



New Business Models, Technology Raise Professional Liability Risks for Contractors

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The construction industry is being reshaped by two major trends - contractors are taking on an expanded role in project design as well as embracing digital technology for both project modeling and daily operations. Both of these trends significantly increase the liability exposures contractors face.

On the design side, it has become the norm for projects to encompass far more than just building to plan. Many contractors now provide architectural and engineering services; act as consultants in the design phase; manage project construction; and collaborate with designers and owners using nonstandard project delivery methods.

At the same time, contractors are increasingly using sophisticated software tools such as building information modeling systems and laser scanning to expedite project delivery. Technology also plays a greater role in daily operations as contractors handle and store a wide range of confidential and personal information; from valuable building plans to financial and employee data.

New business models, new ways of working and new technology bring a wider range of risks. Previously, general contractors had little to no professional liability exposure. That's not the case today. Contractors' exposures have evolved from standard commercial general liability (CGL), auto liability and builder's risk to include exposures linked to design and management of work along with cyber exposures arising from modeling software and the confidential project, customer and employee data they store on their own or remote networks or with a "cloud" provider. (See cloud sidebar on next page)

To protect themselves, contractors need to recognize existing, as well as evolving professional liability risks they face and

ensure their various coverages address those exposures. By working with a carrier that has a deep understanding of the construction industry, professional liability and cyber risks, contractors can ensure that their risk management strategy keeps pace with the evolving industry.

Increasing Project Efficiency Through New Delivery Models

While project architecture/engineering and construction traditionally have been performed in separate silos, contractors are taking on more design work and providing professional advice in an effort to increase project efficiency and profitability. This trend began first under design-build contracts; then encompassed construction management models as well as design assist. Now it is increasingly a part of integrated project delivery systems.

Under the design-bid-build process that has long been the industry standard, a project is designed by the architects under a separate contract with the owner, and then put out to bid for the construction phase.

In contrast, the design-build process combines architectural, design and construction services under one contract¹ to streamline and expedite project delivery. The use of design-build contracts has risen significantly over the past decade, according to the Design-Build Institute of America.² Design-build delivery, which accounted for about 29 percent of the non-residential market in 2005, has held steady around 40 percent for the last few years. The institute estimated in 2014 that more than half of non-residential projects over \$10 million were being performed under design-build delivery.³

While the design-build process can reduce costs, contractors should beware of the potential liabilities they may assume by taking on design elements. An example of this is the collapse of a parking garage at the Tropicana Hotel and Casino in Atlantic City, New Jersey. The design-build contract contained elements of professional services that became the focus of the claim investigation and subsequent lawsuit. The accident, in which four men were killed and about two dozen were injured, resulted in a \$101 million settlement.⁴

In addition to design-build contracts, another significant trend is the use of two construction management delivery systems, under which contractors are paid for their professional advice on various phases of a project. The construction management at risk (CMar) delivery system is similar to design-build, but in addition to subcontracting the construction work, the construction manager provides advisory services to the owner during the planning and design phases.⁵ Under the agency construction management process (CM Agency) the construction manager advises the owner on its management, over the project life or for specific phases.⁶

Owners also have turned to integrated project delivery (IPD) systems, where a multi-party agreement is reached between the owner, the architect and designer and the general contractor who all work together as one team. The system, which has its roots in the lean manufacturing principles developed by Toyota,⁷ uses a collaborative process that involves the designers, general contractors and major subcontractors to make the project more efficient and to complete it more quickly. The responsibility and liability for project delivery are collectively managed and shared. (See Integrated Project Delivery sidebar on next page)

The Cloud: Providing Software and Services over the Internet

The “cloud” has become a buzzword in business, but it really just means data storage, software and services provided by third-party vendors over the Internet. The idea has been likened to getting electricity from a central power plant rather than generating it at home. For instance, email services hosted by Internet providers or portals are a form of cloud service. Cloud providers offer remote data storage so a business can rent space on a computer that they access over the Internet rather than having to buy one themselves and house it in their own offices. That’s known as infrastructure as a service. In addition to data storage and processing power, many business applications, such as payroll and customer relationship management software, now run remotely in the cloud rather than on on-site computers in what is often referred to as software as a service.

The use of integrated project delivery initially gained traction in the United States with healthcare projects on the West Coast, where timeliness was a major concern so that projects would not be overtaken by advancements in medical technology that could necessitate major design revisions. True IPD projects operate differently than traditional design-build and involve a project philosophy, including open communication and cultural alignment as well as a significant investment of time. Projects are also being undertaken under an “IPD light” or “IPD-ish” model in which some aspects of integrated project delivery are brought to bear in an effort to improve coordination, communication and collaboration among the major parties.

Insurance Coverage Evolves with the Industry

Within the construction industry, architects and engineers traditionally carried errors and omissions (E&O) insurance, a liability coverage that protects those individuals, architectural and engineering firms, as well as

companies that provide professional advice and services from third-party liability and negligence claims.

As contractors take on an expanded role that includes design, they also take on this professional liability exposure for the work they perform themselves and for work done on their behalf. By subcontracting design work, general contractors contractually become responsible for the liability associated with errors and omissions. For instance a mechanical subcontractor may provide some design work that could result in a professional risk that extends directly to the general contractor.

As liabilities have evolved for contractors, so too has professional insurance coverage. Over the years, two enhancements of professional coverage - known as indemnification and rectification - have been developed for contractors providing design-build. When a design error is discovered during construction, rectification provides first-party coverage for the redesign. By addressing professional errors as soon as they are discovered, the intent of rectification coverage is to prevent larger and more expensive claims later on.

Integrated Project Delivery Principles - Seeking Continuous Improvement

In construction, integrated product delivery (IPD) systems seek to apply the “lean” principles first developed in the auto industry to the design and building processes to make them more collaborative and efficient and to expedite project delivery. At the heart of lean systems are the goals of continuous improvement and the elimination of waste. To achieve those goals, IPD requires the involvement and collaboration of all participants from the earliest design phases through completion and facilities maintenance rather than limiting participation to a particular phase or portion of a project. This continual collaboration helps to eliminate waste and boost productivity throughout the project.

The lean manufacturing principles pioneered by Toyota Motor Corp. helped it become one of the world’s dominant automakers¹² and have since been applied in industries ranging from heavy equipment to high technology - and more recently, construction.

Indemnification, or contingent professional, is also a first-party coverage that acts similar to umbrella coverage for sub-consultants providing design or engineering services. If an architect or engineer makes a professional error, indemnification could provide coverage above the limits of the professional’s E&O policy. The trigger to the coverage is that the general contractor would have to make a claim against the architect or engineer and exhaust their limits. The indemnification coverage would then apply above the architect’s or engineer’s limits. This requires the general contractor to go through a formal claims process.

Contractors’ Growing Cyber Exposures

Besides the exposures arising from participating in design work, contractors face increasing professional liability risks tied to new project modeling technology as well as cyber exposures arising from the proprietary and confidential data they use or store, ranging from construction plans to customer data and personal information.

One key technology that continues to gain ground is building information modeling (BIM), which presents a sophisticated three-dimensional representation of a project. The global building information modeling market has been forecast to grow to \$8.6 billion in 2020 from \$2.6 billion in 2013.⁸ The software provides one overall model shared by the architects, designers, engineers and subcontractors - such as structural, electrical, mechanical, plumbing and fire protection - to coordinate the design and project delivery. Each of the various systems overlay one another, providing an effective method of clash detection, for instance, showing where plans indicate

that a water pipe would run through a solid column. No one party, however, can make changes to the overall model.

For owners and general contractors, the software offers a means to deliver projects with reduced claims and costs. More powerful versions of BIM continue to evolve, moving from 3D to 4D, which includes 3D plus time to 5D, which includes 3D plus material take-offs to XD which includes 3D plus others, such as facility management. As the model changes and moves beyond original intent, the question of liability also changes. Despite the capabilities of such systems, design errors can still occur, opening up a contractor to professional liability claims.

Because electronic systems contain building plans and project files, they also pose a cyber risk. Hackers have reportedly shown interest in building designs in recent years,⁹ and sophisticated malware that targets computer-aided design programs has been identified.¹⁰

For many companies, cyber crime is most likely to take the form of email phishing and spear-phishing. These attacks attempt to exploit human error to defraud the firm or to obtain login credentials to gain access to the network and the sensitive information it contains. Criminals also may seek to use social engineering techniques to coerce employees to make fund transfers to fraudulent accounts. Companies should not overlook other types of computer fraud attempts including the perennial problem of telephone toll fraud, which has been heightened by voice-over-internet phone systems (VOIP).

As contractors continue to adopt new onsite mobile technologies, such as tablets and smart phones, they should recognize that the loss or theft of even

one device can represent a serious security breach. These devices can contain significant amounts of sensitive data that may be more valuable than an individual employee realizes. Employees who use their own devices for work may download malware-infected third-party applications that search for sensitive information and create another risk for contractors. As one step in mitigating such risks, contractors should make sure that data is always encrypted during transit and that they can remotely wipe sensitive data from mobile devices.

Like other industries, contractors are also making use of cloud-based computer storage, software and services, and they should be aware of the risks. Those risks include contracts that favor the cloud service provider, particularly as it concerns liability limits; data security; loss of control over data transferred to the cloud; network outages; and regulatory compliance issues.

Reining in Cyber Risks

To begin to assess their cyber security, contractors need to identify the data that they use and store, determine where it is located, and evaluate how it is protected. Companies should also identify the person in the organization that bears ultimate responsibility for data security - a point that is too often overlooked. From there, contractors can apply three key principles of cyber security strategy: confidentiality, availability and integrity of information on in-house corporate or cloud networks.

To keep confidential data secure, access to sensitive project information should be strictly limited to those individuals whose jobs or tasks require such access. Segmenting networks to isolate confidential information from the rest



of the network can impede access by intruders from other, less-sensitive areas. The data itself should be ranked by sensitivity, for instance valuable proprietary and intellectual property data and personally identifiable information demand higher levels of protection.

The availability of a network is always a priority. Contractors are beginning to use third-party vendors such as cloud software and data storage providers. If the cloud provider's service is interrupted, contractors may lose access to critical project data, which could bring a job to a halt. The data needs to not only be available, but also accurate, which makes ensuring data integrity a crucial concern, particularly for building design plans.

Contracts with technology vendors require careful scrutiny. Contractors should review and understand the contracts and service level agreements that outline responsibilities should an outage occur. In reviewing contracts, major areas of concern include data security standards, incident response, force majeure provisions, indemnification and data ownership.

When it comes to in-house data security, education is an effective defense. It's crucial that employees understand proper security measures, and that they are continuously trained on topics relevant to their role. All users should be able to identify suspicious emails. Managers should decide which individuals truly need access to specific project data and at what level of availability. Mobile access requires the same level of scrutiny. Not all employees need access to new project plans from their cell phones. Data access should be limited to those that need to know.

To develop an effective robust cyber security program, contractors should work with data security professionals as well as risk engineers at their insurance carrier.

Keeping Risk Management Current in an Evolving Industry

Like many industries, construction is undergoing rapid changes brought on by technology and competitive

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pressures that demand greater efficiency. Experienced professionals, who have long worked with more established methods, are having to make greater use of technology that may come more naturally to newer entrants in the field. Technology, however, is not only changing the way projects are delivered but also the risks.

Recognizing and addressing the professional liability risks for contractors in new delivery systems requires specialized expertise. For instance, architects and engineers traditionally carry lower professional liability limits that may not be adequate for the project. When contractors perform in-house design, they also take on the professional liability associated with that work. The exposures may vary depending on the type of work, from land surveying, to inspections and testing, project delivery methods.

When it comes to professional liability claims, timeliness in reporting is a crucial factor. Contractors that try to fix

a problem before making a claim under a professional liability policy should recognize that the claim may be denied if it's not made in required time period.

As they take on greater design responsibilities, contractors should work with their brokers and insurers to assess the extent of their professional liability risks. Those exposures may range from traditional errors and omissions linked to simple design, to more complex scenarios involving directors and officers liabilities to cyber exposures and data breaches, which can be highly expensive. The average cost of a data breach has risen to \$3.79 million for companies participating in a widely followed survey, up 23 percent in just two years, the Ponemon Institute estimated in its "2015 Cost of a Data Breach Study."¹¹

Because of the growing cyber risks, contractors should make sure that their insurance coverage responds to the costs associated with data breaches, digital asset loss, and business interruption associated with a technology incident.

Companies should consider cyber extortion coverage for cases where a criminal threatens to shut down the corporate network, delete data or release private information. Contractors may also want to consider coverage that addresses fraudulent business fund transfers.

Construction is a specialized, highly competitive industry. As they assess their risk management strategy for their evolving exposures, contractors should seek to work with a carrier that has expertise in the construction industry and is experienced in working with professional liability and cyber risks. The construction industry is experiencing major changes as it adopts new project delivery systems and new technology. Amid these changes, contractors need to adapt their risk management strategies to keep pace.

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