

# Construction Contracting

**Institute for Facilities Management**

Faculty: Sadie Greiner, PE, MBA, LEED AP  
The University of Iowa

AIA Continuing Education Provider

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# Learning Objectives

1. Discuss bidding strategies for construction bids
2. Discuss project delivery approaches
3. Learn basic legal and contractual design documents for design and construction.
4. Discuss the construction contract structure

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# AIA Credits

Credit(s) earned on completion of this course will be reported to American Institute of Architects (AIA) Continuing Education Session (CES) for AIA members.

Certificates of Completion for both AIA members and non-AIA members are available upon request.

This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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# Outline

1. Contractual Relationships
2. Delivery Approaches
3. Contract Documents
4. Bidding & Award

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# Core Description

408 Construction Contract Administration APPAU201909M

Discuss the various project delivery approaches utilized by colleges and universities. Learn about the basic legal and contractual documents for a design and construction project. Examine the structure of a construction contract. Review bidding strategies and procedures for soliciting a construction bid and explore various techniques for structuring a bid proposal to the owner's advantage.

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# Contractual Relationships

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## Agents and Vendors

Agents:  
Provide professional services

Vendors:  
Provide a specific product or service

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## Agents and Vendors

Agents:  
Serve the owner's loosely defined needs

Vendors:  
Meet the specified contract requirements

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## Agents and Vendors

Agents:  
Act in the owner's interest

Vendors:  
Act in their own interest

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## Agents and Vendors

Agents:  
Follow a professional code of conduct

Vendors:  
Contract documents define the standard of conduct

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## Agents and Vendors

Agents:  
Selected on the basis of qualifications, experience and integrity

Vendors:  
Selected on the basis of cost or value

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## Errors & Omissions

Who is responsible for design mistakes?

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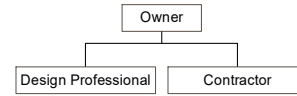
## Errors & Omissions

Who is responsible for design mistakes?

What is the "standard of care?"

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## Design/Bid/Build

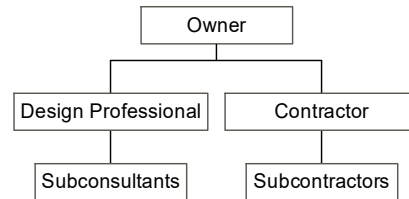


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## Delivery Approaches

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## Design/Bid/Build



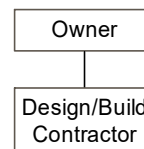
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## Delivery Approaches

Design/Bid/Build  
Design/Build  
Construction Management  
Job Order Contracting

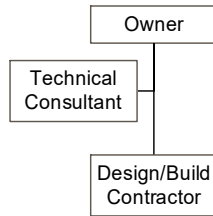
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## Design/Build



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## Design/Build (Bridging)



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## Job Order Contracting

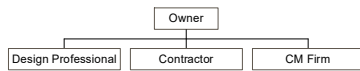
Contract is based on a specification and a unit price book

Bids are based on a multiplier; contract is awarded to the lowest multiplier

Project cost is determined by:  
(quantities) x (book unit prices) x (multiplier)

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## Construction Management



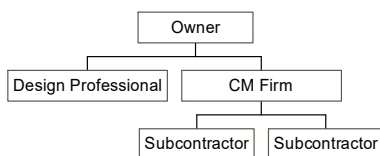
CM For-Fee (agent)

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## Contract Documents

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## Construction Management



CM At-Risk (vendor)

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## Contract Documents

Contracts are a compilation of documents:

- Bidding Requirements
- Contract Forms
- Contract Conditions
- Specifications
- Drawings
- Modifications

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## **Bidding Requirements**

Advertisement or Invitation to Bid  
Instructions to Bidders  
Bid Form  
Bid Bond

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## **Contract Conditions**

Special or Supplementary Conditions...

- Are project specific
- Modify, amplify and tailor the general conditions to the project

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## **Legal & Contractual Forms**

Performance Bond  
Payment Bond  
Insurance  
Agreement

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## **Specifications**

Define physical character and quality of materials, products and equipment

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## **Contract Conditions**

General Conditions...

- Are general in nature and do not address the specifics of the project
- Govern the conduct of the parties
- Define duties and responsibilities
- Outline procedures
- Standard Forms (AIA A201)

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## **Specifications**

Define physical character and quality of materials, products and equipment

Establish standards for workmanship

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## **Specifications**

Define physical character and quality of materials, products and equipment

Establish standards for workmanship

Formatted into divisions as outlined by the CSI

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## **Bidding & Award**

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## **Drawings**

Graphic depiction of project requirements

Show dimensions and arrangement

Provide basis for quantities

Interrelated and cross referenced

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## **Bid Solicitation**

Public or private institution?

Competitive bid or negotiation?

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## **Modifications**

Addenda are changes prior to bidding  
Change Orders are changes after award

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## **Contractor Qualifications**

Pre-qualification vs. Post-qualification

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## **Contractor Qualifications**

Pre-qualification vs. Post-qualification

Factors to consider

- Experience
- Personnel
- References
- Finances
- Work in progress

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## **Unit Prices**

Adjusts allowances and the contract amount

Additive or deductive

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## **Alternates**

Contractor priced scope options

May be additive or deductive

Protect the budget

Complicate the bid process

Selection considerations

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## **Bidding Process**

Advertising and solicitation of interest

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## **Allowances**

Undefined quantities of work

Undetermined product selection

Specialty or proprietary work

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## **Bidding Process**

Advertising and solicitation of interest

Printing of bid document sets

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### **Bidding Process**

Advertising and solicitation of interest  
Printing of bid document sets  
Pre-bid meeting

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### **Bidding Process**

Advertising and solicitation of interest  
Printing of bid document sets  
Pre-bid meeting  
Addenda  
Bid closing  
Bid opening

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### **Bidding Process**

Advertising and solicitation of interest  
Printing of bid document sets  
Pre-bid meeting  
Addenda

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### **Bid Bond**

Surety-backed guarantee  
Protects against mistakes in bidding  
Covers differences in price between bids

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### **Bidding Process**

Advertising and solicitation of interest  
Printing of bid document sets  
Pre-bid meeting  
Addenda  
Bid closing

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### **Bid Mistakes**

Judgmental Error

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## Bid Mistakes

Judgmental Error  
Clerical Error

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## Award of Contract

Evaluation of bidder responsibility  
Bid acceptance period

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## Bid Responsiveness

Bid is non-responsive if:

- Qualified or altered
- Lacks a bid bond
- Has unacknowledged addenda
- Doesn't conform to any material bidding requirement

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## Award of Contract

Evaluation of bidder responsibility  
Bid acceptance period  
Execution of contract

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## Award of Contract

Evaluation of bidder responsibility

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## Review and Recap

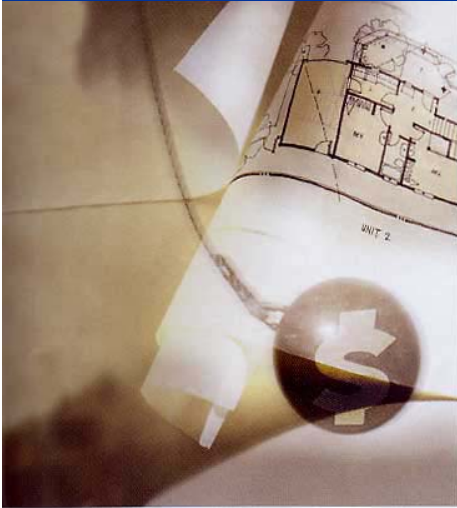
**Contractor** - A gambler who never gets to shuffle, cut, or deal.  
**Bid** - A wild guess carried out to two decimal places.  
**Bid Opening** - A poker game in which the losing hand wins.  
**Low Bidder** - A contractor who is wondering what he left out.  
**Project Estimate** - The cost of construction in Heaven.  
**Project Manager** - The conductor of an orchestra in which every musician is in a different union.  
**Critical Path Method** - A management technique for losing your shirt under perfect control.  
**Liquidated Damages** - A penalty for failing to achieve the impossible.  
**Sureties** - People who go in after a battle is lost and bayonet the wounded.  
**Lawyers** - People who go in after the sureties and strip the bodies.

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This concludes The American  
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# Who **PAYS** for the Architect's **MISTAKES**

by *Donald Guckert and Jeri Ripley King*

**D**esigning a new or renovated facility within a campus environment is a difficult and challenging undertaking. Despite the best efforts of talented professionals, mistakes will occur. No architect or engineer in the business can guarantee perfection. If they did, no insurance policy would back it. The question is who pays for these inevitable and unavoidable design errors and omissions.

In managing the design and construction efforts of the University of Missouri–Columbia, one of the most common challenges we face is coaching administration and internal customers on realistic expectations for our design consultants. The argument inevitably centers on accountability, with our customers asking, “If the architect is not responsible for their mistakes, then who is?” To their surprise, the answer to this question is often, “As the owner, we are.”

## **Why Me?**

Our customers are befuddled when they are asked to pay for change orders resulting from mistakes made by our contracted service provider. They assume, in the absence of any other information, that the services

provided will be free of mistakes; and if mistakes are made, those making the mistakes will pay them for them. The tendency is to view architectural and engineering services no differently than lawn care services with guaranteed weed-free results. This is especially true in this age of consumer rights and protections, where “satisfaction guaranteed” rules the day. However, before they can understand what financial recovery from errors and omissions may be possible, they need to understand the nature of the relationship between an owner and a designer, and the standard of care expected of licensed professionals exercising their craft.

In most states, to market architectural and engineering services requires a professional license. Practicing architects and engineers provide a professional service based on years of education and experience. By entering into a contract with an owner, the designer implies that they possess the “ordinary skill and ability” necessary to serve the owner’s needs. Architects and engineers (A/E) advise that when owners engage the services of a licensed professional designer, they should hire someone who is well versed in that type of project. At this early stage in the project, owners are not in a position to describe in detail what they need their agent, the designer, to perform or produce. Instead, they look to the designer to provide professional guidance throughout the ensuing phases of the project, culminating in a project that meets their needs.

Supporting this notion of possessing ordinary skill and ability, a 1960 Pennsylvania court decided in *Bloomsburg Mills, Inc. v. Sordoni Construction Co.*:

“An architect is bound to perform with reasonable care the duties for which he contracts. His client has the right to regard him

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as skilled in the science of the construction of buildings and to expect that he will use reasonable and ordinary care and diligence in the application of his professional knowledge to accomplish the purpose for which he is retained. While he does not guarantee a perfect plan or a satisfactory result, he does by his contract imply that he enjoys ordinary skill and ability in his profession and that he will exercise these attributes without neglect and with a certain exactness of performance to effectuate work properly done. While an architect is not an absolute insurer of perfect plans, he is called upon to prepare plans and specifications which will give the structure so designed a reasonable fitness for its intended use, and he impliedly warrants their sufficiency for that purpose.”

### **The Standard of Care**

There is no guarantee of a perfect plan or even satisfactory results. Instead, architects and engineers are expected to use “reasonable and ordinary care” in the practice of their profession. The courts know it; designers know it; contractors know it -- But somehow this information is not always conveyed to owners. As facilities managers charged with managing the project, our challenge is to educate our customers and align their expectations.

A good starting point is to draw comparisons to other professions that apply a “standard of care.” For more than a century, the law has viewed architectural and engineering services similar to professional services provided by physicians and attorneys. In the 1896 landmark case *Coombs v. Beede*, the Supreme Court of Maine held that “The responsibility resting on an architect is essentially the same as that which rests upon a lawyer to his client, or upon a physician to his patient...”

It is generally accepted that a surgeon cannot guarantee a perfect procedure or a complete recovery, and an attorney cannot guarantee a favorable judgment or verdict. Instead, the expectation is that they will apply their professional knowledge and experience in a competent manner that best serves the interest of their patients or clients, regardless of the ultimate outcome. Architects and engineers, like physicians and attorneys, cannot guarantee the results of their service. A/Es’ liability for errors and omissions will be determined by whether they have performed their services with the standard of care consistent with other professional designers in their community. If they have complied with the prevailing standard of care, the courts generally will find the designers are not liable for any resulting errors and omissions. On the other hand, if A/Es do not

perform at the level generally accepted in the community, they will be liable for their mistakes.

Helping our customers understand that the “standard of care” exists is a good start; defining the standard of care is more difficult. In our society, we want to be able to measure things. We have an ingrained desire to take a concept such as “standard of care” and slap it on a yardstick. Owners want a more defined and definitive measurement system for identifying breaches in the standard of care. Unfortunately, it is not that simple. The threshold is left to the courts and competing expert witnesses. This leaves project owners frustrated and, often they abandon pursuit of compensation to which they may be legally entitled.

### **Errors and Omissions**

Even when the standard of care is agreed upon, financial recovery may hinge on whether the mistake was an error or an omission. Omissions usually add value to a project. Instead of being included at the time of contract award, the building improvement that was “omitted” from the bid package is picked up by a change order. Architects and engineers will normally argue that the owner should pay for omissions since the owner would have paid a higher contract amount at the time of award. Owners may counter that because the omission was not in the project budget, funds may not be available now. They will also maintain that a higher cost for the omitted item results from adding it by change order versus competitive bidding. Generally, however, recovering the cost of omissions is an uphill battle.

Design errors, on the other hand, are mistakes made by the designer that, when corrected, do not add to the greater value of the project. While a design error may be recoverable, we should be aware of the industry and legal acceptance that there is no such thing as error-free design. Even a modest building design effort requires scores of individuals acting on hundreds of major decisions to coordinate the design of thousands of building components. A design effort is a unique, one-time creative endeavor that does not have the benefit of product testing. To expect a perfect design would be like believing software will function faultlessly without beta testing.

Buildings are becoming increasingly complex, and we want them designed on ever-shortening timelines. When we, as owners, seek to minimize change orders resulting from errors and omissions, we must recognize that we are often contributing more to the problem, than the solution. The demands we place on A/Es to lower their fees, while at the same time fast-tracking their services, increases the risk that errors will result.

## Communication

Communication throughout the project can help owners and designers align their expectations. When the designer and the owner agree that an error fell below the standard of care, many design professionals, governed by pride and reputation, will work with an owner on reaching an amicable settlement, as long as the owner has fair and reasonable expectations. Owner expectations are more apt to be fair, if the owner is well informed.

Unlike the medical and legal fields, where owner expectations are aligned before the work is underway, design professionals often wait to discuss expectations after the owner reaches the breaking point with change orders. Our customers are generally well coached by designers about establishing a project budget contingency for the changes, unknowns and unforeseen conditions that will surely arise during the course of the project. The breakdown in communication occurs when designers have not explained that, despite their best efforts, many of the change orders will result from errors and omissions.

## Risk Management

It is possible, however, to manage the risk of errors and omissions. The first step is to budget adequate project contingencies. Owners also need to be aware that there are other methods available to manage the risks of errors and omissions. These include securing liability insurance, employing third-party review services, using the design/build delivery approach, and modifying contractual language. Each option comes with related costs and benefits.

### *Professional Liability Insurance*

Owners must keep in mind that, even when it is clear that the A/E is negligent, financial recovery is not guaranteed unless there are sufficient assets or insurance to pay for the mistakes. Professional liability insurance provides third-party financial resources to cover the cost of negligent design errors.

Professional liability insurance does not alter the definition of negligence. Recovery from a professional liability policy will still hinge on the standard of care test. However, requiring this insurance does raise the bar of performance. By requiring the coverage, the owner and architect agree that the standard of care will apply and that the owner is hiring a competent design firm, that is willing and able to back up its potential negligence.

If the A/E firm already has coverage, then the cost of professional liability insurance is typically built into design fees, and that cost is passed through to the owner. If the firm does not have professional liability coverage,

then the owner has the option of purchasing a project insurance policy that typically provides a higher level of coverage, but at a correspondingly higher cost to the owner.

### *Third Party Review*

The owner also has the option to employ a specialty firm to review the documents prepared by the design team. In the past decade, there has been an emergence of specialty firms offering interdisciplinary plan review services to review drawings and specifications for coordination and constructability. While some owners argue that this should be a basic service already provided by the designer, the reality is that the architect and engineer are usually too close to their work, and driven by other forces, to step back and review their work. This is especially true during the waning days of the construction document phase when the architect and subconsultants are racing to complete their work and wrap it together in a bid package.

The cost of a plan review team can run \$20,000 or more for multimillion-dollar projects. This investment will often pay for itself many times over in cost-avoidance savings. It is a "pay a little now" instead of "pay more later" proposition. Rather than create another project budget line item for these services, funding for these cost-avoidance services can come from the project contingency budget, based on the premise that it will reduce exposure to change orders.

### *Design/Build*

Indicating the level of frustration that owners have had with designer accountability, there was a dramatic trend in the 1990s toward using the design/build delivery approach. This approach puts the designer and builder on the same team, thereby virtually eliminating the owner's financial exposure to design errors.

While the design/build approach appears on the surface to be the ultimate solution for eliminating design errors and omissions, the reality is that the errors and omissions still exist, and the owner still pays for them in the price of the design/build contract. The difference is that the contractor, instead of the owner, manages this risk. While contractors recognize that errors and omissions are inevitable, as a team participant with the designer, they can work hand-in-hand with the designer to mitigate, though not eliminate, exposure to errors and omissions.

Although an owner seeking the maximum protection from errors and omissions exposures is well advised to consider design/build, it is important to recognize that the design/build approach shifts the designer's role from

the owner's agent to the contractor's partner. This changes the dynamic of the design process and often results in the owner losing control over design content. The change orders that might have been written for errors and omissions are often replaced by change orders for scope and quality adjustments.

### ***Modified Contract Language***

As mentioned earlier, the courts are usually the battleground for determining the standard of care expected from designers. However, owners can use the terms of the A/E contract to establish a "contractual" standard of care. While A/E firms and insurance carriers will run from a warranty clause, contractual language outlining reasonable expectations is usually acceptable to both.

An example of a contractually defined standard of care clause is a provision that requires the designer to design in compliance with the owner's set of design standards, written instructions and/or marked-up project document review sets. If the designer fails to meet this reasonable

and contractually established expectation, there is little room for the A/E to argue that the standard of care was met. Some of our most successful error recovery efforts have been where the designer did not incorporate our review comments into the design or failed to design to our published design standards.

### **Aligning Expectations**

As facilities managers charged with the management of campus design and construction projects, we must partner with architects and engineers and take time at the onset of their services to explain to our customers that errors and omissions are an inevitable part of any creative endeavor. This provides an opportunity to align A/E and customer expectations, give the project team some options for managing the risks, and define how the A/E can meet or exceed those expectations in order to have a satisfied customer and a successful project outcome. ☺