

## ***MANAGING DESIGN-BUILD RISKS***

Presented by

**John Ercolani**  
Underwriter  
ECS Underwriting, Inc.

**Joyce K. Hackenbrach**  
Partner  
Pepper Hamilton LLP

**Robert C. McCue, P.E.**  
President  
MDC Systems, Inc.

In an effort to streamline services and gain a competitive edge, many construction, engineering, and architecture firms are becoming increasingly involved in design-build projects. Many project owners enter into these projects with the unrealistic expectation that virtually all of their risk on the project has been shifted to the design-builder. This popular notion can lead to a false sense of security. This session examines the significant liability issues associated with the design-build process and reviews available options for managing the project's risks. Hear three experts discuss contractual risk allocation strategies, considerations for insuring design-build construction risks, and the importance of positive reinforcement on design-build projects and its risk-controlling effects on performance, quality control, and minimizing delays.

***Wednesday, October 31, 1:30-3:00 p.m. and 3:30-5:00 p.m.***

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**John Ercolani**  
**Underwriter**  
**ECS Underwriting, Inc.**

Mr. Ercolani is one of the speakers for Workshop H, "Managing Design-Build Risks," on Wednesday. He is an underwriter at ECS Underwriting, Inc., an Exton, Pennsylvania, insurer that focuses on providing professional liability coverage for architects and engineers, and has more than 20 years' experience in dealing with a wide variety of commercial casualty and liability insurance, including construction-related coverages. Mr. Ercolani has served as an underwriter, a broker, and a risk manager for a large engineering conglomerate, and for the past 10 years has concentrated on professional liability and pollution liability insurance.

**Joyce K. Hackenbrach**  
**Partner**  
**Pepper Hamilton LLP**

Ms. Hackenbrach is one of the speakers for Workshop H, "Managing Design-Build Risks," on Wednesday. She is a partner in the Philadelphia office of Pepper Hamilton LLP and since 1986 has concentrated her practice in matters relating to the construction and renovation of commercial and industrial facilities. Ms. Hackenbrach has represented owners, engineers, construction managers, and contractors in a wide variety of transactions and disputes arising from the design, construction, maintenance, and operation of process plants and other industrial facilities, commercial buildings, and institutional facilities. The types of projects with which she has experience include high-rise and mid-rise commercial buildings, power plants, other process plants (pharmaceutical, chemical, food products), manufacturing facilities, wastewater treatment plants, landfill construction, expansion of laboratory facilities, library renovation and expansion, college residence and teaching facility expansion and renovation, fabrication of highway steel, public school construction, and major equipment supply contracts.

In these representations, Ms. Hackenbrach has negotiated and drafted contracts for design, construction, design-build or turnkey services, validation, commissioning, and plant operation and maintenance. She also has advised clients on proper selection of project delivery systems, given financing considerations, the type of construction and operating risks faced, and other relevant factors. Further, she has considerable experience in resolving construction-related disputes through mediation, arbitration, and litigation in the state and federal courts, in bench trials and jury trials. The disputes she has handled involved such issues as unforeseen site or subsurface conditions, scope of work disputes, errors and omissions, lack of clarity in design documents, construction defects (including failure to achieve specified levels of operation or output), delay, disruption or loss of efficiency claims, terminations for convenience or for default, warranty issues, applicability of limitations of liability or exculpatory clauses, and indemnity provisions.

As a result of her work, Ms. Hackenbrach is familiar with the issues normally raised, and the positions normally taken, by all parties—owners, engineers, contractors, and financing entities—in the course of contract negotiation, project construction, and commissioning.

Ms. Hackenbrach has recently cowritten a chapter on insurance for design-build projects that will soon appear in the new edition of the *Design/Build Contracting Handbook*. She has several other publishing and speaking credits and is instructor for the Construction Management Certificate Program at Temple University's School of Business and Management, and a lecturer at Federal Publications' Pennsylvania Construction Law Course.

She earned a B.S. degree in economics, *magna cum laude*, from The Wharton School of the University of Pennsylvania, and her JD degree from the University of Pennsylvania Law School.

**Robert C. McCue, P.E.**  
**President**  
**MDC Systems, Inc.**

Mr. McCue is one of the speakers for Workshop H, "Managing Design-Build Risks," on Wednesday. He is a consulting engineer with MDC Systems, Inc., in Wayne, Pennsylvania. He is a registered Professional Engineer in Pennsylvania and New Jersey. Mr. McCue has more than 28 years of engineering experience on both domestic and international projects in the areas of project/construction management, consulting engineer, design-build, contract administration, and construction claims. His experience includes design of both commercial and institutional facilities, technical review and inspection of nuclear power plants, project and construction management of petrochemical facilities, power plants, pharmaceutical facilities, and commercial/industrial facilities for public and private sector owners.

Mr. McCue is an expert in commercial and industrial construction project management systems, engineering standards and codes including BOCA, NFPA, ASHRAE, ANSI, ASTM, ASME, IEEE, NEC, and the NRC general design criteria, regulator guides, and EPA regulations. He has provided expert testimony in federal court and in arbitrations on construction delay, lost productivity, design deficiencies, construction defects, errors and omissions, and technical issues. Mr. McCue was qualified as an expert witness in federal court proceedings for a variety of project management and technical issues such as mechanical, control, and fire protection systems. As an arbitrator for the American Arbitration Association (AAA), he has served on many construction arbitration boards. Mr. McCue is a member of the Project Management Institute, the American Arbitration Association (AAA), and the American Bar Association (Associate Member, Member, Forum Committee on the Construction Industry).

He received his B.S. and A.S. degrees in Mechanical Engineering and Engineering, respectively, from Pennsylvania State University.

# MANAGING DESIGN-BUILD RISKS

**John Ercolani**  
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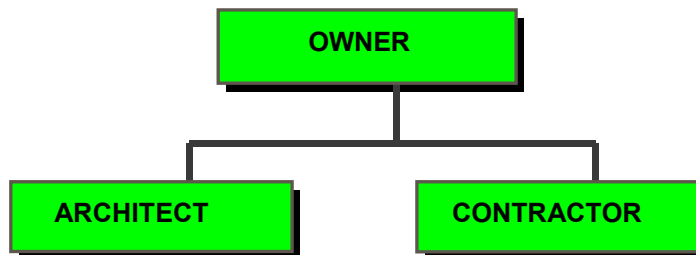
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## RISK ALLOCATION

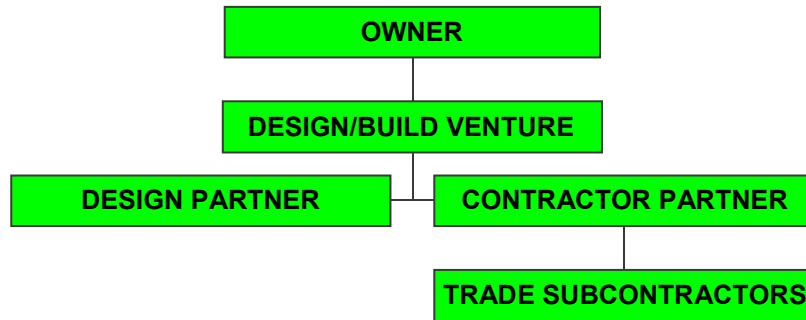
“Risk allocation is the process of identifying project risks and determining how they may be equitably and realistically shared by all parties on a construction project.”

“Enlightened Risk Allocation: The 21st Century Owner’s Guide to Cost Effectiveness” (Produced by the American Consulting Engineers Council and the Associated General Contractors of America), Page 2.

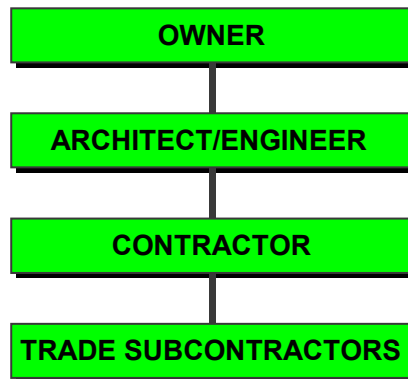
## TRADITIONAL DESIGN-BID-BUILD



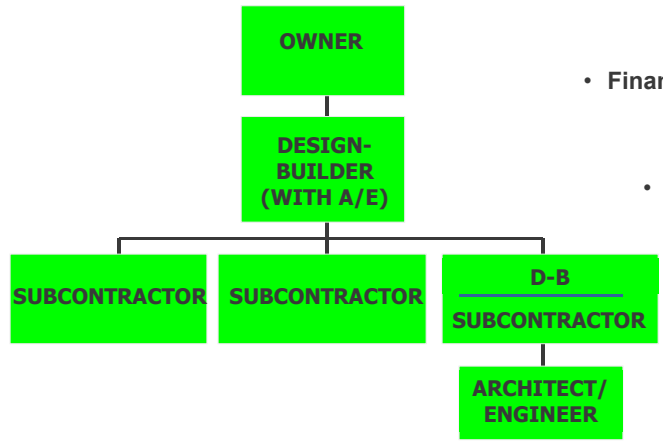
**DESIGN/BUILD: JOINT VENTURE**



**DESIGN/BUILD: A/E AS PRIME**



### DESIGN-BUILD: INTEGRATED FIRM



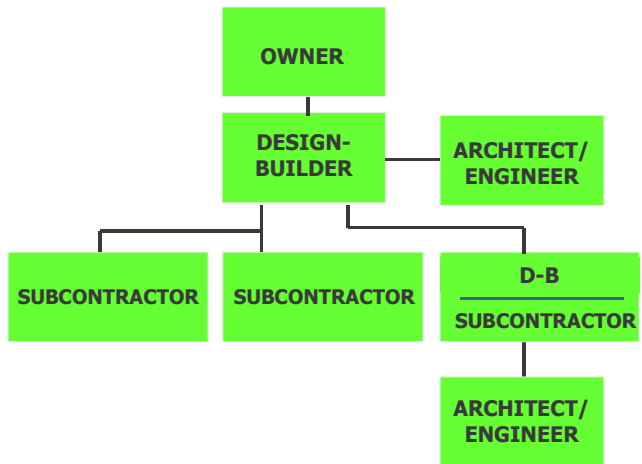
Advantages

- Seamless
- Financially strong leads

Cautions

- Design dominance

### DESIGN-BUILD: CONTRACTOR-LED



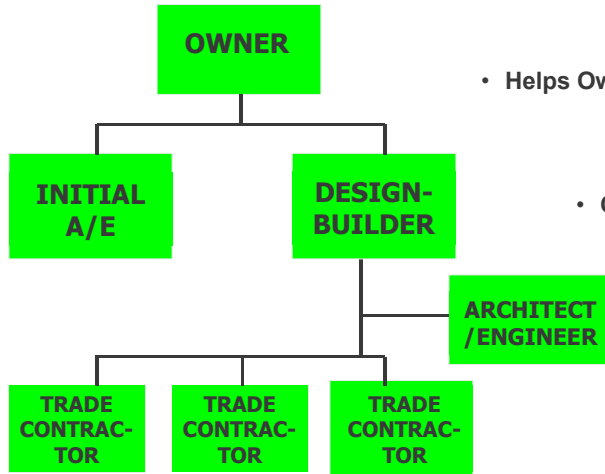
Advantages

- Financially strong leader

Cautions!

- A/E dominance
- Coordination responsibility

## DESIGN-BUILD: "BRIDGING"



### Advantages

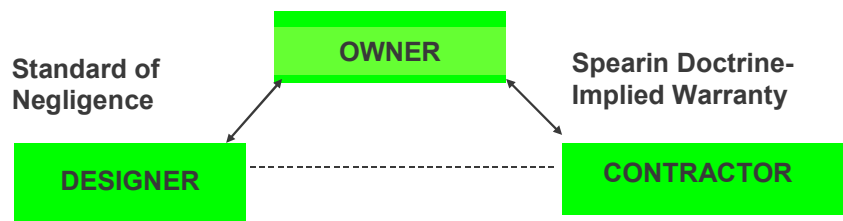
- Helps Owner define program, scope, and specific desires

### Cautions

- Continuing role of initial A/E
- Split design liability

## TRADITIONAL CONTRACTING

⌘ Design/Bid/Build  
⌘ Project Triangle



**NO MORE “SPEARIN” PROTECTIONS**

- NO MORE “SPEARIN” PROTECTIONS**
- Owner “warrants” adequacy of design
  - Contractor builds what is in the plans and specs
  - If the result is not what Owner wanted, contractor still gets paid

- NO MORE “SPEARIN” PROTECTIONS**
- If design is flawed or impossible, contractor gets paid for attempts to comply
  - Delay damages
  - Disruption damages

**LATE DESIGN**

<b>TRADITIONAL</b>	<b>DESIGN/BUILD</b>
<ul style="list-style-type: none"><li>➤ Contractor gets an extension of time</li><li>➤ Contractor may get delay damages</li><li>➤ Owner, not architect, usually holds the bag</li></ul>	<ul style="list-style-type: none"><li>➤ No extension of time</li><li>➤ Contractor can be liable for delay damages</li></ul>

## UNCLEAR DESIGN

### TRADITIONAL

- Contractor gets an extension of time if delayed
- Contractor may get additional money
- Architect may or may not be liable

### DESIGN/BUILD

- No extension of time
- No additional money
- Design/Builder liable for added costs, delays

## DESIGN ERROR

### TRADITIONAL

- Owner (& architect sometimes) responsible for design
- Contractor gets additional money for any rework or delay
- Contractor gets extension of time

### DESIGN/BUILD

- Design/Builder is responsible for design
- No time extension; no additional money
- Design/Builder can be liable for Owner's added cost, delay

## RFIs

### TRADITIONAL

- If justified, Contractor gets additional time
- Contractor may get delay damages, extra costs of handling RFIs

### DESIGN/BUILD

- Forget RFIs.
- Design is Design/Builder's problem

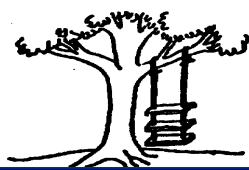
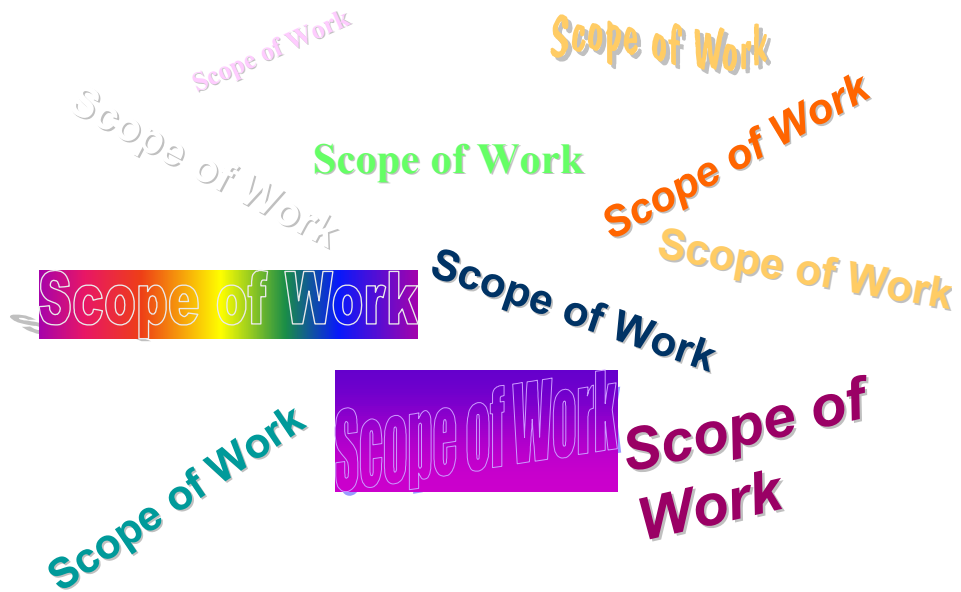
**OWNER'S  
DESIGN/BUILD  
GOALS**

- OWNER'S DESIGN/BUILD GOALS**
- Faster project delivery
  - Lower cost
  - One-stop shopping
  - Pass on design risk
  - Reduce/Eliminate claims

**CONTRACTOR'S  
DESIGN/BUILD  
GOALS**

- CONTRACTOR'S DESIGN/BUILD GOALS**
- Better control over scope
  - More flexibility in phasing, scheduling
  - Better satisfy Owner's desire for quicker or cheaper job

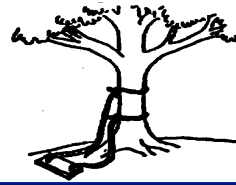
WHAT CAN GO  
WRONG?



As Architect drew it



As Estimating bid it



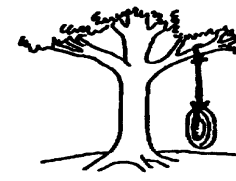
As Engineering designed it



As Shop fabricated it



As Field installed it



What the Owner wanted

**WHAT CAN GO WRONG?**

- Owner does not know what it wants -- or doesn't tell Design/Builder
- Owner's program is unrealistic
- Owner keeps changing program -- but doesn't know it

**CHANGE?  
WHAT CHANGE?**

**YOUR QUALITY IS  
NOT NEARLY GOOD  
ENOUGH**

**VALUE ENGINEERING  
OR  
WHAT DO YOU MEAN  
IT GOT DELETED?**

### **NEW ISSUES FOR THE CONTRACTOR**

- Defining the scope: Programming
- Managing the designer
- Being responsible for design problems

### **MANAGING THE A/E**

- Drawings lack detail
- M/E not coordinated with architectural
- Inadequate controls specs
- Proprietary component

### **MANAGING THE A/E**

- Crafting "teaming" agreements
- Getting insurance for design

**PROBLEMS OFTEN OCCUR  
AT BOUNDARIES OF WORK SCOPE**

- Between Owner and Design/Builder
- Between Design/Builder & Subcontractors
- Electrical/Mechanical
- Controls/Electrical
- Electrical/Fire Safety
- Controls/Mechanical

**MORE PROBLEMS**

- Owner-supplied equipment, utilities
- Owner-controlled systems
- Acceptance testing/start up
- Shop drawings
- A/E supplied details
- A/E field support
- A/E start-up support
- A/E problem resolution

**THE PROFESSIONAL LIABILITY RISKS**

- Direct professional liability
- Contingent professional liability
- Incidental professional liability
- Performance specifications

## **CONTRACTORS NORMAL CGL COVERAGE EXCLUDES LOSSES DUE TO DESIGN ERROR**

- Exclusion for Damage to Contractors Own Work
- Coverage must be triggered by actual bodily injury or property damage

## **PROFESSIONAL LIABILITY INSURANCE**

- Know the insurers and the forms
- Project specific vs. Annual
- Primary vs. Excess DIC
- Pollution
- Cost overruns due to a negligent act
- Construction delay due to a negligent act
- Faulty workmanship

## **COVERAGE ENHANCEMENTS**

- Coverage is primary
- Full prior acts coverage available
- Contractors pollution coverage – on occurrence basis
- Asbestos coverage
- Faulty workmanship
  - ✓ Negligent performance of professional service
  - ✓ Negligent supervision of any subcontractors or consultants

**COVERAGE ENHANCEMENTS**

- Warranties or guarantees not excluded (if resulting from design error or omission)
- Contractual Liability of named insured does not void coverage
- Copyright infringement, trademark, patent resulting from professional service
- Redesign or Rectification Expense

**OTHER INSURANCE PRODUCTS ADDRESSING DESIGN BUILD PROFESSIONAL LIABILITIES**

- Builders Risk Insurance
  - ✓ Delayed opening soft costs
  - ✓ Delayed opening business income
  - ✓ Increased cost of construction
- Force Majeure Insurance
- Efficacy/Performance Insurance
- Completion Insurance

**AIA A191 (1996)**

Two-Part Form

- Part 1: Preliminary scope definition and feasibility analysis
- Part 2: Completion of design and construction

### **AIA B901 (1996)**

- Very basic, not detailed
- Puts responsibility for Geotech info, etc. on Design/Builder
- No Pass-down provisions
- Loose Time Term
- No Requirement For E&O Insurance
- Treats The Design/Builder as if it were an Owner

### **EJCDC FORMS**

- EJCDC NO. 1910-40 (1995) is Owner-Design/Builder form
- EJCDC NOL 1910-41 (1995) is engineer subagreement

### **DESIGN-BUILD INSTITUTE OF AMERICA**

- Document No. 520:  
Preliminary agreement between Owner and Design/Builder
- Document No. 525:  
Agreement between Owner and Design-Builder (lump sum)

### **DESIGN-BUILD INSTITUTE OF AMERICA**

- Document No. 530: Agreement between Owner and Design/Builder (cost-plus fee with GMP option)
- Document No. 535: General conditions
- Better attention to Owner's concerns; E&PO coverage Design/Build Institute of America

### **DESIGN-BUILD INSTITUTE OF AMERICA**

- Design responsibility is on Design/Builder
- Part 1 looks like an A/E contract, Part 2 like a construction contract with added design tasks
- No requirement for E&O insurance

### **FEDERAL MODEL**

#### **TWO-STEP PROCESS**

- Phase 1: Qualifications
- Phase 2: Preparation of technical proposal and price