that suspended the walkways from the ceiling. The project structural engineer provided structural drawings to the steel fabricator, and the complex skywalk support connections were designed by the steel fabricator. The project's structural engineer reviewed and approved the connection details. The connections, as designed by the fabricator's engineers, were inadequate to support the anticipated loads of the walkways. In the structural engineers' license revocation hearing, the structural engineer claimed that the steel fabricator's shop drawings were prepared by structural engineers and that it had no duty to verify the structural integrity of the connections. The structural engineers asserted that its shop drawing review responsibility was only to review the shop drawings for aesthetics. In upholding the finding of gross negligence by the project structural engineer and affirming the Missouri Appellate Court's revocation of the structural engineer's license, the Missouri Supreme Court unequivocally held that the responsibility for the design of structural connections is a matter requiring engineering expertise that cannot be delegated. The court reasoned that the provisions of the licensing statute governing the issue of a professional seal imposed a nondelegable duty on the engineer of record for the structural components of the project, even though the engineer's seal was not on the shop drawings. It held that even if a licensed structural engineer designs the connections, under the Missouri professional engineer's statute, the structural engineer of record is ultimately responsible for the shop drawings.³⁰ The court further held that custom, practice, or necessity cannot alter that responsibility.

The Kansas City Hyatt case illustrates the importance of not only looking to the parties' contracts and the custom and practice in the industry to determine to what extent design can be delegated, but extrinsic requirements such as a state's licensing regulations also must be considered. These regulations will govern delegation of design responsibility and under what conditions design responsibility can be delegated.

³⁰ *Duncan v. Missouri Bd. of Architects, Prof'l Eng'rs & Land Surveyors*, 744 S.W.2d 524 (Mo. Ct. App. 1988).

[B] Shop Drawing Instruction in Shared Design Contracts

As discussed earlier,³¹ the 2007 version of the AIA A201 General Conditions imposes duties upon the contractor to review shop drawings to verify compliance with the contract documents before submitting them to the architect and excuses the architect from ensuring that the delegated design is correct. The A201 General Conditions requires the architect to review shop drawings and other submittals for the delegated design, but requires that the shop drawings bear the subcontractor's or supplier's design professional's seal and signature, and permits the architect to rely upon the "adequacy, accuracy and completeness" of the services provided by the subcontractor's or supplier's design professional.³² The A201 General Conditions even contain a representation by the contractor that by submitting shop drawings to the architect, the contractor represents that it has reviewed and approved them and verified materials, field measurements, and has coordinated the information contained in the shop drawings with the contract documents.³³

These provisions impose a litany of obligations on the contractor, whereas the owner-architect agreement imposes a lesser burden on the architect when it comes to shop drawing review and approval. The architect's review of shop drawings and other submittals is merely for the "limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Review of such submittals is not for the purpose of determining the accuracy and completeness of other information such as dimensions, quantities, and installation or performance of equipment or systems, which are the Contractor's responsibility."³⁴ However, despite this exculpatory language, as was demonstrated by the Kansas City Hyatt case, a state's licensing regulations may impose its own duties on a design professional when it comes to shop drawing review that will not be controlled by the design professional's agreement. Thus, the AIA A201 General Conditions' shop drawing and submittal sections essentially create a warranty by the contractor as to the adequacy of the delegated design, while the architect may rely upon the delegated design without responsibility for its adequacy.

Delegated design is recognized by section 3.12.10 of the 2007 AIA General Conditions, as did the 1997 version, by setting forth a procedure whereby the owner can require the contractor to provide design services, albeit subject to certain requirements. Section 3.12.10 provides:

The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or

³¹ See § 8.01[F]. Liability Arising from the Failure to Adequately Review Shop Drawings.

³² *Supra*, AIA General Conditions of the Contract for Construction § 3.12.10 (2007 ed.).

³³ AIA General Conditions of the Contract for Construction § 3.12.6 (2007 ed.).

³⁴ AIA Standard Form of Agreement Between Owner and Architect § 3.6.4.2 (2007 ed.).

unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required by the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

Perhaps the most potent requirement of section 3.12.10 is to require the contractor providing design services to cause such services to be provided by a "properly licensed design professional," and to make it clear that the owner and architect may rely upon such designs. Section 3.12.10 requires that, so long as its many requirements are met, design responsibility for parts of the project may be delegated. With respect to shop drawings it specifically requires that the shop drawings submitted by a contractor be provided by a properly licensed design professional, whose signature and seal appear on all shop drawings submitted by such professional. If the owner and architect provide all performance and design criteria that the services must satisfy, the owner and architect are entitled to rely upon the shop drawings submitted by the design professional, and the architect's review of the shop drawings is merely to check for conformance with the information provided and the design concept in the contract documents.

The ConsensusDOCS Standard Form of Agreement Between Contractor and Subcontractor contains a similar section to the AIA document, as it contains a section entitled, "Design Delegation," and expressly deals with the increased design responsibility of a subcontractor. Article 3.8 states:

If the Subcontract Documents (1) specifically require the Subcontractor to procure design services and (2) specify all design and performance criteria, the Subcontractor shall provide those design services necessary to satisfactorily

complete the Subcontract Work. Design services provided by the Subcontractor shall be procured from licensed design professionals retained by the Subcontractor as permitted by the law of the place where the Project is located (the Designer). The Designer's signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by the Designer. Shop Drawings and other submittals related to the Subcontract Work designed or certified by the Designer, if prepared by others, shall bear the Subcontractor's and the Designer's written approvals when submitted to the Contractor. The Contractor shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by the Designer.

Thus, the ConsensusDOCS contain several similar requirements as the AIA General Conditions. Similar to AIA General Conditions section 3.12.10, ConsensusDOCS article 3.8 requires the subcontractor to use licensed design professionals and that the design professional's signature and seal appear on all drawings and other submittals prepared by the design professional. The ConsensusDOCS also contain what may constitute a warranty by the subcontractor to the contractor to the extent it expressly states that the contractor shall be entitled to rely upon the adequacy, accuracy, and completeness of the services performed by the subcontractor's design professional, and the subcontractor, "shall be responsible for conformance of its design with the information given and the design concept addressed in the Subcontract Documents." However, these warranties do not hold the subcontractor responsible for the adequacy of the performance or design criteria required by the subcontract documents.

Article 3.8.2 of the ConsensusDOCS even goes a step further than the AIA General Conditions by prohibiting the subcontractor from agreeing to any limitation of liability with the design professional it uses except to the extent consequential damages are waived pursuant to the contractor-subcontractor agreement. Article 3.8.2 also requires the subcontractor to ensure that any design professional it uses carries the proper level of professional liability insurance.

Similar to industry form contracts, the federal procurement process imposes the bulk of shop drawing responsibility in a delegated design project upon the contractor, and exculpates the government for approving shop drawings and submittals that are wrong. The Federal Acquisition Regulations (FAR) governing shop drawings require the contractor to review and approve all shop drawings for accuracy, completeness, and compliance with the contract documents before submitting them to the government. Similar to the AIA shop drawing provision, the FAR shop drawing provision provides that the government's approval of shop drawings does not relieve the contractor from responsibility for any errors or omissions in the shop drawings, nor from complying with the contract requirements.³⁵ By way of example, in *Fleming Steel Co. v. W.M. Scklosser Co.*,³⁶ the

³⁵ 48 C.F.R. § 52.236-21(e).

³⁶ 2006 U.S. Dist. LEXIS 49295 (W.D. Pa. 2006).

Navy entered into a contract with a contractor to supply the Navy an aircraft acoustical enclosure. Aircraft acoustical enclosures are used to enclose aircraft to minimise noise during high power engine tests. The contractor subsequently entered into a contract with a supplier for the construction of the enclosure's sliding doors. The Navy inspected samples of the sliding doors provided by the supplier, and with certain exceptions, found that they complied with the contract documents, and advised the contractor in writing that the Navy found them acceptable. The Navy, in a subsequent inspection, had a change of heart and determined that the sliding doors did not meet the project's specifications. As a result, the contractor terminated the supplier's contract asserting the supplier's failure to fabricate portions of the doors in compliance with the contract. The supplier filed suit against the Contractor asserting that the Navy's inspection and approval of the sample doors revised the standard for the fabrication of doors, which relieved the supplier of its obligation to strictly comply with the contract specifications. Relying on the shop drawing provision of the FAR's, the court granted the contractor's motion for summary judgment. The court held that the FAR shop drawing provision has been construed broadly to include mockup or samples, and that the FAR shop drawing provision governed the sample doors inspected and approved by the Navy. The court went on to rely on the shop drawing FAR that states: "(e) . . . Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract . . ."³⁷ The court also relied on subsection (c) of the shop drawing FAR, which provides in part:

- (c) Government inspections and tests are for the sole benefit of the Government and do not —
...
(3) Constitute or imply acceptance; . . .
...
- (d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement.³⁸

As a result, the court held that, "government inspection or approval of a sample does not relieve a contractor of its duty to strictly comply with contract specifications."³⁹ Thus, even in the federal procurement process, the government's approval of a supplier's shop drawings or samples is not a defense to a failure by the supplier to comply with the project specifications.

Further, a contractor with design responsibility that cannot demonstrate compliance with the performance criteria through its shop drawings together with its inability to provide adequate assurances that it will comply after inquiries

³⁷ 48 C.F.R. § 52.236-21.

³⁸ 48 C.F.R. § 52.246-12.

³⁹ *Fleming Steel Co. v. W.M. Sklosser Co.*, 2006 U.S. Dist. LEXIS 49295, at *35 (W.D. Pa. 2006).

regarding its design, may be terminated before performance is completed. In *Universal Shelters of America, Inc. v. United States*,⁴⁰ Universal Shelters was selected by the U.S. Navy to design and build four reusable containment units that would be installed on top of a decommissioned Navy ship during its dismantling to provide weather protection. The units were required to withstand winds in excess of 80 mph. While the first containment units were being assembled and installed on a ship and the adjoining dock, 18 to 20 mph winds severely damaged both units. The Navy rejected Universal's recommended measures to improve the unit's pre-assembly integrity, terminated Universal for cause, and assessed termination costs to Universal. The Navy's contracting officer cited the containment unit's failure to withstand winds of 18 to 20 mph in light of the requirement to withstand 80 mph winds. The contracting officer concluded that contract specifications were not met, and that Universal's cure response failed to provide assurances it could meet them. Universal filed a claim seeking to have its termination for cause converted into one for convenience, and alleged improper termination and substantial compliance with contract specifications.

At trial, the court of claims did not focus on the failure of the containment units during assembly and installation, but focused on Universal's failure to submit engineering calculations demonstrating that the containment units were designed to withstand the requisite 80 mile per hour winds, as a termination for cause may be sustained on any ground existing at the time of termination, even one not then known to the contracting officer. A government expert persuasively testified that the engineering calculations which Universal submitted to the Navy failed to demonstrate compliance with the wind loading requirement. As a result, the court found that the termination for cause was justified because of Universal's failure to document, through engineering calculations, the compliance of its design with the Navy's specifications. Thus, even though the design and assembly of the containment units were still incomplete at the time of termination, the inability of Universal to provide adequate assurances that its design met the Navy's specifications was a basis to sustain the termination for cause.

[C] State Regulation of Delegated Design Responsibility

There are inconsistencies between how current industry form contracts handle responsibility for shop drawings and most states' design professional licensing regulations. As discussed above, design professionals in the AIA, ECJDC and ConsensusDOCS form contracts limit their responsibility in reviewing shop drawings to verifying conformance with the design concepts, without agreeing to ensure that the shop drawings design the project in a manner that is structurally sound or simply designed correctly. Yet, as demonstrated by *Hyatt* case, most jurisdictions do not permit design professionals to entirely delegate

⁴⁰ 87 Fed. Cl. 127, 2009 U.S. Claims LEXIS 115 (U.S. Fed. Cl. 2009).

responsibility for project design. Many jurisdictions hold a design professional responsible for all design documents prepared for a project within the design professional's scope of design. Thus, although a design profession contractually may not be obligated to review a subcontractor's or supplier's designs to ensure accuracy and completeness of dimensions, quantities and installation or performance of equipment or systems, most states' design professional regulations hold the design professional responsible for ensuring precisely that.⁴¹

For example, since 1996, New York State's Office of the Professions has permitted a design professional to delegate certain responsibilities to others, such as fabricators, manufacturers of system components, or product manufacturers. This regulation permits a principal design professional to rely upon the fabricator or manufacturer to design building systems or products without breaching the rules of professional conduct. New York requires that the design professional to whom the design has been delegated (the "delegatee") to sign and certify his or her design. Indeed, the New York state regulations specifically state that unprofessional conduct shall not be construed to include participation as a delegator, or as a delegatee in accepting delegation, through an intermediate entity not authorized to provide professional design services.⁴² This provision permits a manufacturer or supplier if a building system or component to delegate shop drawing preparation to a licensed design professional. However, despite this recognition of delegation and the requirement that the delegatee certify the design, the principal design professional is still required to "review and approve" the submission and verify that the delegated component or system design conforms to the performance specifications or to the overall project design, and that it can be integrated into the building system. Certifying drawings by affixing the design professional's signature and seal for on designs not performed by, or thoroughly reviewed by, that design professional (with certain exceptions), can be deemed unprofessional conduct. In addition, the New York regulations not only keep the delegating design professional on the hook, but also expressly state that the delegatee design professional also be professionally responsible for the delegated design work and sign and certify his or her work.

As an example of how California handles delegated design, California's Administrative Code dealing with the construction of public schools specifies how delegated design drawings shall be handled. These rules require all plans and specifications submitted for approval bear the manual signature of the architect or professional engineer in general responsible change of design. When responsibility for a portion of the work has been delegated, the plans and specifications covering that portion of design also shall bear the manual signature of the responsible professional engineer or architect. Indeed, the California Administrative Code permits an architect or engineer to delegate responsibility for any portion of the work to other architects or engineers, but makes it abundantly clear that no

⁴¹ *New York State, Inc. v. New York State Educ. Dep't*, 175 Misc. 2d 922, 670 N.Y.S.2d 697 (Sup. Ct. 1997) (discussing design delegation).

⁴² Title 8, ch. I, part 29.3(b)(2). (New York State Rules of the Board of Regents).

delegation shall be construed as relieving the responsible architect or engineer of his or her duties and professional responsibilities.⁴³

Florida's Administrative Code also recognizes that design professionals often will delegate design responsibility. It specifically defines the term "Delegated Engineer." Florida expressly permits the engineer of record to delegate responsibility for the design of a system or component part of a structure to a qualified engineer. The code requires that both the engineer of record and the delegatee engineer comply with the Florida general responsibility rules, and requires the engineer of record to review the documents prepared by the delegatee engineer for compliance with the engineering requirements.⁴⁴ However, in Florida, shop drawings are not to be signed and sealed by a professional engineer.

Missouri identifies the duties of a "specialty engineer," which is an engineer that does not have a direct contractual relationship with the corresponding engineer of record, such as a subcontractor's or supplier's engineer. In instances in which specialty engineers are used, the specialty engineer is required to seal and sign documents and drawings he or she prepares, and the engineer of record is required to review them and confirm in writing that they conform to the project requirements. The engineer of record is not required to independently sign and seal the specialty engineer's work product.⁴⁵

Accordingly, most state's design professional regulatory schemes recognize and permit design professionals to delegate design to other properly licensed professionals. The states are consistent in requiring the delegating design professional to review the delegatee design professional's work product, which implies the responsibility for the delegatee's work product if it is wrong. The states, however, differ in the requirements imposed upon the delegating design professional to actually sign and seal the delegatee's work product, thereby accepting it as the equivalent of their own work product.

§ 8.03 CONCLUSION

There can be no argument that design by way of shop drawing preparation by fabricators, subcontractors, and suppliers of building systems and components is a common and, in most cases, a valuable practice. This delegated or shared design can provide a means to enhance the quality and integrity of a project by involving in the design process, the parties with the most experience with the specific building component or system. Fabricators, subcontractors, and suppliers prepare the shop drawing that provide the necessary detail (that are not included in the architectural drawings) necessary to construct a building. Indeed, design at the shop drawing stage is often prepared by licensed design professionals with specific experience with the systems and components that they are detailing.

⁴³ Cal. Admin. Code Title 21, § 16.

⁴⁴ Fla. Title 61, ch. 61g15.

⁴⁵ 20 Mo. Code of State Reg. 2030-21.020.

However, both industry form contracts and state regulatory schemes need to do a better job of addressing shop drawings in a true delegated or shared design project delivery system. The ConsensusDocs have taken a large step in this direction by addressing the issues that arise when several parties provide input to a single set of shop drawings. The current AIA form contracts, while recognizing shared input into the shop drawing process, continue to adhere to structure whereby the supplier or subcontractor provide the shop drawings to the contractor, who has the responsibility to review and approve them before submitting them to the architect, with what probably amounts to a warranty that they accurately reflect what is required by the contract documents; while the architect reviews them merely for the limited purpose of noting compliance with general design concepts. At least the AIA form contracts require that any aspect of a contractor's work that involves design work must be performed by a licensed design professional.⁴⁶ But this still does not require the principal design professional to review and "approve" shop drawings, as the architect's review of shop drawings is "only for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents."⁴⁷

State regulatory provisions have, of late, attempted to recognize delegated or shared design practices. Although these attempts are inconsistent and fail to recognize and realistically account for the many layers of design input and design review that may occur during the shop drawing process for a single building component, they are consistent in hold the principal design professional ultimately responsible for the design, even if delegated. A situation in which one engineer has assumed that a fabricator or supplier to whom design has been delegated has correctly performed its design is unacceptable. No one wants a Hyatt walkway disaster again. Ensuring that the principal design professional bears ultimate responsibility, at least from a state regulatory standpoint, if not contractually, for the integrity of the design may be the only means to ensure that the design that is delegated is performed correctly and thoroughly.

⁴⁶ AIA General Conditions of the Contract for Construction (2007 ed.), § 3.12.10.

⁴⁷ AIA B101, Standard Form of Agreement Between Owner and Architect (2007 ed.), § 3.6.4.2.