

M&D Update

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Pleasant Grove Middle School - Rescue, CA

Project Delivery Part 3: Construction Management-at-Risk and Lease/Lease-Back

David P. Irons, Principal

CM-at-Risk and Lease/Lease-Back are fast becoming common alternatives to Design-Bid-Build for delivery

of K-12 educational projects. We decided that it would be timely to discuss both of these popular delivery methods in Part 3 of this series. We will start with a description of the CM-at-Risk process, compare that to Design-Bid-Build, then discuss Lease/Lease-Back and compare it to the other two delivery methods.

“...to maximize the benefits of CM-at-Risk, the CM should be brought in at the beginning of the design.”

CM-at-Risk

The CM-at-Risk process starts with the selection of the construction manager (CM). Selection is made through a qualifications-based competitive process, similar to the process for selecting the architect. The CM can be brought in at any point before bidding, but to maximize the benefits of CM-at-Risk, the CM should be brought in at the beginning of the design. As part of the design team, the CM

will perform a variety of preconstruction services including cost estimating, constructability reviews, and value engineering. During construction, the CM fulfills the role that would be played by the general contractor in the Design-Bid-Build delivery method (companies that provide CM-at-Risk services should also be general contractors). When it is time to bid the project, the CM breaks the project up into multiple trade contracts. The owner (with assistance from the architect and CM) puts each trade contract out to public bid per public contract code requirements. The CM will usually perform some level of prequalification of trade contractors before bidding. Once the low bids for all the trades are determined, the trade contracts are assigned to the CM and the CM manages the project and coordinates the work of the various contracts. The total cost can usually be negotiated to cover all change orders except those related to unforeseen conditions and design changes, although the legality of this feature of CM-at-Risk is in question.

CM-at-Risk is not specifically sanctioned by law for public projects, but it appears to meet all public contract code requirements. There is some controversy over the legality of CM-at-Risk, so legal

» Project Delivery, page 2

Building Predictability Medical Department Delivers

Chris Branco

Hospital administrators and facility managers are faced with complex, highly regulated new construction and renovation projects. With the rapid changes in the delivery of healthcare and increasingly tight budgets, architects are being directed to focus their efforts on minimizing surprises and maximizing predictability.

The backbone of our medical team is comprised of decades of design experience, and two notable personnel from the construction side: John Inman,

who provides constructability reviews, and Mike Brumm, who administers the construction contract. With experience from around the state, these two individuals are focusing their energies on providing our clients with predictable results when our drawings take on the third dimension and grow into buildings.

John has worked in the construction industry for over 40 years in both building and overseeing construction projects. As the firm's in-house Constructability Specialist, John has provided invaluable insight to our production staff, bridging the gap between how we draw buildings and how contractors build them. The entire firm benefits

» Predictability, page 4

In This Issue

-Project Delivery
-Predictability
Page 1

-Project Delivery (cont.)
Page 2

-Investing
-Did You Know
Page 3

-Predictability (cont.)
-Project Delivery (cont.)
Pages 4

-Project Delivery (cont.)
-Staff News
Page 5

-Staff News (cont.)
-Investing (cont.)
-Projects in Design
Page 6



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Volume 2, Issue 3

Tidbit

(Internal Office Communications)

Shimmed

The Plumbing code requires exposed gas lines to be 6" above grade or the structure. Remember that 6 x 6 sleepers do not work unless the line is shimmed an additional 1/2". This is an IOR punch list item on a school we're trying to close out. The mechanical engineer called for 4 x 4's, the contractor provided 6 x 6's without telling anyone (trying to comply with the code). Now the contractor is asking for a Change Order to raise the pipe the needed 1/2".

Hint: don't let anyone tell you a half inch isn't much.

Project Delivery

» *Continued from page 1*

counsel should be consulted before adopting it. The argument against the legality of CM-at-Risk is that the CM is acting so much like a general contractor that the CM should be selected by competitive bidding instead of the qualifications-based selection process used to select professional consultants.

In Part 1 of this series, we stated that for a delivery method to replace Design-Bid-Build, it should produce more predictable results (in terms of cost, quality, and schedule) and foster better relationships between the owner, architect, and contractor. It is our opinion that CM-at-Risk has the potential to do both very well. With respect to predictability, having the entity that will be responsible for construction involved in project design should result in more accurate estimates and schedules as well as better coordinated construction documents. There should be very few surprises in a well run CM-at-Risk project. As a member of the design team, the CM will be motivated to work through construction issues to deliver the project envisioned by the team.

As far as relationships go, a qualifications-based selection process allows the owner to select a CM with whom they and their architect are compatible. Working together during design will provide an opportunity to build relationships before the difficulties of construction begin.

Any adversarial relationships that develop from the competitive bidding process will be between the CM and the trade contractors. The owner will be insulated from these issues, which the CM is experienced at handling. Bringing the design/construction team together early should make for a more enjoyable and rewarding construction experience for all concerned.

A comparison of delivery methods isn't complete without a look at overall project costs. The preconstruction services of a CM can add 1 - 2% to project costs. Proponents of CM-at-Risk will argue that value added to construction and the reduction in change orders that result from these services far outweighs the cost, but this is difficult to measure. In addition, the prequalification of subcontractors can increase bid amounts, but the increase in quality and reduction in change order requests is usually worth it.

It is generally held that the traditional Design-Bid-

Build delivery method still produces the lowest *bid day construction costs*. We believe that this is true in general, but under the right circumstances CM-at-Risk could get close or even beat the Design-Bid-Build prices. In comparing CM-at-Risk to Design-Bid-Build, we compare the CM fees to the general contractor's bid for the same services. In a favorable bid climate we would expect the general contractor's bid to be lower than the typical CM fees. However, in an unfavorable bid climate (few contractors competing for a lot of work), the CM-at-Risk fees could easily be lower. Another factor is that the owner can control the CM fees through negotiation.

The biggest factor in the cost of construction is the level of competition, not just between general contractors but also between the trades or subcontractors. The CM-at-Risk delivery method has the potential to increase competition in the trade contracts. In the Design-Bid-Build arena, the owner never knows how many subcontractors were competing for any particular segment of the work. With CM-at-Risk, each trade is bid separately. If there is a lack of competition for one trade, or bids appear high, bids for that trade can be rejected and rebid, without jeopardizing the other bids. This could help get bid day costs in line with the Design-Bid-Build approach. The CM's participation in the design process should also result in a significant reduction in change orders throughout the project, so *final construction costs* could compare favorably with those of a Design-Bid-Build project.

Lease/Lease-Back

Lease/Lease-Back legislation has spawned a variety of delivery methods. It is an open question as to whether this flexibility was intentional, or was the unintentional result of loopholes in the law. The apparent flexibility may just be the result of overly zealous interpretation by its proponents. We will leave those questions to legal counsel.

Lease/Lease-Back is governed by Section 17400 through 17429 of the California Education Code. On first reading, it appears that the intent of the Lease-Lease-Back code is to provide an alternative method of funding school construction. A straightforward implementation of the code might result in the following process: A school district hires an architect to design a school on a site owned by the school district. The district advertises for leasing entities to submit proposals to lease the site from the district, build the school, and then lease the school back to the school district. The school would become the property of the district at the expiration of the lease. The maximum lease term

» *Project Delivery, page 4*

Investing in our Future

The M&D Student Intern Program

Kathy Witherow

For years we have had the pleasure of hosting collegiate summer interns, all aspiring to be great architects, home from college and eager to taste a bit of what life will be like when their studies are over. This respite from the classroom allows them to experience the practical applications associated with the profession of architecture, adding some real-world lessons to their educational achievements. In more recent years, we have been very pleased to find quite a few high school students just as eager to get a taste of the business of architecture and gain some insight into architecture as a profession.

“...we hope to give them enough of an understanding of the industry...”

Our local high school district, El Dorado Union High School District, has a great Regional Occupational Program (ROP) that offers architectural and CAD drafting classes. Several of our full-time employees have come out of this program and continue to be successful in their contributions to the firm.

There are student job shadow programs in our area that allow interested students to spend the day in our office. They sometimes meet with several individuals in our office giving them a general idea about the various positions available in an architectural firm. Or, they will meet with one person in the area that interests them the most. We participate in these programs throughout the year, depending on students' interests. Here is an introduction to a few of our most recent student interns:

Liz is a sophomore in the alternative studies program at Shenandoah High School. As part of her curriculum, she comes to our office twice a

week to work on a project cataloging our specified products library. She will continue to “work” at M&D for the entire semester or until the project is completed. At the end of the semester she will have to prepare a report outlining her project, her method for completing it, and other observations and skills that she has learned while here at Murray & Downs.

In August of 2002, Dan was just beginning his senior year and wanted to spend his afternoons working at Murray & Downs. He had been in the ROP program for a couple of years, honing his drafting skills. He worked with Murray & Downs throughout his senior year and after graduation he became a full-time Jr. Drafter. Dan works closely with Project Architects and Project Coordinators by picking up red-lines, producing interior/exterior elevations, and running copies of drawings. Dan plans to continue working full time for the next year before embarking on his higher education goals in the fall of 2004.

Jennifer presented herself to our firm with a portfolio that included the drawings for a private residence. The successful construction of the home has recently been completed. As with Dan, her CAD skills are a result of the local high school district's ROP program. She joined us in February of 2003 as a student intern for three afternoons a week allowing her to complete her senior year of high school. After graduation, she became a full-time Jr. Drafter. She is currently enrolled in classes at the local junior college and has cut back to three days a week at Murray & Downs. She plans to transfer to



Did you know ...?

- 1) More than half of lottery jackpot winners go back to work after winning.
- 2) The Sargasso Sea does not have a coastline, because it is located in the middle of the Atlantic Ocean.
- 3) Universal wastes are hazardous wastes that are more common and pose a lower risk to people and the environment than other hazardous wastes. The following items are universal wastes when they are no longer useful or are discarded: batteries; fluorescent lamps; non-empty aerosol cans; mercury switches, thermostats, thermometers and gas flow regulators; pressure or vacuum gauges such as blood pressure gauges, barometers, and manometers; dilators and weighted tubing; rubber flooring; novelties that contain mercury such as some singing greeting cards, flashing athletic shoes; counterweights and dampers; dental amalgam; consumer electronic devices and cathode ray tubes. If you do not recycle these wastes, then you must manage them as hazardous waste rather than as universal waste. For more info: www.dtsc.ca.gov.

Tidbit

(Internal Office Communications)

Offgassing

Problem: new construction introduces materials into each room which give off various forms of odors (offgassing). Some of these are “toxic” to people with allergy sensitivities. Examples are carpeting, vinyl wall covering, paint, etc. contributing to Sick Building Syndrome.

One client’s solution: Revise mechanical specs to read: set economizer/make up air to 100% and run the HVAC units constantly for two weeks prior to occupancy date (substantial completion). Sounds like this would make a good M&D “Standard” to be reviewed with each client.

Remarks

Hint: If you have freestanding interior columns in rooms that require new finishes and/or painting, note the finishes in the remarks column. With bid jobs many contractors will claim that columns are not walls and therefore they can claim extras for finishing them. Painting contractors will usually (but not always) paint the columns within their bids but when we are adding VWC it is not unreasonable for us to indicate this so that it can be included in their takeoff. Also, don’t forget base material indication.

Building Predictability

» Continued from page 1

from John’s comprehensive knowledge as to how the work will be built and his involvement from design development through the entire construction document preparation.

Mike Brumm has worked for 25 years in the construction industry. He too was a superintendent in the field before joining our staff as a Construction Contract Administrator. With his work ethic laying down a rock solid foundation for the group, Mike is focusing his years of construction experience on the other side of the equation exclusively for our medical work. With skill and finesse Mike has been able to walk the walk and talk the talk both on site and through the formal office paperwork process, as he navigates the highly regulated construction highway.

“It is their construction experience in nearly every modality of health care facilities...”

These two individuals make sure there is an all encompassing thought process that goes into the quality of our construction documents. It is their construction experience in nearly every modality of health care facilities, including renovations, imaging replacements, expansions, and new facilities that we believe is of tremendous value to our clients. Everyday, the entire medical department team is utilizing this knowledge to produce more predictability, which in turn produces successful projects and happy, satisfied clients. □

Fast Facts about California’s Public School System

- ♦ Public school enrollment exceeds 6 million and is growing.
- ♦ Enrollment is equivalent to the 14th largest state, Tennessee.
- ♦ Almost 1,000 school districts ranging in size from over 600,000 pupils to less than 20 pupils.
- ♦ 8,000 individual schools and over \$80 billion in school facilities.
- ♦ Public school expenditures exceed \$50 billion annually.
- ♦ \$40 billion is required to build new schools and to modernize old schools.

Provided by C.A.S.H. Website

Project Delivery

» Continued from page 2

is 40 years. The successful leasing entity would be selected through a competitive process based on the lowest proposed rent. The school district is allowed to conduct an election to raise taxes to pay the rent. The leasing entity is not required to put the construction out to public bid, presumably because there will be enough price competition in bidding the rent.

The scenario described above is not among the many Lease/Lease-Back delivery methods gaining popularity. What has become popular is to leverage the portion of the law that does not require competitive bidding to justify a variety of delivery methods that are similar to delivery methods common in the private sector, including Design-Build, Negotiated Lump Sum, and Guaranteed Maximum Price (which is similar to CM at Risk), among others. We are not going to discuss the differences between these various approaches. We will concentrate on what these methods have in common and the value of the flexibility that Lease/Lease-Back apparently provides.

One feature all the popular Lease/Lease-Back approaches have in common is that the term of the lease coincides with the duration of construction, and the lease payments are curiously similar to the progress payments one would expect to see on a traditional Design-Bid-Build project. Another aspect they have in common is that they rely on traditional school construction funding sources such as the Office of Public School Construction (OPSC) and local bond measures to make lease payments. In other words, the only reason there is

“Being able to put together a team of known, trusted professionals who have a track record of being able to work together... is invaluable.”

any leasing involved is to take advantage of other provisions of the law, most significantly, the desired ability to avoid low bidders.

This brings up the two major disadvantages of Lease/Lease-Back. First, it may be risky from a legal point of view. Legal counsel is definitely advised. Secondly, although OPSC has funded Lease/Lease-Back projects in the past, they are currently reviewing their policy. They may come up with some restrictions on the types of delivery methods they will fund with State dollars.

The advantages of Lease/Lease-Back are related to its flexibility. Being able to put together a team of known, trusted professionals who have a track record

» Project Delivery, page 5

Project Delivery

» *Continued from page 4*

of being able to work together and stay focused on the goals of a project is invaluable. Being able to tailor the delivery method to the specific needs of the project and strengths of the team members is another significant advantage. The predictability and teamwork that we are looking for in this alternative delivery method are clearly achievable if the right team is assembled.

We would recommend Lease/Lease-Back as a delivery method with the following conditions:

- The district has a person on staff who has the time and ability to lead the entire process
- The architect, contractor, and leasing entity are respected organizations that share similar values of integrity, teamwork, and cooperation with the district
- An attorney familiar with public contract law is hired by the district to review the selection process and all contractual agreements
- If OPSC funding is needed, their commitment to fund the project is obtained in writing before proceeding
- Open accounting records need to be maintained- the district should know the amount of each subcontractor's bid and have an itemized accounting of the leasing agency's and/or general contractor's fees

The recommended Lease/Lease-Back approach is likely to produce a more costly project than either Design-Bid-Build or CM-at-Risk.

Summary

It is likely that there will eventually be legal challenges to both CM-at-Risk and Lease/Lease-Back project delivery. Until that happens, their legality will be open to question. To the extent they survive legal challenge, we would expect these delivery methods to become more widely used in the public construction arena. Lease/Lease-Back has the additional hurdle of acceptance by OPSC for funding. Since CM-at-Risk and Lease/Lease-Back services are selected by a qualifications based process, we believe that their widespread use should have a positive affect on quality and integrity in public construction. □

Staff News

Introducing Our New Staff Members:

Nancy Ryon – Nancy joins us from Crockett, CA where she was performing construction project management services for a San Francisco retailer. She earned her architectural degree from the University of Oregon and has provided architectural services in such areas as: K-12 educational facilities, retail and corporate. Nancy has jumped right in at Murray & Downs as a project architect for several educational facilities projects. We are happy that she has joined our firm and we are especially thrilled with how quickly she has become a valuable part of our team. Welcome Nancy!

John Graifemberg – Our most recent addition to our Healthcare studio, John joins us in the position of Sr. Project Architect. For the past six years, John has filled the position of Senior Project Manager for Vanir Construction Management, Inc. Prior to the position with Vanir, John spent nine years with another local architectural firm in the position of Project Manager/VP of Healthcare. He earned his architectural degree from California Polytechnic State University and a Masters degree in Business Administration from Southern Methodist University, Dallas Texas. We are pleased that John has joined our team – Welcome John!

Summer's Over - Time to Study!

There are quite a few within the office pursuing their architectural license. We have a total of fourteen in the group: four designers, four project coordinators, three production coordinators, two drafters and one production manager all in various stages of completing the required ten exams; Nine written tests in the various disciplines and one oral test that is rumored to be the most grueling and tortuous one of all! With the final days of summer over, the second year of study sessions has begun – experienced architects in the firm meet with the group as mentors to help prepare the future architects for the tests to come. We applaud the group's dedication to the profession of architecture and their own professional development!



» *Staff News, page 6*

Tidbit

(Internal Office Communications)

Is There Room?

Just a suggestion to drafters, when you physically draw a section through a space which has a ceiling shown tight to the roof or floor joists, you should check how the services for that room are being handled. For instance, where are the HVAC ducts that supply that space going to be located? Will light fixtures fit in between the joists/blocking, or will they have to be flush mounted (did you alert the electrical consultant?). If you show a ceiling access door on the RCP, is there space above the ceiling? If you sense a problem, advise the PA and/or Project Coordinator of the potential problem, if there is one. Also, spaces which are drawn in plan (RCP) but not drawn in section and have ceilings tight to joists also need to be verified in the same way.

Investing in our Future

» Continued from page 3

Montana State University next fall.

Alex, also a student of the local ROP program, graduated from high school in January of 2003. He came to work for Murray & Downs in February of this year. He is currently working on several educational projects including the next new high school for the El Dorado Union High School District. His drafting skills and contributions to projects continue to grow as his duties, which include picking up red-lines, producing interior/exterior elevations and details, continue to expand.

Bre is currently a senior at Union Mine High School. She wanted to see what the inside of an architectural firm was like because she is considering a career in the architectural field. She spent a week in our office during her summer break doing some drafting, assisting in the preparation of color boards and performing administrative tasks. She has recently become a part-time employee, working three afternoons per week providing administrative and drafting support.

At Murray & Downs, we value the opportunity to work with the students in our community. By exposing them to the rewards and challenges associated with the profession of architecture, we hope to give them enough of an understanding of the industry to help them with their future educational and career decisions. We are honored to be a small piece of the puzzle that positively contributes toward the future success of these extraordinary young adults. □

Staff News

» Continued from page 5

Breast Cancer Walk

The American Cancer Society's Making Strides Against Breast Cancer® walk is unique among fund-raising and awareness-raising events. Unlike other organizations, the Society offers a comprehensive and far-reaching approach to breast cancer prevention, treatment, and research, and to improving the quality of life for cancer patients and their loved ones. This past Oct. 19th, over 20 staff members, family, and friends participated in an invigorating 5k walk through Sacramento in support of the event. □

Projects In Design



High School #5

El Dorado Union High School District

North Tahoe High School/Middle School

Tahoe Truckee Unified School District

Elk Grove Elementary School #42

Elk Grove Unified School District

Cameron Park Fire Station

Cameron Park Community Services District

X-Ray Room #2

UC Davis Medical Center

MRI Replacement @ MCPC Cameron Park

Marshall Medical



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