

Save These Dates . . .

December 5, 2002*
Technology and
Strategies for Facilities
Security in the
21st Century

December 12, 2002
Annual Owners Forum:
The Shift in Owner
Spending

January 16, 2003
Member/Guest
Social: TIMEXPO
Museum

January 30, 2003
Central Region
Outlook

February 14, 2003*
Project Definition
Rating Index

February 27, 2003
Western Region
Outlook

March 27, 2003
ConnstruCT2003
Facilities Management
& Construction Expo

*Technology Breakfast
Seminar Series

For more information,
visit the Website at
www.construction.org.

Project Delivery for the Public Owner

There probably is no more debated topic among facility owners than the merits of the various types of construction delivery systems. Indeed, the crux of the owner's task is to put the most qualified contractor in the best position to deliver the project on time and within budget. This article provides a brief insight into the selection process used by one public owner, the University of Connecticut (UCONN).

Like most owners, UCONN has to select a delivery method for every project, from a \$3,000 finish project to a \$70 million laboratory building.

Fortunately, the University has a full range of delivery tools from which to select. Our four main delivery methods are design-bid-build, design-build, delivery order and construction manager at risk.

The first step in the selection process is to create a profile of each project that allows us to categorize the project and to apply a few simple rules. The profile is based on type of work, schedule, cost of work, and method of design. We then ask two questions that allow us to complete the delivery method selection process: what is the University's experience with projects with a similar profile, and what is the industry experience with similar projects. Based on the responses, the project management team selects an appropriate delivery method.

After 7 years, more than 400 projects, and more than \$800 million in construction, several patterns have developed that allow us to generalize project characteristics for the four delivery methods and to assign the delivery method.

Delivery Order Contracting— These projects normally cost less than \$500,000,

have limited or complete design, and are expected to have a quick start and short duration.

Design-Bid-Build— Project costs range between 1 and 10 million dollars, with fully known scope, and primary work dominated by a single trade.



Design-Build— These projects move at a rapid pace and there is less control of architectural appearance.

Construction Manager at Risk— These projects have a large dollar value, warrant pre-construction services, must be completed expeditiously with preordering of materials, and extend over several years.

Upon reviewing the percentage breakout of the four predominant delivery methods for 401 individual projects contracted since July 1995, design-bid-build and construction

(please see Public Owner on page 3)

George Kraus, Director of Design, Planning and Construction, Architectural and Engineering Services, University of Connecticut, 860.486.3236, george.kraus@uconn.edu.

Project Delivery for the Private Owner

The decision to invest in a new facility or renovation project is usually based on a very thorough business analysis to justify the return on the investment. The selection of an appropriate project delivery system and design/construction team can affect one's ability to meet the project goals. As most owners do not regularly contract for facility design and construction services, they may not be well versed in selecting a project delivery method and project team. This article

summarizes a book entitled *Selecting Project Delivery Systems: Comparing Design-Build, Design-Bid-Build and Construction Management At Risk*. The book is published by The Project Delivery Institute and written by Victor Sanvido and Mark Konchar.

The book summarizes the findings of a research study where 315 construction projects are analyzed. A project's goals are commonly defined in terms of square footage and function. A project should be further defined with business goals that include target values for:

- Total project construction cost per square foot.
- Total project delivery timeline (expressed in FT² per month for large projects).
- Cost and schedule growth constraints expressed as the maximum allowable growth over preferred budget and schedules.
- The quality of the envelope, structure, interiors, MEP systems and equipment, each ranked as

very important, important or not important.

Three common project delivery methodologies, design-bid-build (DBB), construction manager at risk (CM@R) and design-build (DB) were studied, and the results summarized in table below. The project's business goals can be matched with the different delivery system performance. The project team

Attribute	DB vs DBBs	CM@R vs DBB	DB vs CM@R	Level of Certainty
Unit Cost	6.1% lower	1.6% lower	4.5% lower	99%
Construction Speed	12% faster	5.8% faster	7% faster	89%
Delivery Speed	33.5% faster	13.3% faster	23.5% faster	88%
Cost Growth	5.2% less	7.8% more	12.6% less	24%
Schedule Growth	11.4% less	9.2% less	2.2% less	24%

should be selected after the project delivery system. The selection process should emphasize that projects are built by a team of people, not just tools. "The project team is the collection of people with its skills, experience, motivation, organizational allegiances and support, who together are responsible for delivering" the project. The selection process should pre-qualify proposing companies and their full team, including major subcontractors, to ensure the whole team has the knowledge, experience and depth to meet the project's goals. Regardless of the delivery system, research reveals the following factors critical for successful projects:

- Pre-qualification of potential project teams to ensure all members have the relevant experience in both the project type and delivery method
- Good communication and chemistry between team members and owner
- Elimination of onerous contract clauses that hinder good communication and teamwork when risk is not appropriately assigned
- Selection of construction entities, including critical subcontractors, before design starts

- Timely decisions by owners
- Contracts that encourage and reward the project team for cooperation

Using this information, an owner can be confident that a project will meet their business goals. ▲

Matthew Mullen, P.E., is Engineering Consultant and Business Development Manager for New England Mechanical Services, Inc., Vernon, CT 860-871-1111 ext. 250 Mullen@nems.com.

Welcome New Members

- American Dispute Resolution Center, Inc.
- ASHRAE Connecticut Chapter
- BL Companies
- Data Support Associates
- DiCesare Bentley Engineers
- Eastern Materials Testing Lab/ Jaworsky Geotech Inc.
- EnviroMed Services, Inc.
- LCM Construction Company, Inc.
- OFI Contract Interiors
- PLJ Consulting
- Pavarini Construction Co.
- Precision Program Consultants, LLC
- Quartin Construction Consultants, LLC
- Rose Construction Company
- Smith Edwards Architects
- Steelcase, Inc.
- Tunxis Community College

Public Owner

(continued from page 1)

manager have been the two predominant methods, with each accumulating about 40% of the dollar value of work. However, design-bid-build and delivery order comprise almost 89% of the total when analyzed by number of contracts managed.

It is interesting to note the mix has changed over time. When reviewing the first 3 1/2 years to the most recent 3 1/2 years in terms of dollar value of work, two trends seem to appear.

1. There was an increase in the dollar value of construction manager at risk delivery method
2. There was an increase in the dollar value of the design-build method.

The first trend is a clear shift to the construction manager (CM) at risk delivery method for large projects. This is an indication of the value that the University places on pre-construction services and CM at risk projects.

The second apparent increase is simply the result of the prioritized project list that placed three large design-build type projects in the second time period and isn't a trend at all.

In summary, the University uses four primary delivery methods for construction projects. These methods are assigned based on project profile, past experience and industry practice. ▲

F O C U S

Standing Room Only for the State of the State Program



Lt. Governor M. Jodi Rell provides insight on upcoming public work at the State of the State program.



CT DPW Commissioner Ted Anson addresses the audience at the State of the State Program on October 24.



A packed house of over 250 attendees listen to speakers at the very popular 8th Annual State of the State program, held at The Colonnade in Glastonbury.



10 Westgate Road
Columbia, CT 06237

860.228.0163
tcasey@on-target.biz

For more than ideas... **Action!**
specializing in the design, facility and construction industry

Marketing • Public Relations • Communications

Attendance at Institute's Programs Growing

Activity at the Institute is at an all-time high. Attendance at programs seems to be increasing and new programs are starting all the time.

For instance, more than 300 guests attended the Member/Guest Social at the Basketball Hall of Fame in Springfield, MA on November 7. Over half of the attendees were nonmembers from western Massachusetts, who represent a vast untapped market for the Construction Institute and its member firms.

The first Student Chapter of the Construction Institute has been formed at the University of Hartford. Over 40 architecture and engineering students have participated in programs including site tours sponsored by CI



University of Hartford architecture and engineering students visit Loomis Chaffee School on a Construction Institute Student Chapter site tour hosted by Turner Construction.

members. Students receive a number of member benefits in exchange for 10 hours of service to the Institute. Student volunteers have helped with mailings and with registration at the Golf Classic and the State of the State Program. ▲

Construction Institute Officers
Chairman: Paul Berg,
Applied Technologies

Vice Chairman: David Jepson,
Jeter, Cook & Jepson Architects

Secretary: Paul Gray, New
England Mechanical Services

Treasurer: Chuck Pinckney,
Diversified Project Management

Construction Institute Staff
William Cianci, Ph.D.
Executive Director
860.768.4445

Bob Gonyeau
Assistant Director
860.768.5027

Mary Musco
Office Coordinator
860.768.4459

Update Newsletter Editor
Theresa Casey, On Target
Marketing & Communications
860.228.0163

**DIVERSIFIED
PROJECT MANAGEMENT**

DPMCO, Inc.
435 Farmington Avenue
Hartford, Connecticut 06105

www.dpmcinc.com

Telephone
860.529.9556

Facsimile
860.236.0460

**Engineering, Architectural,
Planning, Surveying, and
Environmental Services**

URS

500 Enterprise Drive, Suite 3B
Rocky Hill, Connecticut 06067
Tel: 860.529.8882
Fax: 860.529.3991