**Construction and Design Law: Managing the Network of Interdependent Relationships**

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**Lesson 2: The Industry Environment: Roles and Perspectives, Project Delivery Systems, and Other Common Contractual Arrangements**

 This lesson introduces the context in which construction law operates, and then it discusses the most common roles and perspectives of distinct participants in the design and construction process. Finally, it explores the alternative project delivery systems and other contractual arrangements that commonly establish and organize legal relationships among those participants.

 Learning about construction law requires an appreciation of several key principles and issues that characterize the main relationships among industry participants, as well of the distinct, and sometimes competing or conflicting roles, perspectives, and objectives that normally define the circumstances of each construction industry participant. With that background, you can then begin to see how and why alternative contractual structures and practices have developed to define and govern the legal relationships involved. See Phillip L. Bruner & Patrick J. O’Connor, Jr., 1 *Bruner & O’Connor on Construction Law*, § 1:2 (Westlaw Aug. 2023).

**A. Industry context**

Universal Principles

 Several core principles characterize building design and construction practices. For purposes of legal and risk management, we can view these as universal principles—considerations relevant in practically every situation. From the perspective of a construction lawyer, these principles function as overriding themes that frame many legal aspects of design and construction. In turn, these principles give rise to basic issues that affect how industry participants structure and negotiate their legal relationships and that account for several of the most common design and construction problems and disputes.

 We begin with the most basic principle: context always matters. For example, distinct considerations apply to private projects and to public ones, as well as to different market segments, such as residential, commercial, industrial, and infrastructure. Similarly, the project owner’s specific objectives always matter. Does the owner plan to be a long-term user of the project, a short-term investor, a conduit for a public purpose, or something else entirely? How important are the project’s aesthetics? Does return on investment determine the project’s success, or is it the project’s performance on some other measure? Context, however, goes beyond the owner’s circumstances. What local characteristics affect the project (consider the local economy, demographics, geography, climate, weather patterns, risk of seismic activity, and much more). Also consider the competitive environment and financial circumstances affecting design professionals, builders, and specialty trades. Are community impacts significant? The list goes on.

 Secondly, relationships rule. Construction projects proceed over time and require multiple participants to engage in interconnected activities. Some actors have direct relationships, such as a lead design professional and an owner, a general contractor and an owner, and a general contractor and a direct subcontractor. Others are in indirect relationships, such as a subcontractor and the owner’s design professional, a supplier to a subcontractor and a general contractor, and a construction lender and a subcontractor. All these relationships require structure and management, which should be conceived and administered with great care rather than left to happenstance. No matter where on the spectrum between care and chaos these relationships exist, relational factors weigh heavily on the design and construction process. As already mentioned, construction projects involve a complex network of interdependent relationships. See Carl J. Circo, *A Case Study in Collaborative Technology and the Intentionally Relational Contract: Building Information Modeling and Construction Industry Contracts*, 67 Ark. L. Rev. 873, 886-97 (2014).

 Third, distinct, and often conflicting or competing, incentives drive each participant’s behavior. This usually means that we can expect that, in conducting operations and in reacting to developments during a construction process, each participant will generally behave in economically rational ways. How, for example, will the general contractor, a trade contractor, or a design professional react if its projected profit seems to be slipping away? Or what will the owner do when a developing scheduling problem threatens to delay final completion resulting in operational losses? What if the construction lender learns that payment disputes between the owner and the general contractor or between the general contractor and subcontractors and suppliers may lead to statutory lien claims against the project? In each of these instances, and when many other common problems develop, the affected parties instinctively tend to explore opportunities to shift risk to other participants. While economically rational behavior often manifests in financial terms, some instances may involve other values, such as when details of a residential project do not match the owner’s expectations or when a public controversy erupts concerning the project that may adversely affect a participant's reputation. In all these circumstances, each participant’s concerns can drive behavior in ways that may lead to claims, disputes, and deteriorating relationships.

 Another universal principle is that a project’s quality, schedule, and budget goals co-exist in considerable tension with one another. This characteristic typically manifests early in the conceptual design phase, and it continues to affect the project throughout the construction process. Quality objectives, whether expressed in terms of scope, function, aesthetics, or a combination of these, may require extending the timeline beyond the ideal schedule or increasing the proposed budget. Financial considerations may force compromises in quality or changes in the schedule. Meeting a tight schedule for final completion may require compromises in quality or budget or both. Quality, schedule, and budget may all be critically important, but as a practical matter, the project’s participants may find it infeasible to hit all three as initially planned.

Basic Issues

Closely connected to these universal principles are several issues, briefly introduced here, that routinely emerge and that construction lawyers must be prepared to address. Later lessons dive more deeply into each of them.

* Defining the project - Before any other meaningful steps in the process can begin, the owner must define the overall project. For this purpose, many owners will start with a general concept or set of objectives and then select an architect, engineer, construction manager, or other advisor to refine and ultimately to establish the project’s definition. Architects often refer to the initial concept as the owner’s program. An early version of the project definition may specify the basic function the owner has in mind for the project (for example, a multi-family housing project, an office building, a parking structure, infrastructure improvements, a manufacturing plant, or a sports complex) and include key details about the size, configuration, location, performance requirements, and other characteristics. Experienced and sophisticated owners may have sufficient in-house design expertise to define the project for preliminary planning purposes, perhaps with an emphasis on the project’s required functions. A public agency planning a project may follow established procedures and practices for defining a proposed project. Defining the project typically requires several steps that eventually produce narrative descriptions, drawings, and other work products sufficient to advance the process.
* Establishing scopes of work and services - As the logical next steps, with further assistance from design and construction professionals and based on the owner’s ongoing input, the project will move toward more a complete definition that establishes distinct activities to be undertake by specific participants. Common scopes include architectural and engineering design services, demolition and site work (such as clearing and grading), and detailed plans and specifications for every phase of the construction work, from foundations and structural and mechanical components to interior finishes and landscaping, and everything in between.
* Determining the pricing scheme - The participants eventually must establish pricing arrangements for all scopes of work and services. Will the owner agree to a lump sum price determined before construction commences, pure cost-based pricing, flexible pricing that evolves over the course of the project, with or without a procedure to establish a guaranteed maximum price, or will some other arrangement govern pricing? An especially experienced owner may develop its own pricing scheme. Alternatively, an owner who relies primarily on a design professional, construction manager, or other consultant to help define the project and to develop scopes of work and services will frequently also turn to that same advisor to establish the pricing mechanism. In some instances, a lump sum price may apply to some work and services while cost-based pricing applies to other aspects of the project.
* Identifying, allocating, and managing risks - The participants also must address a range of risks inherent in the design and construction process. Most of these risks relate to the project’s quality (however defined), budget, and schedule. Many of these risks are routine. For example: unforeseen circumstances may emerge as the project unfolds; adverse weather or supply chain problems may delay progress; ordinary design and construction activities may cause property damage, personal injury, or death; the owner or another participant may propose changes to plans and specifications; or a project participant may have difficulty performing as planned or may face unexpected financial problems. Other risks may be unique to the project or the circumstances of a participant. Perhaps the project will use new technology, or perhaps it presents unusual scheduling requirements or involves unique environmental conditions. To the extent the participants can anticipate these risks, they may allocate and manage them through contractual arrangements and other devices. Common risk allocation features include warranties, performance guarantees and performance testing, indemnities, procedures for dealing with unanticipated circumstances and resolving claims and disputes, insurance policies, surety bonds, and much more. The project participants must address all these basic issues, and others, primarily by structuring and negotiating specific contractual terms to govern their relationships.

**B. Roles and perspectives**

 Every construction project involves multiple participants and interconnected legal, business, and operational relationships. These relationships require skillful management. A project’s success, as well as the prospects for resolving claims and disputes, often depends on how well the participants and their legal counsel can manage the complex network of interdependent relationships.

 Contemporary construction involves many participants engaged in a highly collaborative process that traditionally takes place in an intensively competitive environment under circumstances of high risk and low certainty and over an extended duration. The universal principles and the basic issues discussed in Section A impact each participant in different ways. Appreciating why these differences are so important requires understanding the distinct role that each participant plays, as well as the highly individualized perspectives that each participant brings to the project. Construction lawyers must not only thoroughly comprehend their own client’s role and perspective, but they must also recognize those of other key participants. At a minimum, this means looking at the project from the circumstances of the owner, the design professionals, the general contractor or other project coordinator, subcontractors and suppliers, lenders and other funding sources, insurers, and sureties. See Carl J. Circo, *Contract Theory and Contract Practice: Allocating Design Responsibility in the Construction Industry*, 58 Fl. L. Rev. 561, 582-618 (2006). Depending on the specific project, the list of key participants and the considerations relevant to each may expand considerably. The following paragraphs begin the inquiry into roles and perspectives. Later lessons will further explore how the circumstances of different project participants impact the legal aspects of building design and construction in the context of the distinct issues those lessons address.

* Owners- Projects begin with, and derive from, the unique needs, plans, financial capacity, risk tolerance, and other characteristics of the project owner. In nearly every situation, these factors establish the parameters concerning the project’s quality, its budget, and its proposed schedule. Owners differ widely in their expectations for these three core considerations. Some owners can easily rank them. For example, unique and inalterable requirements for the project’s quality, perhaps expressed as its function or scope, may dictate budgetary and scheduling decisions. For other owners, the need to have a new facility in operation by a specific date may require a relatively flexible attitude toward budget and quality, or a fixed budget may require compromises in quality and schedule. A government or public entity planning a project often must adhere to explicit statutory and regulatory requirements and processes and, frequently, to political considerations. For nearly all owners, however, quality (however expressed), budget, and schedule, as well as concerns for avoiding surprises, are all important enough to require iterative and interactive adjustments to many decisions affecting the design and construction process.
* Design professionals - Project designers, whether serving in the lead role or in a supporting one, generally want a clear understanding of the nature and extent of the services they will provide. They also seek compensation arrangements that assure both reimbursement of the costs they incur and a reasonable profit. They may propose limits on their exposure to legal liability against potential claims relating to their services, and they will normally want to secure professional liability insurance commensurate with those liability risks. For professional and reputational reasons, many designers also want to retain some level of control over the project’s aesthetics. Other important considerations may relate to intellectual property rights, licensing requirements, and professional codes of conduct.
* Builders and other project coordinators - This category refers to any entity that undertakes overall responsibility for completing construction, including the role for which the industry commonly uses the term “general contractor” or “prime contractor.” It also can encompass other participants who contract with the owner to oversee the project, such as construction managers and project managers, who may or may not have contractual responsibility for meeting scope or quality specifications or for delivering the project on time or within budget. All these participants share some goals in common with design professionals. They want a clear understanding of their performance obligations (scope of work), they seek appropriate compensation to cover their costs and to protect their profit margins, they must consider licensing matters, and they often will seek limits on their legal liability. Builders, however, especially general contractors, differ from design professionals concerning at least one extremely important business perspective—they voluntarily assume significant risks, but they normally intend only to accept risks that are quantifiable and manageable, and they expect to be compensated in accordance with the risks they assume.
* Subcontractors and suppliers - Here, we consider specialty trades and those who supply systems, materials and equipment under contracts with a general contractor, a construction manager, or other subcontractors and suppliers. Because, like a general contractor, they undertake responsibility to perform construction work or construction services, subcontractors and suppliers have similar perspectives and objectives as does a general contractor, but they also have several additional objectives and some heightened concerns. First, because they undertake responsibility only for discrete aspects of the project, defining the scope of their work or services is especially critical Also, because they, unlike a general contractor, do not contract directly with the owner, they are even farther removed than is a general contractor from a relationship with the owner and with many other project participants. Typically, they must look to the general contractor for their compensation, as well for coordination with the owner, design professionals, and other subcontractors and suppliers. For all these reasons, they especially seek some form of payment security, perhaps based on state statutes affording them lien rights against the project or through surety bonds that back up the payment obligations of those with whom they contract.
* Lenders and other financial participants - Conventional construction lenders extend credit for profit. They do not seek to be investors or partners whose return on investment depends on the project’s success. They also understand that construction loans are generally riskier than many other lending arrangements. Among other reasons, this is because construction is infused with uncertainties that may interfere with the borrower’s ability to repay the loan fully and on time. Special construction lending risks include, to name a few, the potential for defective design or construction, the occurrence of delays that increase costs beyond the project’s budget, a key participant’s financial irresponsibility, adverse changes in market conditions, and the possibility that the project, even if completed according to the plans and specifications and on time and within budget, will simply not have sufficient value as collateral for repaying the debt. Furthermore, construction lenders know from experience that a troubled construction project typically gives rise to so many complex disputes among many participants that working out satisfactory settlements can be extremely difficult. For all these reasons, traditional construction loans tend to be made by financial institutions that have the in-house experience and staffing to assess all aspects of a proposed project, to monitor and administer the process of disbursing loan funds under careful procedures, and to assess the progress of construction in compliance with demanding terms of the loan agreement. Construction lenders may also require the borrower to provide collateral in addition to a mortgage on the project to secure repayment of the loan, and they may impose other requirements, such as guarantees from solvent principals in the borrowing entity. All these requirements aim to ensure completion of the project in accordance with the plans and specifications, on time, and within budget and full repayment of the loan at its maturity. Financing arrangements for some projects may involve structures far more complicated than a traditional construction loan. For example, financing may include subordinate lenders, equity investors, public financing, tax credit financing, or “project financing” that relies exclusively on anticipated revenue from the completed project to repay the construction debt or some part of it. See Sarah M. Armendariz & Gary A. Goodman, *Defensive Construction Lending: What a Lender Needs to Know Before Making a Construction Loan*, 40 Prac. Real Est. Law 19 (March 2024).
* Insurers - Project participants routinely secure insurance against many different risks. The owner and most participants who provide work or services should purchase commercial general liability insurance to cover risks of property damage, personal injury, death and other occurrences arising out of their activities. At least one participant, commonly the owner or the general contractor, should secure a builder’s risk policy, which is a special form of property insurance covering losses due to fire, natural disasters, and other casualties affecting the project during construction. Participants who provide professional services should insure against liability for malpractice and related professional responsibility. Many participants must provide workers’ compensation coverage, as well insurance covering against risks arising from the operation of motor vehicles and other equipment, sometimes including aircraft and watercraft. The insureds, as well as other project participants benefiting from these insurance policies, need to be aware of the policies’ dollar limits and their exclusions from coverage. In many larger projects, an insurer may require the insured to adhere to detailed safety and compliance programs. Industry contracts customarily incorporate comprehensive insurance provisions. See Patrick J. O’Connor, Jr., *How to Draft a Construction Contract Insurance Provision*, 8 J. Am. Coll. Constr. Laws. 4 (February 2014).
* Sureties - Many projects include requirements for surety bonds, which protect designated participants against loss attributable to contractual defaults by other participants. Construction projects regularly involve three types of surety bonds. Bid bonds provide financial protection to the owner when a bidder wrongfully fails to enter into a contract for the work in accordance with an accepted bid. A payment bond provides financial protection to those who perform work against the risk of payment defaults by those contractually obligated to pay for the work. A performance bond provides financial backing for the performance of the work covered by a construction contract (or subcontract). Payment and performance bonds typically name the owner as the primarily party protected (the “obligee” in suretyship terminology). They also usually name the construction lender as an additional protected party. Indeed, the construction lender may condition its agreement to finance the project on issuance of payment and performance bonds. Surety bonds may also name other participants as protected parties. In private projects the owner and the construction lender may insist on surety bonds, but they must recognize that the budget then must bear the substantial cost of the bonds. Additionally, especially strong subcontractors may negotiate for payment bonds. In public projects, statutes and regulations often require surety bonds. Sureties on construction projects will require the customer for whom they issue bonds to reimburse them for any amounts paid or incurred by the surety under the bond, thereby creating a creditor-debtor relationship with the customer. They also typically require security for that repayment obligation, which may take the form of collateral pledged to the surety and guarantees from the customer’s principal owners or investors. While both sureties and insurers provide important risk management products, they do so in legally distinct ways. Insurance policies are contracts of indemnity under which the insurer assumes risks covered by the policies they issue. Surety bonds commit the surety to back up an obligation of the surety’s customer, who remains the primary party liable for that obligation. See Phillip L. Bruner & Patrick J. O’Connor, Jr., 4A *Bruner & O’Connor on Construction Law*, § 12:1 (Westlaw Aug. 2023).
* And a host of others - Many projects involve other participants or constituencies. Investors may participate in a variety of ways, and they may require special attention. Long-term lenders often have some say because they provide the loans, known as take-out or permanent loans, that will refinance short-term construction financing at or soon after project completion. For some projects, an end-user, such as a purchaser or one or more major tenants, may be involved from the start or may become involved as the project moves toward completion. Public planning boards, zoning authorities, licensing agencies, and other regulatory bodies may also require attention. Finally, segments of the public or the public at large may have significant input or influence concerning some public projects or certain high-visibility projects. Construction lawyers may need to understand the roles and perspectives of all these additional parties just as they must understand those of the main project participants.

 Taken together, the considerations described to this point challenge participants in a construction project to structure contractual relationships that can effectively and efficiently organize and govern the network of relationships involved. The next section discusses project delivery systems. A final section then briefly mentions other organizational frameworks that the contracting parties may use.

**C. Project delivery systems**

 As a first step toward understanding the project delivery system concept, read Section 6:1 in volume 2A of *Bruner & O’Connor on Construction Law* (Westlaw Aug. 2023), by Phillip L. Bruner & Patrick J. O’Connor, Jr. As noted there, selecting a method for securing design and construction services can involve complex and important considerations, but owners sometimes choose a system without the benefit of a thorough and independent evaluation of the advantages and disadvantages of the available options.

 A project delivery system determines the overall organization of the relationships among participants in a construction project—who contracts with whom for what purposes. Just as the construction process requires detailed plans and specifications to define and direct the extensive array of interconnected activities required to deliver a project, it also requires comprehensive contractual arrangements for structuring, managing, and administering the interdependent relationships among the project’s participants. The term “project delivery system” refers to the alternative contractual arrangements the industry has developed for these purposes. Most commonly, these arrangements involve a series of distinct two-party contracts, with the owner contracting with one or more participants who fulfill key roles and who then contract with other participants who play more limited roles, many of whom contract with still others who perform even more limited roles. As a result, most project participants have no direct contracts with most other participants. What results, therefore, is a complex network of discrete but interdependent relationships governed by contract, tort, agency, and other distinct bodies of law.

 Project delivery systems are dynamic devices because industry practices constantly evolve. Additionally, the terminology and concepts involved in specific systems are often used inconsistently within the industry, and they vary over time and from one segment of the industry to another. Moreover, contracting parties sometimes agree to alter features of recognized systems in significant ways or to blend characteristics of different systems. See Barry J. Miller, Jonathon Korinko, & Robynne Thaxton, *Managing Design Professional Consultants: Methods, Challenges, and Potential Liabilities*, 41 Constr. Law. 13 (Summer 2022).

 Because no definitive classification of project delivery systems exists, the following discussion merely recounts one relatively standard version of the primary alternatives. Construction lawyers must not only learn the most common categories and the specialized language of project delivery systems, but they also must be prepared to adapt as recognized schemes progress and evolve. Later lessons will explore selected contractual provisions and legal issues concerning some of the most common systems.

* The traditional system - For decades, the U.S. construction industry favored a sequential system that clearly separates the design and construction services and phases. The customary phrase “design-bid-build” (abbreviated as D-B-B) labels the three sequences involved. Equivalent labels are “design-award-build” and “design-bid-construct.” The first step requires the owner to retain a design professional to prepare theoretically complete plans and specifications for the project. Next, the owner, typically with the designer’s assistance, submits those plans and specifications to the builder community for competitive bidding. Finally, the owner selects the successful bidder and enters into a comprehensive contract with that firm to construct the project, probably for a lump sum price and a definite completion date. See Phillip L. Bruner & Patrick J. O’Connor, Jr., 2A *Bruner & O’Connor on Construction Law*, § 6:2 (Westlaw Aug. 2023).

“Design-bid-build” or “design-award-build” are especially apt phrases to describe a project in which the owner first seeks competitive bids from general building contractors (firms that will oversee all the construction work) and then awards the construction contract to the lowest responsive and responsible bidder. This precise process is most common under procurement practices for public projects. In the private sector, because owners routinely provide the plans and specifications to general contractors who submit proposals that contemplate negotiations with the owner, a more accurate label for this system when used for private projects is “design-negotiate-build.”

However designated, the traditional system’s chief advantages concern the level of certainty it offers, at least in theory. The lead or project design professional maintains control over the complete design process, which yields relative certainty of scope and quality for the benefit of both the owner and the general contractor. Because the plans and specifications submitted to the general contractor constitute theoretically complete construction documents, the construction contract can establish a reliable lump sum price and fixed completion schedule. In practice, of course, after the owner and general contractor execute the construction contract, clarifications, corrections, changes to the plans and specifications, and unanticipated site conditions are common. As a result, both the design and the construction contracts must include provisions anticipating those probabilities. Because the owner, the project designer, and the general contractor will typically have competing financial incentives when confronted with these inevitable developments, claims and disputes often arise even under the most carefully crafted contracts.

The D-B-B system gave birth to the Spearin Doctrine (introduced in Lesson 1), by which the owner impliedly warrants to the general contractor the suitability of the design the owner furnishes. Interesting questions sometimes arise concerning whether or how the Spearin Doctrine should apply to alternative project delivery systems in which design and construction responsibilities are not so neatly separated.

* Design-build - One of the most common alternative project delivery systems combines the design and construction responsibilities. See Casey Halsey & William Quatman, *Design-Build Contracts: Revisited, 25 Years Later*, 34 Constr. Law. 5 (Spring 2014). In a design-build project, the owner hires a single firm both to design and to construct the project. The design-builder may be a joint venture between a design firm and construction company, or it may be a single firm that has in-house design and construction capabilities. This arrangement largely avoids disputes over whether to blame problems on poor design or defective construction, because the owner engages a single contracting party to deliver the project. Also, making a single firm responsible both to design and to build the project, allows for a more compact completion schedule because the design-builder can begin some early phases of construction activities while it continues to design later phases. Moreover, complications involving design intent and construction details that would stall a D-B-B project or give rise to disputes between the designer and the general contractor can instead be addressed more efficiently and collaboratively. Overall, the design-build system may yield significant cost savings and scheduling advantages.

The design-build alternative, however, has some disadvantages in comparison to the D-B-B system. For the owner, a chief concern centers around the absence of an independent representative who can provide advice about design choices and about the scheduling and cost implications of decisions a design-builder makes on its own. Also, while the design-build process can significantly accelerate the completion schedule and can reduce costs, these benefits come with corresponding disadvantages. The design-builder cannot provide meaningful assurances about the budget and the schedule until the total project design is far enough along, relatively late in the process. And even though the design-build system can eliminate conflicts between design and construction considerations, after the owner and the design-builder have agreed on the budget and the schedule, the conflicting financial incentives that motivate each of them may be even more difficult to address than those that arise between the owner and a general contractor in a D-B-B project.

* Engineering, procurement, and construction - In engineering-driven projects, such as industrial and manufacturing facilities and power or processing plants, a system comparable to design-build delivery is often designated as an engineering, procurement, and construction, or EPC, project. The distinguishing feature relates to the central role that the engineering firm plays in designing the project, procuring all essential equipment (which is often an especially critical aspect of both design and construction), and undertaking or at least supervising all construction activities.
* Multiple prime contracts - This system requires an owner having a high degree of design and construction expertise and experience. For design purposes, a sophisticated owner may either itself provide the basic project design or may contract separately for the design of the entire project or for discrete scopes of work (such as site preparation, foundations, structural, mechanical-electrical-plumbing, and finish). Then the owner will contract directly with each specialty firm for construction of a scope of work. While a casual characterization of this process may describe the owner as serving as its own general contractor, in fact, this system eliminates the general contractor role. For owners equipped to supervise construction, the multiple prime system can reduce costs significantly and accelerate the schedule, however for an ill-equipped owner, it can be disastrous.
* Construction manager as advisor - This role, often abbreviated as CMa, puts a construction consultant in an ongoing status as the owner’s advisor or representative throughout the entire design and construction process. The contract between the CMa and the owner may take many different forms, but its essential characteristics are that the CMa provides advice to the owner for a fee but does not assume contractual responsibility for completing the project in accordance with the plans and specifications or on time or within budget. In addition to advising or representing the owner on most design and construction matters, the construction manager may also take on many aspects of contract administration, such as overseeing the change order process, reviewing the progress of construction, participating in the claims procedures, and making recommendations to the owner concerning applications for periodic progress payments as work is completed. A CMa may undertake these administrative roles either along with, or in place of, the project design professional.
* Construction manager at risk - In this role, often referred to as CMc or CMAR, the owner engages the construction manager to provide advice during the design phase and to perform some of the same functions as a CMa provides. In addition, however, at an appropriate stage in the process, the CMc essentially also takes on the contractual responsibilities to assure that the project will be completed in accordance with the plans and specifications and on time and within budget. In this respect, the CMc role resembles that of a general contractor who provides pre-construction services before entering into a contract as builder. See Christopher E. Ng & John H. Conrad, *Is the Construction Manager Holding Any of the Cards: A Critical Look at Construction Management At Risk Today*, 32 Constr. Law. 29 (Fall 2012).
* Turnkey construction - In a turnkey project, the project’s intended end-user contracts to purchase the project from a builder when construction is complete. The arrangement, in effect, is a real estate sale contract for new construction in which the builder-seller may handle the complete process, including financing, with the closing or transfer of title scheduled at or around the time the construction is completed. Real estate developers may use the term “build to suit” to describe this approach. Typically, the purchaser will pay a deposit toward the purchase price when the parties sign the contract, but the purchaser will not compensate the builder-seller for the costs of design and construction as the work progresses. The contract will define the project, perhaps by incorporating complete plans and specifications or by setting performance standards, and it will establish conditions precedent to the purchaser’s obligation to pay the balance of the purchase price and to accept title. Among other things, those conditions precedent will relate to the project’s scope or definition and to matters of schedule and construction quality.
* Build-own-transfer and build-own-operate-transfer - Variations on the turnkey structure include arrangements in which the builder not only completes the project but continues to own it for some time or even owns and operates the project for an extended time. This arrangement can be especially useful for certain production facilities or infrastructure projects. The first variation, build-own-transfer, may simply require the builder to retain ownership, and therefore project risk, until the project satisfies certain performance requirements. In the second variation, build-own-operate-transfer, the builder is, in effect, an initial investor in a revenue-producing facility who secures a return on its investment by operating the project and collecting operating revenues until a designated future time when the ultimate user takes title. These project delivery systems may make public projects possible that would otherwise be financially impractical. Developing countries sometimes use a build-own-transfer or build-own-operate-transfer delivery system for construction of a toll road, a toll bridge, or a public utility plant.
* Integrated project delivery - In many respects, contracting practices in the construction industry have long been moving toward arrangements that are more collaborative than any of the project delivery systems discussed so far. This trend reflects good faith efforts within the industry to align the incentives of project participants more toward the best interests of the project rather than their individual and often conflicting financial interests. As discussed in the final section of this article, this movement includes some collaborative initiatives that may be best characterized as variations on established project delivery systems rather than as truly distinct systems. One exception, however, is the comprehensively collaborative approach known as integrated project delivery. A 2014 article summarizes the system.

 The latest, and potentially the most collaborative, alternative project delivery system is integrated project delivery (“IPD”). . . . As the name suggests, the central idea is to integrate the principal activities involved in the project so that fewer decisions are made by individual participants acting in isolation and influenced primarily by each participant's distinct economic and risk management motivations. IPD operates primarily by infusing the contract structure with powerful incentives to reward teamwork and to deter decisions made without reference to the best interests of the project.

 While different versions of IPD are evolving, several common devices generally appear in the contractual structure. First, rather than relying exclusively on a series of bilateral agreements, IPD calls for a multi-party umbrella contract to govern certain key arrangements and processes. At a minimum, an IPD contract includes the project owner, the lead design professional, and the prime contractor. Moreover, the structure generally allows for other key participants to join in the main agreement that establishes the overarching collaboration. IPD agreements also incorporate a highly structured team management approach that gives each of the major participants a meaningful voice in decisions that are likely to affect such important matters as the project scope and definition, cost, and schedule. . . . [A]ll contracting parties agree to share certain risks, losses, and savings, and they all agree to consistent liability limits concerning some of the most important liability exposures involved. IPD agreements also feature stepped dispute resolution processes intended to deter adversarial claims.

 In its most advanced form, an IPD agreement even establishes a true joint venture in which the contracting parties form a limited liability business organization, typically a limited liability company, to serve as a special purpose entity by which the participants collectively undertake responsibility for many aspects of the project that a traditional project delivery system would have allocated entirely or primarily to individual participants. Each participant, including the project owner, must still enter into distinct contracts for defined responsibilities, but those contracts will be with the LLC rather than with one of the other participants. As a result, the participants who are members of the LLC will be bound by decisions made in accordance with the entity's governing documents and, to the extent provided in the IPD documents, each participant will be insulated from liability to the LLC or other members with respect to certain common risks of design and construction.

Carl J. Circo, *A Case Study in Collaborative Technology and the Intentionally Relational Contract: Building Information Modeling and Construction Industry Contracts*, 67 Ark. L. Rev. 873, 905-07 (2014) (footnotes omitted).

 The industry employs, or has at time tested, several other organizational approaches in addition to those described in this section. Indeed, the possible variations are limited only by the imaginations of participants and their tolerances for experimentation. The concluding section of this lesson briefly mentions some devices that introduce significant variations on one or more project delivery concepts without establishing truly distinct or complete project delivery systems.

**D. Other common contractual arrangements**

 In addition to the relatively well-developed project delivery systems described above, over the past several decades, the industry has experimented with several other approaches that feature distinct, but somewhat limited, contractual innovations. This final section of Lesson 2 briefly notes a few of the more prominent concepts and arrangements.

* Fast tracking and phased construction - These terms refer to arrangements in which some construction activities on the project begin or even conclude while others remain under design. A design-build firm will often follow this pattern, but even a design-bid-build project can be divided into phases. Beginning any construction before the entire project has been fully designed creates the risk that later design decisions will require modifications to work that has already been undertaken or that construction of some parts of the project will impose limits on design options for later parts. A design-builder can often anticipate such risks and resolve them internally, whereas participants in other project delivery systems may struggle over conflicting interests. Often, for example, the owner’s interests and those of the owner’s design professional or other consultant concerning matters of scope, quality, and cost will run counter to the builder’s interest. Indeed, one criticism often made of the design-build system, with its built-in capacity for fast-tracking the project, is that once work on any part of the project has commenced, the design-builder, having ultimate control over the process, may make later design and construction decisions that serve the design-builder’s financial or other interests even if they conflict with the owner’s interests.
* Bridging - The industry uses this term in different ways in reference to a project in which a construction professional serves as an intermediary during the early stages of the process. See Casey Halsey & William Quatman, *Design-Build Contracts: Revisited, 25 Years Later*, 34 Constr. Law. 5, at 9 (Spring 2014). A bridging consultant may be a general contractor, a construction manager, or other construction industry firm that provides pre-construction services during the design process to address matters such as constructability assessments, value engineering, and scheduling advice to help the owner and the design team finalize the plans and specifications. While the bridging consultant may only be involved during the construction process in exchange for a fee for its time and services, the owner may have the consultant expressly or implicitly under consideration for serving in another capacity, such as being retained as the owner’s general contractor or construction manager for the project.
* Project management - A project manager contracts with the owner to assume responsibilities relating to a wider array of services than those a construction manager typically provides. A project manager may be involved with site acquisition, zoning and land use matters, arranging financing, working with prospective tenants, and may even handle certain operational matters after project completion.
* Partnering, alliancing, and lean construction - Partnering advocates believe they can foster efficiency and collaboration by bringing together a project’s main participants at a very early stage. This approach often begins with a team-building retreat. The participants may join in a written partnering statement, which may largely be aspirational rather than contractual, that focuses on opportunities and procedures designed to promote the overall interests of the project in ways that can also serve the collective benefit of all. While partnering has a distinct history in public contracting, private projects also sometimes use this approach, especially when the owners, designers, and builders involved hope to maintain ongoing relationships. Alliancing and lean construction, which adopt tactics first developed by the lean manufacturing movement, take teamwork a significant step beyond partnering through contractually binding arrangements under which the main project participants agree to share both opportunities for cost savings and the adverse consequences of cost overruns. See Barry J. Miller, Jonathon Korinko, & Robynne Thaxton, *Managing Design Professional Consultants: Methods, Challenges, and Potential Liabilities*, 41 Constr. Law. 13, at 13-15 (Summer 2022). The contracts may also provide for entrusting certain important matters affecting the project to collective decision-making processes. To a significant extent, the integrated project delivery system discussed in section C of this lesson emerged from partnering, alliancing, and lean construction practices.
* Public-private partnerships (P3s) - A public-private partnership serves primarily as an arrangement that allows governmental entities and agencies to pursue public projects that would otherwise be challenging or infeasible. The central idea of a P3 is “a partnership between public and private entities in which the private partner does at least one of the following: (1) participates in financing a project and/or (2) shares project risks and rewards during and beyond the construction phase.” Deborah Ballati & Richard Robinson, *Public-Private Partnerships: Lessons Learned and Predictions for the Future*, 34 Constr. Law. 27, at 27 (Fall 2014). A common example is an infrastructure project, such as a toll road, that a private investor-developer finances, in whole or in part, constructs, and then operates and maintains under a concession agreement projected to allow the private partner to recoup its costs, plus a targeted return on its investment. Depending on the authorizing legislation, P3s can be used for many other project types provided that the transaction structure ultimately compensates the investor-developer for its contribution. The compensation may, for example, derive from revenue generated by a public utility or rent that a governmental agency pays for use of a facility under a long-term lease. Public-private partnership contractual terms vary considerably according to the details of the enabling legislation and the characteristics of each project. Accordingly, a P3 designation does not contemplate defining contractual features to the same extent as the more specific project delivery systems discussed in Section C of this lesson, although P3 projects can take the form of the build-own-transfer and build-own-operate-transfer project delivery systems described in Section C.
* Building Information Modeling (BIM) - Using modeling software, project participants can design and construct a project virtually. BIM infuses plans and specifications with information-rich features that allow design professionals, general contractors, construction managers, trade contractors, suppliers, and manufacturers and other project participants extraordinary opportunities to work in highly collaborative and iterative ways. BIM users can test concepts and changes during the design phases, detect potential clashes before they become onsite problems, and use the software model in other previously unprecedented ways to improve efficiency and promote collaboration. Using BIM to its fullest potential for efficient, creative, and collaborative design and construction requires carefully crafted contractual terms to govern such matters as whether and how multiple participants should be able to use a single model, coordination among participants using different models for the same project, deciding whether or to what extent a model will have the status of a contract document, and much more. For these reasons, discussions of innovations in project delivery systems often address BIM protocols. Because any project delivery system may use BIM technology, however, BIM itself is not an alternative delivery system. See Carl J. Circo, *A Case Study in Collaborative Technology and the Intentionally Relational Contract: Building Information Modeling and Construction Industry Contracts*, 67 Ark. L. Rev. 873 (2014).
* Other variations - Industry participants and construction lawyers have developed, and will continue to develop, other contractual structures to establish and govern the relationships among project participants. For example, owners and their design professionals may delegate certain design responsibilities to the builder or to a specialty trade, provide for shared design responsibilities, or adopt a “progressive design-build” approach. See Richard Foltz Jr., *et al*., *Trends in Design Assist and Design Delegation*, 43 Constr. Law. 21 (Summer 2024). Later lessons will explore some of these other contractual structures in the context of distinct topics and issues relevant to construction law practice.

Additional reading

 With this overview as background, read *Opening Communication Lines: Evolving Project Delivery Methods to Promote Collaboration,* 38 Constr. Law. 14 (Spring 2018), by Justin L. Weisberg & Raymond M. Krauze. This article offers contemporary insights about the design-bid-build, design-build, construction management, and integrated project delivery systems. It also explores how building information modeling impacts project delivery systems.

 Students interested in a deeper understanding of the forces moving the construction industry toward more collaborative contractual structures may wish also to read *The Transformation of Project Delivery*, 34 Constr. Law. 35 (Fall 2014), by Howard W. Ashcraft Jr. The author analyzes the forces driving the construction industry to embrace collaborative approaches, explains the obstacles the industry faces in responding effectively to these forces, and explores the implications for the construction law practice of the future.

For Review and Discussion

1. What are some of the most important challenges that design professionals, builders, and industry consultants face in trying to achieve an owner’s goals for a project’s quality, budget, and schedule?
2. Based on the article by Weisberg and Krauze,
	1. If the Johnston defendant in the *Rivers v. Central Ill. Arena Mgmt. Inc.* case had been a construction manager at risk rather than a construction manager as agent, how might the “retained control exception” have applied?
	2. To what extent, if at all, should the Spearin Doctrine apply to any project delivery systems other than design-bid-build or to a project in which all the major participants contribute input to a building information model for the project?
	3. Should more states enact legislation enabling state agencies to use integrated project delivery for public projects?
3. On the Problems, Exercises, PowerPoints page of the Construction Law Ed. website, review the Project Delivery Planning Exercise. Based on your understanding of alternative project delivery systems, what considerations should guide the owner’s process of selecting the best system for each of the four projects described there?