



WATER DESIGN-BUILD COUNCIL
AN ASSOCIATION OF LEADING DESIGN BUILDERS

GUIDELINES FOR BEST PRACTICES

Allocating and Managing Risk

Every project entails risks, which change throughout the life of a project. Risk-management planning should begin as early as possible—during the capital improvement process—and revisited during procurement procedures, at the project inception, and periodically throughout to completion. At each stage of the review, the basic risk management steps are the same.

Compile a list of comprehensive and realistic risks.

For each risk:

- Assess the likelihood and severity of its potential adverse impact.
- Determine how any adverse impact can be managed—prevented, controlled, mitigated, or absorbed.
- Identify the party best able to manage the adverse impact and finance any measures required (this may also include a third party, such as an insurer).
- Allocate responsibility to that party.

These practices focus primarily on the early stages of a project—procurement and contracting—when the owner is best able to anticipate risks and allocate responsibility appropriately to minimize its risk-related costs. They identify steps in allocating or sharing the risks between the owner and design-builder or CMAR contractor, as well as establishing needed tools to manage the risks and potential liabilities. When completed, the contract terms should establish appropriate expectations, achieve a contract price that is fair and acceptable to both parties, and balance the allocation of risk to foster a productive relationship and a successful project.

Allocating Risk Between Contractor and Owner

In a design-build project, **the design-builder is typically in the best position** to control, and therefore assumes responsibility for, risks for the following aspects.

Design risk. With a point of accountability for both engineering and construction, the owner generally holds the design-builder responsible for design-related issues. This aspect is particularly true in instances where the design-builder is given considerable

latitude to design a system to meet them the owner's stated performance specifications. In contrast, procurement documents that contain detailed design requirements can shift risk away from the design-builder and onto the owner.

Building and administrative permits. The design-builder typically accepts responsibility for obtaining permits and governmental approvals.

Schedule. The design-builder usually assumes responsibility for completing the project on time and in accordance with contract specifications.

Costs. The design-builder guarantees the costs of meeting its contractual obligations. Apart from adjustments for increases in the price of materials or conditions over what was specified in the contract, design-builders accept the risk that their costs may exceed the guaranteed maximum price (progressive design-build) or fixed price (fixed-price design-build).

Project performance and acceptance testing. The design-builder is responsible for ensuring that the completed project meets the performance requirements specified by the owner in the contract.

In a CMAR project, **the CMAR contractor is typically in the best position** to control, and therefore assume responsibility for, the following risks.

Building and administrative permits. As is the case with design-build, the CMAR contractor typically accepts responsibility for obtaining permits and governmental approvals.

Schedule. As with design-build, the CMAR contractor usually assumes the risk for constructing the project on time and in accordance with contract specifications.

Costs. Upon completion of the pre-construction phase and

before starting construction, the CMAR contractor provides a guaranteed maximum price, setting the upper limit of the total cost of meeting its contractual obligations.

Project performance and acceptance testing. The CMAR contractor is generally responsible for conducting performance testing when construction is complete. The CMAR contractor would not, however, be responsible for performance shortfalls traceable to the project's design, as these would be the responsibility of the design engineer.

In either a design-build or CMAR project, **the owner is typically in the best position** to control risks that the design-builder or CMAR contractor cannot either control or prepare for with reasonable cost contingencies.

Environmental approvals and permitting. Although an owner may engage the design-builder or CMAR contractor to assist in preparing and obtaining environmental permits and approvals, these types of permits are typically the owner's responsibility. The owner is in a better position to manage the risk of excessive delays by permitting agencies or unreasonable permit requirements.

Quantity and quality of influent. The contract normally states that the owner is responsible if the influent falls outside of the range described in the RFP, leading to unmet requirements or increased costs.

Site conditions. In most situations, the owner retains the risk associated with site conditions that deviate significantly from those described in the RFP and contract. Addressing such conditions is especially important if the project involves the rehabilitation or expansion of an existing facility, where as-built drawings and information may be incomplete or inaccurate.

Uncontrollable circumstances or unforeseen conditions. Some risks—such as excessively severe weather, changes in regulatory standards or unforeseen site conditions—which could not be reasonably anticipated and are therefore not under the control of either party. Costs resulting from such events are typically the responsibility of the owner.

Escalation of material costs. Design-build or CMAR contracts for projects that span several years typically include a comprehensive escalation clause to address inflation or unforeseen increases or decreases in the cost of materials. This clause, which would encompass agreed-to cost components in either the fixed-price design-build contract or the guaranteed maximum price of a progressive design-build or CMAR contract, is often tied to economic indices such as the *Producer Price Index* for selected materials.

Design risk

In design-build—Although the design-builder is typically held responsible for failing to exercise a negligence-based standard of care in designing the project, the owner needs to pay special attention to the degree of detail provided in the bridging documents (i.e. procurement documents that can include information as preliminary design drawings and relevant standards) and the performance specifications outlined in the procurement documents. The more prescriptive the bridging documents are in specifying treatment process, equipment etc., the greater the burden of risk that is shifted away from the design-builder and onto the owner.

In CMAR—CMAR is similar to conventional design-bid-build delivery in that the design engineer is typically held responsible to the same standard of care. The CMAR firm is generally not, however, held responsible for failing to produce a design that is entirely free from defects. Although this shifts some design risk onto the owner, the owner can use pre-construction processes—such as constructability reviews, value engineering, and cost estimating—to reduce its design risk and share it with the design engineer.

Managing Risks and Liabilities

Many tools exist to manage risks and liabilities for design-build or CMAR project delivery. Common tools for this process include the following conditions.

Sureties and bonding. The most common type of security to protect the owner against bankruptcy or nonperformance is a performance bond. In the early stages of developing a project, owners should request sureties' guidance regarding what level of bonding they should specify in procurement documents. If state law allows, owners should consider requiring less than 100 percent bonding, as that could unnecessarily increase costs and eliminate some potential bidders.

Letters of credit. When a performance bond is provided to the owner by a credit-worthy surety company, the owner does not normally need to require that proposers incur the added cost of providing a letter of credit. Letters of credit are more common in the design-build-operate market, where undercapitalized specific-purpose corporations have been established to respond to procurements.

Quality management. Implementing effective quality assurance/quality control processes will go a long way toward helping the design-builder or CMAR firm manage risks in a project's design and construction. For large or

complex projects, the owner may need to get directly involved, consulting in-house quality-assurance personnel or outside consultants.

Insurance. The insurance requirements in a design-build or CMAR contract should be based on allocating risk between the respective parties. In addition to industry-standard requirements—for worker’s compensation, commercial general liability (CGL), and automobile insurance—most owners require a design-builder (and any sub-consultants) to have professional insurance for liabilities arising from design negligence. Owners also commonly require builder’s risk insurance to cover replacement or repair of materials or structures damaged during the course of the project’s construction. Occasionally, additional insurance may be needed or desired.

- In some cases, such as on very large projects or where there are multiple teaming partners or other conditions not anticipated by the firm’s standard insurance, it may be appropriate to consider project-specific insurance policies or products that provide coverage otherwise excluded from CGL policies; these can be very expensive and contain numerous exclusions.
- Owner-controlled and contractor-controlled insurance programs, sometimes referred to as wrap-up insurance programs, centralize insurance coverage for a project and attempt to eliminate the inefficiency and redundant costs associated with multiple policies and insurers. These programs, however, can be costly and require a great deal of oversight.

Addressing Liability in the Contract

By addressing liability in a design-build or CMAR contract, the owner establishes the parameters for holding each party accountable for foreseeable or unforeseen risks.

Limits of liability. Many design-build and CMAR contracts include a clause that limits the contractor’s overall liability to the owner.

Liquidated damages. Liquidated damages are typically included in the contract for schedule and process/equipment performance; they are intended to compensate the owner for losses suffered. If liquidated damages are included in the contract, their amount should reasonably approximate the owner’s actual losses, rather than simply creating a means to penalize the contractor.

Consequential damages. Generally, design-build and CMAR contracts hold neither the owner nor the design-builder responsible for the indirect results of alleged failures such as loss of market position or harm to reputation.

Indemnification. Indemnification is usually proportionately shared, based on the negligence of each party in a given situation. Typically, the design-builder or CMAR firm would be indemnified from third-party claims beyond its control, and the owner would be indemnified from third-party claims based on the negligence or failure of the contractor to perform its contractual obligations.

Warrantees. Design-build and CMAR contracts typically contain construction warranty obligations similar to the ones in traditional design-bid-build contracts, such as those covering materials and equipment defects. A typical warranty period is approximately one year from substantial completion. Other warranties in design-build contracts often address the issue of defects in design or performance, and their terms will vary based on the agreements reached between the owner and design-builder or CMAR contractor.



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P.O. Box 1924 • Edgewater, MD
410-798-0842

www.waterdesignbuild.org