The Structural Engineer's Risks During the Construction Phase of a Project

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The majority of design errors that result in claims against structural engineers are detected, analyzed and resolved during the construction phase of the project. In addition to the risk of a failure due to a deficient design, there is the potential for the construction contractor to suffer economic losses because of the error, and finally, the ever present risk of personal injury or property damage claims that can and do expose the design professional to significant potential liability. As with all other aspects of a structural engineers' engagement on a project, your duties, rights, and responsibilities will be defined by your agreement with your client. In most circumstances, the structural engineer functions as a subconsultant to an architect or lead designer who is either in contractual privity with the owner on a design-bid-build arrangement or with the constructor on a design-build project. Your client's and your client's client expectations regarding the scope of services provided may vary under the two procurement models. Your risks during the construction phase, however, remain essentially the same.

The Claims

Claims for economic losses typically originate with the contractor alleging a defect in design has somehow caused him to expend more money than would have been the case without the defect. Under a design-bid-build procurement model, the so-called Spearin Doctrine provides that if a contractor is bound to explicitly follow the drawings and specifications, and doing so does not result in a satisfactory product or result, then the owner must reimburse the contractor for its additional costs to obtain the satisfactory results. Faced with a claim from its contractor, the owner will often turn to its designer and seek indemnification for any loss it incurs because of the design defect. The owner's rationale for this demand for indemnification is a simple one: "but-for the error in your contract documents, I would not have incurred this cost; accordingly, you should reimburse me for that additional payment to my contractor."

Unlike the owner's Spearin obligation to the contractor, however, the designer does not – under normal circumstances – owe the owner perfect plans and specifications. Rather, the designer is expected to perform its services including the development of drawings and specifications using reasonable care, a standard that allows for certain errors under certain circumstances. Similarly, in nearly all jurisdictions the owner will not be able to recover from its design professional for the cost of items omitted from the design documents. This so-called rule of betterments or added value recognizes that if the omitted item had been included in the original design, then the owner would have paid for it as a part of the contractor's bid. The rule seeks to preclude the owner from being put in a better position than it would have been in the absence of the omission from the contract documents.

Personal injury and property damage claims can come from anyone who has been hurt or damaged as a result of your services. These claims against structural engineers are often the result of very attenuated contacts with the actual event that gave rise to the injury. They are often also accompanied by unwelcome and potentially harmful publicity. Personal injury and property damage claims are more difficult to defend than purely economic claims. No one expects a crane to fall on their building. No one expects that a worker should get hurt on the job or that a passer-by should be injured while minding his or her own business in the vicinity of a construction project. Conventional wisdom holds that juries in these types of litigation are more interested in compensating the injured than protecting the rights of the design professional.

The Services Giving Rise to Claims

The structural engineer provides three essential services during the construction administration phase of the project that may give rise to claims for defective service.

The structural engineer reviews and acts upon shop drawings that represent the "fleshing out" of the design. Here, the contractor has been allowed a degree of flexibility to select products or means and methods that it believes it can most efficiently and effectively incorporate into the project. Shop drawings are also required for delegated design aspects of the project such as curtain wall connections, where the contract documents require the contractor to retain its own professional engineer to design some certain aspect of the project. In the former case, the structural engineer's role is to review for compliance with the intent of the design and ensure the owner that if the contractor complies with the details provided in the shop drawings then that element of the project will be satisfactory. With delegated design, the structural engineer can rely on the contractor's selected professional engineer's seal as evidence that the design complies with the criteria provided by the structural engineer. Delays in the review of, or contractor dissatisfaction with, the substance of the review can result in an economic claim. Allowing a product or techniques that the owner later finds unsatisfactory can also result in a claim.

Requests For Information ("RFIs") are the contractor's opportunity to seek clarification or ask questions about specific aspects of the contract documents. When properly administered and executed, the RFI process allows inconsistencies and conflicts in the drawings and specifications to be detected and corrected prior to encountering the problem during construction. Unfortunately, some contractors seem to make a game of the RFI process with the aim of discrediting the design in order to bolster a Spearin type claim against the owner.

Finally, the structural engineer will visit the project during construction and make observations at critical times during the execution of construction. The purpose of these observations is to confirm that the contractor has properly interpreted the design, that the designer's assumptions were reasonable, and to generally guard against defects that might negatively impact the final constructed structure. Both contractor and owner often seem to believe that this service is meant to be more comprehensive.

Practice Tips

The most powerful tool you have available to manage risks during the construction phase of the project is a well drafted contract containing certain, clearly articulated, provisions. Of primary importance is the acknowledgement that you will perform your services in accordance with the professional standard of care. Notwithstanding any puffery or bravado that may have accompanied your marketing efforts to secure the engagement, do not agree to anything other than the applicable standard of care. Any promises or warranties that the completed project will perform in accordance with a certain criteria or that the owner will be satisfied with the final project should be scrubbed from the agreement as they can be construed as your acceptance of heightened standard of care.

Indemnities are an important topic in the design and construction industry, and will be treated in depth in a future article. You will undoubtly be expected to indemnify your client and the owner for any losses they incur as a result of your negligence. You should avoid broad form indemnifications where you agree to indemnify your client and owner for "any and all claims arising out of the project or services". You should also expect to enjoy the benefit of an indemnification by the construction contractor for losses you incur as a result of personal injury or property damages that occurred during construction.

A limitation of liability provision, often difficult to negotiate into a contract and prohibited on most publicly procured projects, can, if properly drafted, save your firm from ruin in the face of catastrophic claim. If a limitation of liability is unacceptable to your client, then consider provisions that limit the types of damages for which they may recover. A waiver of consequential damages, for example, can eliminate your liability for lost profits or lost revenues associated with an otherwise meritorious claim against you.

You should also carefully analyze the general conditions of the owner's contract with its construction contractor. Assure yourself that the construction phase services the owner is telling the contractor to expect is consistent with what you have contracted with the owner to perform. Obviously, this pertains to both scope of services items and delegated design items, as well as your authority on the project and time within which you will respond to contractor submittals and RFIs. This analysis is greatly simplified if the owner is using standard form documents such as AIA, CASE or EJCDC, where terminology and allocation of duties are carefully coordinated.

With respect to RFIs, your best defense against a contractor attempting to position itself for a delay claim arising out of a defective design allegation is to answer the RFIs quickly and carefully by pointing back to the drawings and specifications where the information is already available. Advise the owner only after you have established a pattern of apparent abuse of the process. Correcting the contractor's abusive behavior will take a joint owner/designer effort. That additional effort on your part should not go unnoticed by your client.

Responding to RFIs or shop drawings that expose an error in your design can be the most challenging. While your natural tendency may be to try and mitigate the consequences without admitting the error, this can backfire. The facts and circumstances of the error will dictate the appropriate response, but the seriousness of that response should never be underestimated. The reputation of your firm can be made or lost based upon how you respond to your own errors. Your client should expect certain errors in your work product; they will also expect a professional response and correction of those errors. The person taking the lead in acknowledging the error and formulating the response should be someone with management authority who has the power and ability to muster the resources required to formulate the response and to bind the firm to any agreements reached.

Your observations during the course of construction are meant to be for your and your client's benefit. It is an opportunity to confirm design assumptions and assure yourself that the work is properly progressing. It is also an opportunity to fulfill your duty to your client to endeavor to guard against potential defects in the finished product. It is not for the benefit of the contactor, and you are not there to inspect or approve his partially completed work. You should compile a series of site observation reports documenting each site visit and attesting to construction progress and elements of the partially completed project that were witnessed. In the event you notice a safety concern during one of these site visits, call it to the attention of the contractor's superintendant immediately. While you have no power to correct the situation, you should not ignore or fail to warn of a situation where you could prevent injury or damage. In some cases, written follow-up of that safety concern is appropriate.

A final word is about relationships. The industry is notoriously litigious. Contractors are taking on work with very slim profit margins, and simply cannot afford to allow a project to go bad. Owners, particularly pubic owners, are being called upon to manage their budgets more tightly and hold their designers and contractors accountable. Designers are being driven by competition to provide and perform their services more efficiently with leaner staffs then ever before. Despite this economic pressure, you generally do not sue your friends. Developing an honest and sincere relationship with your counterparts on the project, and being able to discuss disagreements in a professional manner may be the most effective claims and mitigation strategy you can employ.▪

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