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ABSTRACT

The California legislature's Joint Legislative Audit Committee has issued a report on the design-build versus the design-bid-build process and offers a hybrid approach combining the two systems as a way of achieving the greatest cost efficiency at the least risk on public agencies. The cost benefits of faster delivery of the design-build method may also be attainable in the longer design-bid-build process by making certain potential adjustments to design-bid-build methodology. Examples of these adjustments include: (1) modifying existing law to allow owner selection of pre-qualified general contractors based on the three lowest bids with a percentage cap on the spread between the lowest and highest bids; and (2) allowing for Department of State Architect approval of plans that are "performance" based so that in cases where a firm price is agreed upon, the independently contracted architect/engineer could work collaboratively with the general contractor to design the project's systems. The basic components and competing attributes of both building approaches are examined, including discussions on each method's structure, level of accountability, checks and balances, risk levels, and cost savings. Concluding sections present an analysis for selecting one of these competing systems and recommendations for creating the hybrid system. (GR)

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JOINT LEGISLATIVE AUDIT COMMITTEE
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DESIGN-BUILD

POST HEARING BRIEFING PAPER

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Joint Legislative Audit Committee
Informational Public Hearing
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Design Build in Public School Construction:

A Post Hearing Briefing

A Report of the Joint Legislative Audit Committee
Chairman, Scott Wildman

Special Thanks to:

Project Director: *Bryan Steele*
JLAC Secretary: *Jennifer Pierce*

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EXECUTIVE SUMMARY

The use of design-build as a method of organizing public school construction has gained a great deal of attention over the past few years. From the Design Build Institute of America in Washington, D.C., to statewide construction industry advocacy groups, to individual owners and contractors, there is a great deal of pressure on the State Legislature to alter existing law to accommodate design-build. In fact, SB 50 passed last session requires the State Allocation Board to adopt guidelines by June 30, 1999, to achieve measurable reductions in the costs of school facilities construction. Included in these prospective guidelines are alternate cost-saving construction methods such as design-build.

Design-build advocates argue that the design-build construction method produces less expensive yet higher quality buildings at speeds unattainable from its traditional counterpart design-bid-build. While numerous industry-sponsored studies along with anecdotal information support these claims, empirical evidence has yet to replicate these results save for one, a faster delivery time. Compounding this lack of objective collaboration is the concern that design-build results in the exposure of unnecessary risk to the otherwise unsophisticated school district owner.

The apparent gulf between the position of design-build advocates and empirical research may lie in the structure of the argument itself. Rather than thinking of the design-bid-build vs. design-build debate as a matter of competing ideologies, a more productive approach may be to compare and contrast the individual components of each of the construction delivery strategies now being utilized.

Design-build, like its counterpart design-bid-build, is a collection of dynamic systems that produce various attributes. To say for instance that design-build produces a faster delivery time than design-bid-build is to potentially mislead the audience into thinking that a faster delivery time is a characteristic unique to design-build projects. In fact, any attribute associated with this

particular construction method, such as a faster delivery time, may also be attainable under the design-bid-build method.

For instance, cost savings is a common attribute cited by design-build proponents. Beyond issues of whether or not cost savings are demonstrable through the use of design-build, there is the question of what specific dynamic of design-build leads proponents to this conclusion and is this dynamic the sole property of design-build? Arguably, design-build earns its reputation for cost savings in large part due to the emphasis of owner preplanning prior to the beginning of construction. By preplanning, the owner theoretically eliminates the expense of unnecessary change orders. The question then is: Is the impression that design-build reduces cost of a project a product of design-build as a delivery system or only the design-build emphasis on owner preplanning - an attribute that is easily transferable to the design-bid-build scenario?

This report concludes that design-build and design-bid-build could conceivably be creatively melded to produce a delivery system that may provide the promised benefits of design-build without sacrificing the desired security of design-bid-build. The result of this blending process arguably offers much of the freedom local districts desire while preserving the traditional checks and balances that characterize the design-bid-build process.

Examples of these potential adjustments to design-bid-build could include:

- Modify existing law to allow owner selection of pre-qualified general contractors to be based on the three lowest bids with a percentage cap on the spread between the lowest and highest of these three bids;
- Allow for DSA approval of plans that are "performance" based so that in cases where a firm and predetermined guaranteed maximum price has been agreed upon, the independently contracted architect/engineer could work collaboratively with the general contractor to design the project's systems.

The design-build vs. design-bid-build discussion is nothing more than an analysis of two competing systems that are both designed to produce similar results, i.e., good quality buildings at a reasonable price that are built in a reasonable time.

If government is to favor one system over another, government is also responsible for ensuring the system of choice is up-to-date and in keeping with market trends. Therefore, the design-bid-build vs. design-build debate has fundamentally challenged the status quo of the design-bid-build system in a critical and responsible way.

It is clear that design-bid-build is lagging in its response to the forces of market evolution. Concern over this lag should arguably be compounded by the recently passed $9.2 billion school construction bond measure. Therefore, it is imperative that the legislature look closely at the dynamics of these two systems to ensure that upcoming legislation satisfies the government's responsibility for ensuring the systems being utilized in the public sector are effective and efficient without increasing the burden of risk on public agencies.

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http://democrats.assembly.ca.gov/members/a43/jlac.htm

DESIGN BUILD:
A Post-Hearing Report

The Joint Legislative Audit Committee (JLAC) held an informational hearing on July 15, 1998, concerning the design-build (DB) construction process. This hearing was the third in a series of informational hearings that examined alternative ways to facilitate the construction of public schools.

California's public school districts have historically relied on the design-bid-build (DBB) method of construction delivery for the better part of this century. The term *construction delivery process* refers to how the owner of the soon to be built project aligns itself with the architect and the various trade contractors who actually perform the work. Now that California is preparing to spend an unprecedented $9.2 billion for new school construction and modernization over the next ten years, numerous alternatives to the DBB construction delivery process are being considered.

The two main alternative construction delivery methods being advanced today are *construction management* and *design-build.* For a comprehensive look at the role construction management plays in the building of California's public schools, refer to the JLAC's Construction Management Post Hearing Paper, July 1998.

The Federal Construction Council Consulting Committee on Cost Engineering defines the DB delivery method in their technical report Experiences of Federal Agencies with the Design-Build Approach to Construction as:

> Any construction acquisition arrangement in which both the design and construction of a facility are covered by a single contract. Such arrangements can take many forms and include many different provisions, but the basic objective is almost always the same: to

unify responsibility for both design and construction in a single entity, which can be either a single organization or a consortium.[1]

The Design Build Institute of America (DBIA) manual, Design-Build Manual of Practice, defines DB a little differently when it states:

> Design-Build is a method of project delivery in which the owner executes a single contract with one entity (design-builder) to provide architectural/engineering services and construction services. Design-Build is also known as "design-construct" and "single source" or "single responsibility."
>
> By contrast, with "traditional" design-bid-build approach, the owner commissions an architect or engineer to prepare drawings and specifications under a design contract, and subsequently selects a construction contractor by competitively bidding or negotiation.[2]

Richard Walterhouse represented the DBIA at the July hearing. Mr. Walterhouse offered the following testimony as to the nature of DB:

> Mr. Chairman and members of the committee, my name's Dick Walterhouse. I'm Vice President of Charles Panco Builders, Ltd. We're a 35-year-old design build firm with offices in San Francisco, Oakland, Altadena and Newport Beach. It's a pleasure to be here today in front of you.
>
> Today I am representing the Design Build Institute of America. The Design Build Institute of America provides a voice for design build practitioners. It advocates best practices, creates and disseminates educational information, and furnishes advice and

[1] "Experiences of Federal Agencies with the Design-Build Approach to Construction" Technical Report No. 122, The Federal Construction Council Consulting Committee on Cost Engineering, National Academy Press, Washington, DC 1993.

[2] Design-Build Manual of Practice, by the Design-Build Institute of America, "An Introduction to Design-Build" pg. 1

support to facilities and owners. The Design Build Institute of America was founded in 1993 to promote the widespread use of design build throughout industry and government. With its headquarters in Washington, DC, the Design Build Institute of America currently accounts for over 390 design build firms on its membership rolls. As compiled by the Engineering News Record magazine, design build members accounted for over $55 billion in construction put in place in 1997.

The design build method of project delivery is truly growing at an amazing rate. Those in the design and construction industry believe that the current rate of growth, the design build method of project delivery will be used to produce 50% of all non-residential construction projects by the year 2010.

Before going further, I'd like to reiterate what the definition of design build is. Design build is a method of project delivery in which one entity, the design-builder, executes a single contract with the owner to provide architectural engineering services and construction services. This one entity is responsible to design and build the project at a guaranteed price and schedule based upon performance criteria established by the owner. Project owners, both public and private, across the United States are finding that there are advantages for using design build over the traditional design, bid, build method. Very briefly, these are single source contract responsibility, costs and schedule savings, increase innovation, improve risk management and increase quality. There are several studies that support these advantages, and the Design Build Institute of America will be delighted to share those with the committee. The DBIA knows of no studies that show that design build is a less efficient project delivery method.

Gordon Chong is founding principal of an 85-person firm with offices in San Francisco and in Sacramento, and does a considerable amount of public school construction. Additionally, he is the Past President of the American Institute of Architects (AIA) for the State of California. In his capacity AIA president, he had the opportunity to undertake a two-year study that resulted in the

development of a handbook on project delivery. Mr. Chong testified at the hearing where he offered the following distinction between design-bid-build (DBB) and DB:

> I think the differences between the various processes of design-bid-build and design-build are such that design-bid-build tries to spell out as much specificity as possible. We'll never catch everything, but we try to identify as much specificity as possible so expectations will be met in the best of circumstances. In a design-build process, the desire is to let the design and construction team establish a better methodology to implement what is desired, so you spend less time in defining the specifics of how to do it, if you will, and in so doing, the owner needs to be willing to release control of those kinds of specificity. If you're willing to do that, then it's a viable methodology.
>
> As Dick Walterhouse of Design Build Institute of America advocates appropriately, the best collaboration can come up with some very creative ideas, but it's not necessarily meeting the expectations in a holistic perspective of what the client perceives is being the most appropriate for the solution. So that's the rub I think that we find with most sub consultants, especially engineers, is that it's driven by a different leadership, rather than a traditional design-bid-build process.

Design-Bid-Build vs. Design-Build: A Comparison of Basic Components

This report approaches the DBB vs. DB discussion by comparing and contrasting the goals and dynamics of an ideal construction project with the basic components of construction delivery. The goals of any construction project include a reasonable:

- Price
- Quality
- End date

Further, all successful construction projects require the following attributes:

- Good management
- Good understanding between the owner and contractor
- Reasonable time to build

And finally, all construction projects involve an:

- Owner
- Architect/Engineer
- Trade contractors

The question is how to best align these six attributes so that the Architect/Engineer and Trade contractors are used with optimum efficiency for the benefit of the owner-districts without their assuming any undue risk.

DESIGN-BID-BUILD: STRUCTURE

In a DBB scenario, the owner first hires the architect. Then, usually at a later time, the owner independently hires the general contractor (GC). What further distinguishes the owner-architect relationship from the owner-GC-relationship are the differences in the nature of these two very distinct contracts.

Architect:

The owner hires the architect as its *agent*. This agency relationship means that the architect is a service provider – the architect provides "architectural services" to the owner. The nature of payment is therefore in keeping with a service vendor. The architect-vendor receives a fee for services paid directly by the owner as proscribed by the initial contract.

The agency nature of the architect–owner relationship also influences how the architect is chosen. Rather than having to base the selection of an architect on the lowest bidder, the owner is free to choose their architect based on less tangible criteria. The owner selects the architect based on the notion of "most qualified" which allows issues such as track record and compatibility to influence the selection process. The end result may very well be that the owner selects an architect's bid that is considerably higher than the lowest bid due to quality based issues.

All of the above directly influences the overall relationship between the owner and architect. Since the payment is based on a predetermined fee, the owner-architect relationship is more akin to employer-employee with all the associated loyalty. There is no opportunity for a law-abiding architect to increase their compensation received once the initial contract is singed. It is therefore customary to think of an architect as the "eyes and ears" of the owner who looks out for the owner's interests.

General Contractor:

The GC is hired by the owner as an *independent contractor*. This independent contractor relationship results in the general contractor providing a product --- in this case the school. The nature of payment is the profit built into the price of the original winning bid. The GC calculates his/her bid based on the expected labor and materials costs of construction plus enough compensation for time, expertise and assumed risk. In the case of a general contractor, compensation is not a function of any direct fee but a matter of experienced business savvy and aggressive management.

The independent contractor nature of the general contractor also influences how the general contractor is chosen. GCs for public works are selected based, with issues of pre- qualification aside for the moment, on the lowest bid. The owner makes known the parameters of the project to prospective bidders and then selects the winning bid based on the lowest price. In contrast to the qualitative architect selection process, the owner is mandated to select the general contractor based primarily on price.

When asked to comment on what provisions of California Law govern the bidding and selection process for public school construction contracts, the Legislative Counsel for California wrote:

> Article 3 (commencing with Section 20110) of the Chapter 1 of Part 3 of the Public Contracts Code (hereafter Article 3) generally governs the bidding and selection process for contracts awarded by school districts for "public projects," defined generally to include construction projects (para. (1), subd. (c), Sec. 22002). Among the requirements imposed on school districts by article 3 is a requirement that contracts for public projects that involve $15,000 or more be let to the lowest responsible bidder (subd. (b) Sec 20111), except in the case of an emergency (Sec. 20113).[3]

[3] "Public School Construction: Contracting - #21763," Legislative Counsel of California, October 21, 1998.

All of the above directly influences the relationship between the owner and the general contractor. Since payment is based on adding additional cost to the price of material and labor, the owner-general contractor relationship is more akin to a consumer-producer relationship where the price of a product includes both the producer's cost and profit. In contrast to the architect's compensation scenario where the fee is set, there is an opportunity for the GC to add on additional costs to a project, and therefore increase profit, after the initial contract is signed.

Central to the owner-general contractor relationship is something called a *change order*. After a project has begun, a law abiding GC may argue that unforeseen costs have arisen that justify additional owner expenditures – all of which may result in additional general contractor profit.

The Checks and Balances of Design-Bid-Build:

The owner is vulnerable in the face of change orders and must answer the question: Does a particular change order represent a legitimately unforeseen issue or is it simply an attempt by the GC to increase their profit?

It is here that the tension between all three DBB players comes into view. Generally speaking, loyalty is based on satisfying the demands of a contract and the contracted entity's respective source of income. The loyalty of an architect is distinct from that of a GC, as there is no conflict between satisfying the contract and income. The relationship between the owner and architect is unique because in addition to the contract, payment from the owner to the architect is based on a pre-established fee and not subject to architect inspired inflation. Conversely, the loyalty of a GC is split between satisfying the owner's requirements as stipulated by the contract while at the same time pursuing those sources of profit that are derived from running an efficient project.

It is within the arena of GC profit that the difference between the architect and GC plays-out. Since the architect must review each change order and has no financial interest in the profits of the general contractor, the owner can be reasonably assured the general contractor is not asserting undue advantage.

It is possible, however, for an unscrupulous GC to intentionally under bid a project so that after winning, such a contractor could submit numerous change orders in order to inflate their profits. An architect is relatively powerless in this instance as such change orders maybe necessary to complete the project regardless of the fact that they were the product of an unscrupulous GC's bidding process. The way both DBB and DB address the unscrupulous change order will be discussed later in this section.

DESIGN-BUILD: STRUCTURE

In a design-build scenario, the owner contracts directly with one entity, the DB team. As such, some of the dynamics of DBB remain the same while others are dramatically altered. First and foremost, the contract between the owner and the DB team is an agency contract rather than an independent contractor relationship. The GC and sub-contractor relationship takes place within the DB team.

Additionally, pure DB also includes a fixed price and delivery date. Fixed price, it is argued, results in savings as the potential for change orders is reduced and the DB team is motivated to save for the sake of future unexpected costs.

Architect:

The architect is hired as a dependent part of the DB team. As such, the architect is paid by the DB team and therefore signs no direct contract with the owner. There is no independent agency architect in a DB scenario unless the owner opts to hire an additional architect.

General Contractor:

Like the architect, the GC is hired by the DB team and therefore does not directly contract with the owner. As such, the general contractor is paid by the DB team and therefore signs no direct contract with the owner. There is no distinct independent contractor in a DB scenario as the DB team is an agent of the owner.

The Checks and Balances of Design-Build:

By definition, there is no structural check and balance dynamic to design-build inasmuch as there are no competing interests as the general contractor and architect are one and the same. The advantages of DB manifest themselves in the owner's expectations of the DB team – expectations that are fundamentally a matter of trust augmented by a high degree of owner sophistication.

DESIGN-BID-BUILD: ACCOUNTABILITY

The inherent mode of accountability in DBB is structural as previously discussed. The owner, architect and general contractor create a triad of competing loyalties and responsibilities. The owner does not want the responsibility or liability for subcontractor performance so the GC assumes that job. In "compensation" for this burden of responsibility, the GC is free to manage the field of multiple sub-contractors with performance tied to the architect's specifications and profit tied to the efficient management of subcontractors. The architect, along with a state-licensed inspector, ensures compliance with their drawings on behalf of the owner. These interrelationships are a product of the DBB structure and may be augmented by the same accountability measures applied to the following DB scenario.

DESIGN-BUILD: ACCOUNTABILITY

There are a number of ways the owner can ensure the DB process performs as desired. The most effective ways are quality preparation of design and performance specifications, prequalification of all participants and performance insurance and bonding.

Quality Preparation

Fundamental to DB is the concept of thorough owner preparation prior to the project being put out for bid. This includes a detailed description of how the owner expects the end product to perform as well as the project's overall design. The idea is that the more an owner details their expectations up front, the less likely there will be any need for changes once the actual design and construction of the project has begun.

Prequalification

Since the selection process is fundamentally qualitative rather than quantitative, the owner needs to be assured as to the history and capacities of those bidding on a project. By discriminating against those firms who have past problems with litigation or who fail to have staff with sufficient qualifications, an owner can select the DB team from a truly qualified field of candidates.

Insurance and Bonding

Insurance companies, in effect, participate in the prequalification process by determining which DB teams are profitably insurable. Past problems or inexperience can disqualify a DB team from receiving adequate insurance. Further, with firms that are eligible to carry adequate insurance, the owner is assured of another layer of protection.

It should be noted, however, that the DBIA manual makes the following statement concerning limitations and liability:

> Clauses which limit the overall liability of the design-builder to the owner are commonly used in certain industry sectors of the design-build market, particularly when the risks are so great as to place the design-builder's capital structure in jeopardy. These clauses are generally enforceable if they are agreed upon between parties of relatively equal bargaining position, are reasonable in amount and clearly define what liability is being limited. It should be noted, however, that some states have found these clauses to be void as against public policy when they attempt to disclaim liability for a party's negligence.[4]

[4] Ibid., "Design-Build Contracting Guide" pg. 31.

Owner Sophistication

One way owner sophistication plays a dramatic role in the success of DB is how owner expectation is developed and communicated to the DB team. The DB team is able to maintain cost and delivery expectations in large part because up-front owner planning eliminates the guesswork.

Owner sophistication also plays a dramatic role in the DB team selection process. An experienced and knowledgeable owner can be sure to select the appropriate DB team to fit the unique needs of the project.

A third way owner sophistication plays a dramatic role in the success of DB is the appropriateness of contracts. Without a well-developed contract, an unaware owner can be at the mercy of a DB Team.

Design-Bid-Build vs. Design-Build: A Discussion of Competing Attributes

The California State Architect, Fred Hummel, testified at the JLAC DB hearing. During his testimony Mr. Hummel stated:

> Design build is certainly not a new system. It's the oldest system known in our profession. It's an acceptable system, but our present DBB system isn't broken; it just needs some adjustments. Now either system can work very well. I've personally been doing design build for almost 50 years. I find it a very acceptable system. I also find that there are many reasons to do the DBB system also. But here on schools in the state of California, our office requires that an architect's contract be with the district so there's no conflict of interest. We don't accept the architect working directly for a building contractor, and we feel that's pretty essential. Now we do have some examples where the architects have worked directly for an agent of the owner, such as a developer. That can be acceptable, and those were examples that were just mentioned to you by Ann Evans.
>
> One thing everyone has to understand that design build requires a great deal of up-front work. You spend your time one place or another, and many people feel that in a design build system your time is best spent up front, making sure that all decisions are positively made before you have an agreement to start work. If we really do our DBB project properly, we do that also, but in the second sense here of the DBB projects, we need the ability to be more selective and have a right to pre-qualify contracts more than we do now, rather than just select or just let any contractor in the business bid on a school.
>
> If you don't do your up-front work extremely well, then you're going to find that problems arise out of the design-build system exactly the same way that they arise out of the DBB system—simply if in changes in a project or incomplete decisions being made in the original aspect of the projects. So I really do believe that both systems are very

acceptable, but we have to make sure that we do have the contracts placed in the right place so there's no conflict of interest.

The dynamic relations of all the players in a DBB vs. DB analysis is covered in the following exchange between Chairman Wildman and Mr. Chong and Assemblymember Davis:

MR. WILDMAN: Just one last question and this may be kind of difficult to answer, but what is the change in the role of the architect and the owner and their relationship in design-build as opposed to design-bid-build as opposed to construction management? I know it's a huge question.

MR. CHONG: It is a very large question, and it's addressed in our handbook. I'd really like to—if I could just spend a few minutes because I think it's an important question that State Architect Fred Hummel addressed in brief. Historically in the traditional design-bid-build the architect is seen as the owner's agent, and while we may not have fiduciary obligations, we have ethical, professional obligations to protect the best interests of our clients. When our contract then switches to that of a contractor, we are in some conflict because we're getting paid and contracted by a contractor; yet by State law we are mandated to be serving in the interests of the owner, so there is a potential conflict that needs to be resolved if we move forward in that direction.

We often talk about the roles of the designer being if you think of two poles—agency role on one side and vendor role on the other. They have two different objectives, and as we move from a design, bid, build agency responsibility toward the other pole, you move more toward a vendor responsibility, and I think that then what happens with a contractor is they begin at the vendor role because they're giving you a bid price and through the design bid process move toward the agency role, if that makes sense to you. I could go on with the CM, but I maybe will save that for another day.

MR. WILDMAN: One of the tensions is that there has been—I've heard rumor, right, that the arrangement of the architect and general contractor in terms of design build issue opens up the possibility for the architect to be pressured into making changes. You basically don't have the owner involvement in that same representative relationship that the architect has with the owner, and that's kind of the area that I want to look at is the team approach, though it's valuable in terms of planning and design, what kind of tensions does that engender, you might say, between architects, general contractors, the groups that are going to be implementing the project?

MR. CHONG: There's clearly a tension there because, as was mentioned earlier, the owner can no longer be involved in stating that programmatic or that qualitative desire because they have executed a design build contract with the design build entity. If they choose to alter that, of course, you open that for a change order, but clearly there's a tension there. We cannot go back to the owner to stand in their support.

MR. WILDMAN: Ms. Davis?

MS. DAVIS: Maybe this is another way of asking the question. Do you believe that one would cut corners differently under the two processes? If you're faced—you know, you're saying that the project's getting a little out of hand and you're trying to save dollars on one end, do you—it seems to me you have more flexibility with design build to go in and make some changes so that in the end you have hopefully the same product, but at least you've done something different along the way. You may not have that same flexibility under a design bid situation, but in both you're going to probably cut corners somewhere to make things work.

MR. CHONG: Well, there certainly are trade-offs, and there are benefits, as you've indicated, by working collaboratively. We absolutely agree with that. Let me just state hypothetically a comment that one of the previous speakers made about moving the location of a playground and it saves $2 million I believe was the indication. Believe it

or not, architects lay out spaces for some pretty good reasons. Now moving something which doesn't change the program or the cost might seem like a fairly good idea, but it's original location may have some implication for operations and staffing, both of which costs go on for the life of the entire facility as opposed to a one-time cost of $2 million. Not to say that $2 million isn't important, but those are the kinds of decisions that you say to yourself does that have—is that a benefit or is that a problem? It could be viewed either way, but I think without the involvement of the owner in saying, well, we want it there and we specifically told you we wanted it there because that's how we operate, and those operational dollars represent ongoing dollars that represent considerably more than the facility dollars—guarantee you.

The potential for conflicts of interest as indicated by Mr. Hummel is also discussed by the DBIA. In their manual, DBIA states under the heading "Potential for Conflicts of Interest" that:

> There may exist the potential for conflicts of interest between the design-builder and the client, particularly since the design professional [the additional agent hired by the owner to compensate for the architect being hired by the design-builder] is often not in privy with the owner. However this can be minimized or eliminated by utilizing the practices recommended through the Manual of Practice, particularly:
>
> - Alternatively, the engagement of the design-builder on a negotiated basis makes the design-builder (including the design-professional) the agent of the owner, with a professional responsibility to represent the owner's interests.
> - Articulation of the owners expectations in performance terms, and holding the design-builder comprehensively responsible for meeting them, makes the design-builder solely responsible for quality and performance of the completed product – which is a powerful incentive for quality assurance in both design and construction.
> - Engaging an owner's design-builder's consultant to represent the owner throughout the design and construction process will provide an independent professional solely responsible to the client for general oversight, review and approvals.

- Prequalification and/or short listing of prospective design-builders will generally eliminate those unfamiliar with the process, unqualified by reputation or experience, and lacking in quality controls and methodology.[5]

The remaining question is whether or not the advantages of design-build outweigh the increased owner liability. The DBIA's manual offers the following list of design-build attributes:

- Singular Responsibility
- Quality
- Cost Savings
- Time Savings
- Reduced Administrative Burden
- Early Knowledge of Firm Costs

[5] Ibid.., "An Introduction to Design-Build" 4-5.

Singular Responsibility

The DBIA manual explains this advantage of design-build with the following:

> With both design and construction in the hands of a single entity, there is a single point of responsibility for quality, cost and schedule adherence. The design-builder is responsible for quality, budget and schedule, and performance of the completed facility. Conflicts between design and construction are the design-builder's responsibility, not the owner's. With design-build, the owner is able to focus on definition of needs (scope of work) and timely decision making, rather than coordination between designer and builder.[6]

The question is whether "single point of responsibility" is equitable with risk. According to the DBIA, the issue of risk is predominantly a consideration from the DB's point of view. The DBIA manual states:

> Because the design-builder usually assumes greater risk (early fixing of price, warranty of performance, accuracy of drawings and specifications) than does the contractor in traditional delivery modes, the design-builder's contractual fee should reflect such enhanced risk assumption.[7]

Should the above be read to imply that in a DB project, there is no owner risk? To find the answer to this question, one must go to the very back of the DBIA manual where the subject of risk is addressed outright. According to the DBIA manual:

> Much attention has been devoted over the past two decades to the issue of risk in the construction process and how to most appropriately allocate such risk among the members of the construction team. At one time, many public and private owners followed the philosophy that all risk should be shifted to the contractor, on the theory that contractor acceptance of risk was the price of doing business and that the profit potentials

[6] Ibid. pg. 2.

justified the contractor assuming considerable risk. This philosophy manifested itself in one-sided contracts that sometimes made the contractor the *de facto* insurer of risk.

However, beginning in the late 1970s, this philosophy was challenged by many thoughtful and compelling industry studies.. These studies concluded that by shifting all risk unreasonably to contractors, owners were paying significantly more for the constructed project through increased bid prices, change order disputes and litigation costs. These studies further concluded that:

- Risks belong with the party who is best able to evaluate, control and bear the cost of the risk.
- Many risks and liabilities are best shared.
- Every risk has an associated and unavoidable cost that must be assumed somewhere in the process.

It is in this context of risk that the difference between public and private construction becomes most evident. As a rule, public entities must maintain a position of risk adversity. Nowhere is this more conspicuous than with public schools.

What should be the State's official position concerning the assumption of risk when building public schools? Is there a reasonable cost/benefit ratio that allows for some risk on the part of local school districts or should districts be strictly risk-adverse? Is it possible to completely eliminate risk for school districts or is any additional risk assumed by a district in addition to the inherent level that structurally exists no matter the precaution?

Risk

The dynamic of risk, beyond what is structurally unavoidable in any construction related contract, is ideally addressed in the contract itself. The exact nature of the contractual

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[7] Ibid. Pg. 4.

relationship between a DB team and the owner is somewhat illusive as it depends on contracts that are unique for each project. What can be generally discussed is the structural relationship between the owner and the GC on such projects. Since there is no direct contract between an owner and GC in a DB scenario, a structural layer, in the form of the DB "team," exists between the owner and GC.

If a DB project goes bust, what legal recourse does the owner have? In a DBB context, the answer is simple, sue the GC. But in the case of DB, there is no direct contract between the owner and GC as the DB team is in the middle. As with construction managers, the ability of an owner to reasonably expect effective legal recourse against sub-contractors who were hired through the owner's agent is problematic; the DB team behaves as another layer that the owner must litigate through in order to reach the sub-contractor defendant.

The issue of risk was a topic of discussion during the hearing. Chairman Wildman asked Wayne Wedin who is President of Wedin Enterprises about whether DB posses an increase risk to local districts. Mr. Wedin replied:

> MR. WEDIN: The question is right to the point, and, quite frankly, everybody in this room understands that risk-reward is a continuum, and the greatest reward is also on the end of the scale that has the greatest risk. That's why developers, when they make it, make it big. And if they don't make it, you don't see them anymore because they've gone broke. The philosophy that people like myself have, staff members when they were working in the public arena like Mr. Shambra have, is that you can't have public risk. What you have to do is to structure agreements, and you've rightfully described the fact that there is growing momentum to maximize the use of these public dollars, and I think what you have to do is to make very sure that the local entities using the devices, as well as the enabling agencies here, have an understanding of the ways in which you can protect the public from risk so that neither the land nor their budget nor their fiscal resources or assets are put in jeopardy because of these kinds of transactions. By definition, you have now ratcheted down on the scale of reward, but it is a prudent

position for a public agency to be in. I believe, in terms of not risking the assets of the public.

Dominic Shambra, who recently retired as the Director of Planning and Development of the Los Angeles Unified School District, testified at the hearing concerning issues of risk. According to Shambra:

> The process for school construction should include as one option the hybrid design construction process that utilizes many of the procedures that we used in modifying this design build project for Belmont, such as the traditional owner-architect relationship continues through completion of the design phases, the owner's risk is limited, and the development team accepts the risk for the architect's work and scope-gaps between the architect's drawings and the contractor's guaranteed maximum price. Cost overrun risks belong to the development team. The architect does not answer to the contractor but to the district and the development team. The owner decides the priority of design decisions, not the design builder.

One common theme amongst hearing witnesses and DB proponents is the notion that the DB process is built on trust. The idea is that by allowing the owner to select their DB team based on qualitative rather than quantitative issues, i.e., lowest bidder, adversarial relationships between the owner and DB team are virtually eliminated. Lettie Boggs is the Director of Facilities Planning and Development for the San Marcos Unified School District. Ms. Boggs testified that:

> We found that design build was very much built on the quality of the team that we put together, that it was a trust relationship, and that was a completely new dynamic for the players. Design, bid, build jobs are built around an opposing tension where everybody is suspicious of everybody else on the team and that keeps everybody honest and in a position of making compromises. And while that works to do that, it's sometimes a very painful process, and it is not necessarily cost efficient.

> We wanted to find a method where we could get all of the players on the same side of the table rather than opposing each other, and with design build we worked very long and hard with our attorneys to provide contracts that gave all of us incentives towards a good, clean project.

Marcy Schultz is the Business Manager of the Building and Construction Trades Counsel of San Mateo County. Ms. Schultz, in addition to her testimony, entered into the record a prepared statement by The Building and Construction Trades Council of San Mateo County President, Paul Manion. Mr. Manion puts forth the following argument where trust plays a pivotal role:

> We suggest a triad, comprising owner, architect and a Construction Manager/General Contractor. We wanted a Construction Manager/General Contractor because we felt it was very important to the projects that the person or entity running the project had hands on experience, such as running crews, timing crews, handling on-site problems, etc. Construction Managers alone don't always have that experience. Experience in the private sector tells us this same relationship is one of trust and cooperation. There is no incentive for the contractor to cut corners or promote extra work because fees and profit are negotiated, and not just accepted on a low-bid basis, because they are a Construction Manager and General Contractor and, under law, can be negotiated under a Professional Services Agreement, just like architects and engineers.
>
> Since the owner pays for work actually performed, the Construction Manager/General Contractor has no advantage for promoting extra work or change orders. It is to a Construction Manager/General Contractor advantage to ensure quality work to maintain their reputation while minimizing change orders, since extras usually represent additional work to administer with no additional compensation.[8]

While the committee applauds the innovative efforts evidenced from the above, it needs to be pointed out that the concept of "reputation" can be illusive when considering the size of

California and the many construction firms bidding on public works projects. JLAC is aware of at least one instance where a large statewide firm doing business in Sacramento as an agent of the owner in now engaged in litigation with that respective municipality while simultaneously representing their reputation elsewhere in the state as being free of litigation.

Cost Savings

Arguably the greatest common advantage advanced by DB proponents at the hearing and in supporting documents is the cost savings provided by DB.

According to Ms. Boggs' testimony:

> Also, we found that definitely design build is affected by the quality of the team, and, in fact, any project is affected by the quality of the team you put together. The difference with the design build projects was we had a little more control over the quality of the team because we selected our contractor based on the same type of criteria we have been using to select architects, so we were able to put together a team that we felt would work together, that would put a lot of good ideas on the table, a lot of depth and expertise, and our projects have benefited from that expertise, as well as from a commitment to do better, **cheaper**, smarter schools. And all of the people we had at the table were very committed to that concept.

The CDE's Handbook on Project Delivery states:

> When hiring the team to design and build a building today, an owner will find that there are many different ways to structure the work. Within the building industry, Conventional ways of doing business are being challenged in attempts to save time, **spend less money**, reduce litigation, create less conflict, or heighten the building's quality. While minor variations make each working arrangement unique, the major

[8] Prepared Testimony, The Building and Construction Trades Council of San Mateo County.

differences fall into one of three categories: traditional methods, construction management, and design/build.[9]

The CDE's Director of School Facilities Planning Division, Ann Evans, also spoke of cost savings in her DB testimony. Evan's testimony includes the statement:

> The enrollment growth projected for California's schools, combined with the need to modernize existing schools, is estimated by the Department of Education to exceed $40 billion over the next ten years. School Districts need a variety of ways to structure the work to meet this need. The Superintendent supports the use of traditional and non-traditional project delivery methods to get the job done. Non-traditional methods include construction management and design/build. Attempts to save time, spend less money, reduce litigation, create less conflict, or heighten a school facilities quality all ought to be pursued as long as they can achieve the goal of delivering the educational program of the district to the student.[10]

Evan's concluded her prepared DB remarks by stating:

> In conclusion, the Superintendent continues to support innovative, cost-effective ways in which the design, construction and education communities can work together to provide up-to-date classrooms and school support facilities which deliver the educational program of the district.[11]

The president of DES Architects & Engineers, Keith P. J. Bautista, also cited cost savings as a reason to select DB. In a prepared statement Mr. Bautista wrote:

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[9] Resources for School Facilities Planning, California Department of Education, School Facilities Planning Division, Sacramento 1997.
[10] Prepared Statement, Delaine Eastin, California Department of Education, "Design Build" July 15, 1998.
[11] Ibid.

> The private sector takes advantage of other project delivery systems such as design-build or negotiated contracts. Why do this? The reasons are simple: 1) Cost Effectiveness and Control.[12]

Gary Gibbs began his DB testimony with the following:

> Thank you Mr. Chairman and members of the committee for asking me to testify today on behalf of the homebuilding industry and to discuss with you the opportunities that exist in California to build quality public schools quicker and at a lower cost. My name is Gary Gibbs of Gibbs and Associates – a school facilities consulting firm – and I am here today representing the California Building Association and the Homeownership Advancement Foundation.
>
> Let me begin my testimony by congratulating you, your fellow members of the Legislature and Governor Wilson for pursuing more cost effective ways to design and build schools. All of us in the building industry – as parents and concerned citizens, as well as homeowners, businessmen and women – are committed to building quality educational facilities. All of us understand that if we can save 20% in the cost of construction, that translates to over $400 million in savings per year.

The DBIA states in their manual that owners and the design and construction community often consider DB because of their "interest in saving time and money, through a process wherein budget, schedule and constructability are key concerns from the outset." The DBIA manual goes on to state under the heading of DB benefits:

> ***Cost Savings***. Design and construction personnel, working and communicating as a team, evaluate alternative designs, materials and methods efficiently and accurately. Value engineering and constructability are utilized continuously and more effectively

[12] Letter from Keith P. J. Bautisa to Scott Wildman July 10, 1998.

> when the designers, contractors and vendors work as one during the entire design and construction process.[13]

The DBIA manual further states under the heading "Structuring Appropriate Rewards" that:

> Because the design-builder generally assumes more risk and delivers greater value to the owner than a construction contractor under traditional delivery systems, professional fees tend to be higher. However, a well-managed design-build process will provide the owner far greater incremental value than the cost represented by such fees.[14]

Betty Hanson is a former CDE site inspector and current Vice President of California Financial Services. Hanson testified as to her experience advising the Paramount Unified School District wherein she stated:

> What did we learn? And this is going to be a reiteration of what you've heard today, and I think that's important for you—for me to say that these are the same experiences that these folks have been telling you before me. The owner must be in control. They must clearly develop the ed. specs up front and the building specs so that the quality of the product—that the carpet is of good quality, that the locks match all the rest of the district—so they have to have clear, developed building and educational specifications, that the design build team competition that we did up front, the RFP process, does stimulate cost savings.

Further, advertisements promoting DB can be very persuasive when citing cost savings as an attribute of DB. In a piece entered into the record by Mr. Wedin that ran in the special advertising section of ENR, a Construction Industry Institute study concluded:

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[13] Ibid.. pg. 5.
[14] Ibid.. pg. 2.

The design-bid-build method, according to the study, had the greatest median cost escalation at 4.84 percent, followed by CM [construction management] at 3.34 percent and design-build at 2.37 percent."[15]

The problem is that none of these anecdotes or industry sponsored "studies" are supported by empirical objective analysis. Arguably the most substantive analysis to date on the subject of DB is a study conducted by the University of Colorado. Entitled "Selection Factors and Success Criteria for Design-Build in the U.S. and U.K." and written by Anthony D. Songer, Keith R. Molenaar, and Graham D. Robinson, this report is the definitive study to date concerning DB. The paper's abstract states in its entirety:

> Today's owners of constructed facilities are increasingly investigating a variety of alternative procurement methods. These methods include design-build, turnkey, and construction management. A tremendous growth in design-build and limited existence of documented research on owner's attitudes toward design-build necessitates a focus on this particular delivery strategy. To address the area of selecting design-build procurement strategies, a comprehensive research study was conducted on U.S. and U.K. owners for constructed facilities. This paper discusses results from a survey of 137 owners to determine expectations of success and quantify reasons for selecting design-build. Success criteria identified and analyzed include; On Budget, On Schedule, and Conforms to Users Expectations. Selection factors identified and analyzed include: Establish Cost, Reduce Cost, Establish Schedule, Shorten Duration, Reduce Claims, Large Project Size/Complexity, and Constructability/Innovation. It is the conclusion of this study that owner's most frequently select design-build to shorten duration. Owners expect that the single point of responsibility and the ability to fast-track design and construction inherent in the design-build process will shorten the delivery process. It is also the conclusion of this study that owners judge project success by budget variation, schedule variation and conformity to expectations. Although the main motivation for choosing design-build as

[15] "Design-Build Gains Ground as Favored Delivery System" *Engineering News Review*.

an alternative delivery method is to shorten duration over other procurement methods, the criteria for judging its success are the same.

The fact is that there simply is no objective empirical evidence that DB results in cost savings. The one area where industry and research does agree is that DB does appear to shorten the duration of DB projects when compared with DBB.

The Federal Construction Counsel took a far more cautious approach to the benefits of DB when surveying practitioners. In their study of 27 building projects, the study first looked at the reason why owners chose DB rather than determining actual outcomes. The study states:

> For nine of the projects reported on, the primary reason given for the use of design-build approach was to save time. For another six projects, the respondents indicated that the design-build concept had been used primarily to save money – or, as one respondent put it, "to get more building for the money." On two other projects the design-build approach was used in the hope of saving both time and money; on one of these, however, the fact that the project was built with "nonappropriated" funds was a major consideration.
>
> It is not difficult to understand why an agency would believe that the design-build approach could save time compared when compared to the traditional design-bid-build approach, since with the design-build approach the delay between completion of design and start of construction can be eliminated -- or at least greatly reduced. However, it is not self evident – and the respondents generally did not explain – why agencies expected to save money using the design-build approach. One possible explanation is that agencies thought that having contractors involved in the design process would result in more cost-effective designs; however, that is only speculation. The most important issue is whether the agencies expectations were realized.[16]

[16] Ibid., 7.

The study then analyzed each case on the basis of 17 various criteria that ranged from issues of quality, cost and time considerations. The study concluded that overall, the DB approach compared favorably to DBB. The study goes on to say:

> It will be noted that the design-build approach got particularly good marks with regard to the number of change orders experienced and the time required to design and construct the project. In fact, the design-build approach was judged less satisfactory than [DBB] for only two sub factors: the cost of contract administration and the time required for planning and programming.[17]

The ranking system used in this study is as follows:

0 to 2 means much worse;
2 to 4 means somewhat worse;
4 to 6 means about the same;
6 to 8 means somewhat better; and
8 to 10 means much better.

Of the 17 criteria covered by the analysis, the top seven factors were, in ascending order: overall quality (5.38); functionality (5.46); overall costs (6.39); user satisfaction (6.6); contract problems (6.71); change orders (7.07); and overall time (7.6). Again, this study concluded that the cost savings attributed to DB scored only a 6.39 which ranks this attribute just on the line between "about the same" and "somewhat better" than DBB.

[17] Ibid., 17.

JENSEN RANCH: A Design Build Project

There are only two examples of DB school construction projects in California. One of these projects is the Jensen Ranch school built for the Castro Valley Unified School District. Mr. Gibbs offered the following testimony concerning Jensen and its related cost savings:

> As school fees began to escalate dramatically in the early 1990s in many regions of California, California home builders have been working with school districts around the state to introduce new school construction strategies aimed at delivering schools quicker and more dramatically. We do believe schools can be built quicker and more cost effectively. Parenthetically, we've been working closely with the Department of State Architect, Office of Public School Construction and Department of Ed. in trying to address and design more cost effective schools—and they've been very responsive and very supportive. In the home building industry we offer many types of houses from the least cost mobile home to the medium priced production home to the high priced custom home. Each type of house is designed to meet the cost benefit needs of a prospective homebuyer. From our perspective—and I'd like to reinforce this is coming from our perspective—the public school construction industry only offers the consumer, in this case the education community, only two choices, which are your relocatable classroom or your custom school There is no standard production design school. Additionally, unlike the home building industry, there is no design process nor incentive program advocating value engineering school design to the extent necessary to create more cost effective school. Districts are forced to either build the cheap mobile home/relocatable classroom or the expensive custom school.
>
> As this committee compares the cost benefit of design build versus design, bid, build process, I would like to take this opportunity today to focus the committee on the importance of the design process. We believe that the design of the school is where the majority of the cost savings will occur.

In March, 1997, the California building industry presented a prototype school to the state legislature and governor called the Learning Center of the Future. The Learning Center of the Future was designed based on the knowledge gained from privately building a school in 1995, Jensen Ranch, combined with comprehensive and exhaustive evaluation of existing state building programs, coupled with the transference of production efficiency successfully adopted in the home building industry.

As an anecdote, I was involved with the Jensen Ranch School, and it was, in actuality, in our opinion, a design, bid, build school, but what made it cost effective—and, again, this was a prototype and the first school, and we've come a long way since that school—was that in the design process you balance the educational needs with a very stringent budget. And so there were trade-offs in that negotiation process. It wasn't just a wish list of educational needs. It was a list of educational needs balanced with really cost constraints, serious cost constraints. The second element in terms of the bidding process—we went out to bid the school, but once we received the bids, we didn't necessarily pick the lowest bid. What we did is we went back to the bidders and we said how can you improve the design of this school? So we incorporated the construction people who are hands-on with our designs to improve the final design process to make it more cost effective. Under the competitive bidding process, you do not have that opportunity really to negotiate with the bidders in a sense of enhancing and improving and streamlining the cost and the design of the school. By the way, the project did come in not on budget, but under budget and under time.

Today what is exciting is the first prototype learning center of the future is under construction, and I think you brought up the point eloquently that we are in an innovative process. All of this is new and we're trying to explore different ways to be creative and solve a very serious statewide problem. This prototype school not only meets our needs but exceeds our needs. This school is under construction in Foster City School District. It's an expansion of an existing school, but it's ten classrooms, restrooms and a multipurpose room. Every element of this school is standard design. This is a permanent

steel-built school. What is unique about this school is that every component of this school, whether it's a classroom, multipurpose room, restroom, admin, storage, library, technology, etc., etc., are all standard design that have already been approved by the Department of State Architect. And we've been parallel tracking this and working with the Department of State Architect and OPSC in terms of the designs. The floors are all concrete slab and grade foundation that allow for adequate drainage. The framing is galvanized metal steel. The ceilings are all sloped with T-bar system with the standard wall plate height of 9.6 feet and center point at 12 feet. Every element of this school is pre-designed and standardized. Additionally, every element of this school is built off site in a manufacturing facility and shipped and assembled on site. It's like a Tinker Toy set. So it's a permanent structure, prefabricated, designed off site and shipped on site. The concept is literally you could now go up to the Department of State Architect and, if you have a plot plan, basically put the elements on a plot plan today. Obviously, you need an architect and there's a lot of work in the process, but we're getting a lot closer.

By not designing a total school but standardizing components of the school, local districts still have tremendous flexibility to personalize and customize the school to meet the local needs of the community. The architect's role is critical but will be primarily related to determining the size of the school, such as number of classrooms, laying out the school on the site, and incorporating personal touches, such as additional cabinetry, stucco walls, multimedia, community education systems, type of flooring and technology. So we're building core facilities that are pre-DSA approved and then you're adding whatever you want to meet the local needs.

Since each component of the school has already been pre-DSA approved, the time necessary to design and obtain State approval of the school will be significantly reduced. In fact, there is no reason that a school cannot be designed and built, in our opinion, within 12 months.

I'd like to go over some of where we see the cost savings for this standard but permanent steel-built school.

One, the standard designs will eliminate waste and spoilage. Literally, there was only one dumpster full of waste and storage when this school was completed. That's it. Cart it off. And you allow for the designers to what we call in the construction industry value engineer the most cost-effective school. For example, classrooms will be 30 by 32 or 24 by 40. In our opinion, there is no deterioration of educational quality of those standard designs. And the doors and windows will meet standard specifications that you can order anywhere you want. Walls will not be curved ***; they will not be elliptical, and they will not be 33 or 34 feet. That's where your cost efficiencies start to come into play—inefficiencies. We believe from this standard design and lack of waste and spoilage you're talking about minimum of 5% savings.

In terms of prefabrication of walls, ceilings, roofs and mechanical systems in a factory will allow for economies of scale related to mass production each element of the school. There's another about 5% to 10% minimum savings in terms of the mass production. Keep in mind you're not building one customer school now; you're mass-producing elements of a school, of many schools. There will be significant savings due to what we call mass purchasing of materials. School manufacturers will be able to negotiate with suppliers based not on one school, not on one window, not on one wall, not on one light, but on anticipation of building many schools and many lights and many walls and many windows. We believe there's at least 5% in purchasing savings. Keep in mind we're transferring what we do in terms of what we call production housing into the public school arena in terms of the design elements of it.

Architects, in our opinion, will still be an integral part of the design process. Obviously, you have to have a site plan whether you have 20 classrooms or 30 classrooms and whether you have slopes and all that. There's obviously some engineering work to go into that, but once that's done, you fit each element of the school onto that plot plan.

Twenty-four classrooms is 24 classrooms, and you just go order that wherever you want to order that. Keep in mind this is all steel framed. I do have photographs that I will pass these around. So in terms of architects, we don't see major cost savings in that element, but that's not really critical, maybe 1% in terms of overall cost.

Then the last element of cost savings is the standard design that is pre-DSA approved will eliminate all the needs for change orders and contingencies. I think the contingency now is about 5% and change orders can be any amount, but if you know exactly what you're getting before you build it, there should be no change order problems, no contingency problems, and within budget and under time.

In summary, it is not the construction process but the design that is the most critical element in reducing costs. *** the estimated cost savings for a standard pre-DSA approved and designed school will be at least 20%. Through standard designs the construction process is simplified as the unknowns are eliminated. The standard design school can be a design, bid, build school or a design build school. In fact, most of the concerns from liability to cost overruns to conflict of interest will evaporate if the construction process begins with a standard design.

Mr. Gibbs testimony was contradicted by that of Kurt T. Cooknick who is the Associate Director of Regulatory Affairs for the American Institute of Architect's California Counsel. According to Mr. Cooknick:

I would just like to raise one point with the committee on the Jensen Ranch Elementary School that Mr. Gibbs spoke of earlier. I think it's important that the committee understand in light of Mr. Gibbs' glowing review of the elementary school that Castro Valley Unified School District, in which the elementary resides, had not had a new school in about 31 years, so they were pretty hungry for anything, and that Jensen Ranch really wasn't anything more than borne of litigation. It was actually the child of a lawsuit

brought by the district against the builder for failure to provide a new school to the district in light of its new subdivision that it was developing.

And I think it's also important that the committee understand that along with the elementary school there are some other things that came with it, such as there is no warranty with the school, that the site was leftover remnant of the development and that it is well under the DOE guidelines for what is required, and that the campus is actually decreasing as they continue to build the subdivision out and they require more and more modular units be brought on site to house the pupils. And I think that it would be less than honest to let you go on your way thinking that this was the model project without knowing these facts, so thank you very much.

Mr. Gibbs testimony is further contradicted by the California Legislature's Joint Committee on School Facilities (JCSF) June 1996 report entitled FACT vs. FICTION Streamlining California's Public School Construction by use of TURNKEY SCHOOLS: Is it a Good Idea?. According to JCSF's report:

BACKGROUND

- The developer received approval in 1978 to build a new subdivision located in the Castro Valley USD, which initially was for 1200 homes. In 1983 the developer acquired more land for a total of 1916 homes. Later, the size of the development was reduced to 1740 total homesites.
- School district officials indicated that there was *somewhat of an understanding* between prior district administration and the developer that a parcel of land would be donated to the district as the developer's contribution for school mitigation. There was, however, never final approval or sign-off on the "mitigation agreement" or land deal.
- District collected no developer fees for school mitigation between 1986 and 1992 because developer indicated he would donate land for a school.

- In 1992 the school district indicated that it would exercise its authority to levy developer fees at the statutory level of $1.58 psf for the most recent phase of homes built between 4/92 and 6/92. The district collected $143,984 in developer fees but is required to hold that amount in escrow. (The district is later required to return the $143,984.)
- From early 1987 through 1992, the developer built homes resulting in 1,057,616-sq. ft., which, at the statutory level would have resulted in $1,605,965 in developer fees.
- Developer objects to the developer fees and the matter results in litigation.
- In the settlement conference, the developer finally offered to build a turnkey school. This offer is in lieu of developer fees on this subdivision, past or future. The exhausted district agrees.

FACTUAL SUMMARY

- Total project cost was $2.4 million for an 18,000-sq. ft. facility resulting in $133 per sq. ft. This does not jive with the Governor's report in which he states the school cost $115 per foot. The SAB indicates the average cost per sq. ft. for school construction in the state program is $144; elementary schools are less than this amount.
- Developer held title to the land (part of the original acreage for subdivision) until the school was complete. Thus, accurate financials, such as land development costs, infrastructure costs, site prep. Costs are difficult to pin down.
- Jensen Ranch School (k-5) was constructed to house 280 ADA. The Palomares Hills subdivision at build out will yield 1218 additional children. The mitigation reflects only 23% of the total impact. The developer is held harmless on any costs incurred by the district to house the remaining students. [To date, June of 1996, the project is at about 40% of build out.]
- Site size for an elementary school does not meet State Department of Education minimum standard of 10 acres. Site is 6.6 acres and triangular in shape, resulting in only 5.35 acres of usable land.

- The school opened September of 1995. In less than one year the school population has outgrown its available space and will add an additional portable classroom, to be placed on the blacktop area due to lack of adequate space on the site.
- The school consists solely of portable classroom buildings-factory built.
- The only permanent structure is the Multipurpose Room which was constructed by the developer. The stage, an important feature for elementary schools, is portable and probably inadequate to meet the need.
- Because the developer held title to the property until the school was complete, a "specific exaction" with the Department of Industrial Relations was negotiated which permitted avoidance of prevailing wage and the Public Contract Code.
- To date, there is no final sign-off by DSA. The district is still haggling with Shapell over a couple of issues.[18]
- Factory built classrooms include conduit for technology, but no wiring and cabling. To date the school does not have wiring and cabling, and are struggling with an unsophisticated intercom system.
- Furniture & Equipment: The developer purchased "bare bones" classroom furniture for the students and teacher (desk & chair). The district provided and paid for the furniture for the library and administrative offices, plus bookcases and additional cabinetry for the classrooms.
- The project took two years to negotiate and one year to build.
- According to district officials, past and present, the district had to fight with the developer every step of the way. In the Superintendent's words, what they ended up is "not an excellent school, but a bare bones school."

DISCREPANCIES

- The Governor, in his "Competitive Government" report indicates the Jensen Ranch School cost only $35,145 per classroom vs. the traditional school with a $77,913 cost per

[18] The DSA eventually signed off on this project as of July 24, 1996.

classroom (the cost per portable). The district is now adding and additional portable to the site and the cost will be about $88,000 including site prep. costs.

- The Governor's document indicates the cost of a traditional built school is $162 per sq. foot. SAB and OPSC staff indicate the average is $144 per sq. foot, with the average elementary school costing less.
- A white paper entitled "Cost Summary: Privately Built Public School" indicates the new Jensen Ranch school houses 600 students. How can this be if there are only 300 students enrolled and the district is now adding a portable at their expense?
- The same white paper indicates the site is 10 acres and assumes a land value of $100,000 per acre.
- The document further states the portable classrooms have an estimated 30-year life span, and "are superior in quality to the state standard built school."
- The document says the portable classrooms included "quality cabinetry and furniture." The district indicated they purchased the furniture and the portable manufacturer concurred with this fact.
- MAJOR COSTS DISCREPANCIES: The Governor's document states that privately built turnkey schools will save 22%. The white paper uses the 22% figure as a cost savings, and further states the cost per standard portable classroom of $34,145 "is almost 55% less than cost of a standard classroom approved by OPSC of approx. $77,913."
- A document prepared by Cobs & Associates puts the cost savings at 35%. "The cost of construction for Jensen Ranch School is approximately 65% of the current state guidelines"(noted in Table 2 in the report).

BELMONT LEARNING COMPLEX: Possible Design Build

Another example of a California DB school construction project may be the Belmont Learning Complex (BLC) in Los Angeles. Though purported to be Design Build by the LAUSD, the project has had no consistent theme throughout the last several years of implementation. Many design build professionals have distanced themselves from the project and it is likely that the project is merely part and parcel of a highly risky development strategy utilizing public funds that the LAUSD Office of Planning and Development has regularly employed over the past decade. The following testimony concerning the BLC was heard at the hearing:

> Thank you. My name is Dominic Shambra. I wish to thank you for the opportunity to present testimony before you today. I am here as a private citizen. I have recently retired as of July 4, 1998, as the Director of Planning and Development of the Los Angeles Unified School District. The planning and development office reported directly to the superintendent of schools and was charged with the responsibility of creating special projects, programs and alternative methods and processes.
>
> The design build concept was utilized on one major project that I was personally responsible for, and that was, as all of you are aware, the Belmont Learning Complex. I have prepared for the committee's reference a case study on the construction of the high school portion of the Belmont Learning Complex which we've distributed to you. The project was pursued as a design build project in order to provide a faster way for the district to complete a project and improve cost controls for the construction of schools. In both cases, despite all of the political rhetoric surrounding this project, it has become a reality. The highlight in the case study information provided to you—the first section, pages two to six, provides some background features of the design development methods we used, some unique aspects of the development agreement, its protections, guarantees and incentives.

About in the middle we have a little discussion about the costs and size comparison. And just a comment about that. Much has been said about the costs of this school. In comparison to other newly-constructed or about-to-be-constructed high schools in the state of California, the cost of the school is comparable. The fact is it will serve the highest number of students, 5,300, be built on the fewest number of acres, 35, have a square foot construction cost comparable to other similar schools in like area, and have an average cost per student. It is more expensive than a standard high school, but it is built on the unique type urban location with multiple buildings to accommodate the educational program, and as Ann Evans said earlier, the educational program is very important, and this was very much a part of this project. And it will be multi-story—actually, six stories. It only has the highest gross cost of any other school because its size is three times the size of the average high school being built and not because of the process that was used to construct it.

The remaining information in the case study presents a comparison timeline between design build and the traditional design bid method for this specific project, miscellaneous other information, including a list of some of the lessons learned from this project, suggested legislative changes, general conclusions and other comparative information. We've learned from this project that the use of design build method of constructing schools can and should continue as an effective way of constructing schools faster and providing for a process to control costs.

That is not to say that changes are not needed and improvements should not be addressed. The processes and procedures used to create this project were far from perfect. We learned a great deal and made necessary adjustments as we moved forward. We learned from our experience and improved upon our methods. I believe that if the Belmont project had not been created using a different process, been challenged in the courts, survived, been through continuous oversight and investigation, I would not have been able to come before you today and say that even after all of that, and as painful as it may have been, the process really works. In the future, the process for school construction

should include as one option the hybrid design construction process that utilizes many of the procedures that we used in modifying this design build project for Belmont, such as the traditional owner-architect relationship continues through completion of the design phases, the owner's risk is limited, and the development team accepts the risk for the architect's work and scope-gaps between the architect's drawings and the contractor's guaranteed maximum price. Cost overrun risks belong to the development team. The architect does not answer to the contractor but to the district and the development team. The owner decides the priority of design decisions, not the design builder.

The Belmont project, I believe, has been successful to date because of the following:

- A consultant team that represented the district was highly professional and competent and created a strong agreement that protected the district.
- The design met the requirements of the district, as well as the State Department of Education, OPSC, numerous oversight committees and task forces.
- Value engineering continued throughout the design phases, resulting in significant cost savings for the district and not for the design build team.
- Change orders, which would have been standard practice under the traditional process, and, therefore, the responsibility of the owner, have resulted in, to date, and as far as last week the information that I received, and under the agreement, the development team and not the district is being held responsible for the costs associated with the additional structural steel bracing required by the State.

That's about $200,000 to $300,000, additional waterproofing required due to site anomalies—that's $20,000 to $30,000, and additional plumbing required due to engineering errors, which is at $300,000 plus. Under the traditional process this approximate additional $600,000 caused by change orders would be absorbed for and paid for by the district and ultimately the State under the State program. We have succeeded in creating a new process and approach that works. It has withstood many challenges, attacks and criticisms, and it still works. The school is being built; it is on schedule, and the budget has been validated over and over again, and it is still in place.

This was a new process and approach. It works, and it will work even better with legislative clarification and acceptance of another way of constructing schools.

In seeming contradiction to Mr. Shambra's assertion that the LAUSD proactively chose DB to save time and money, there is ample evidence that DB was defensively chosen for the BLC to combat the LAUSD's historical inability to perform the normal duties of an owner. In a letter dated May 8, 1997, from the LAUSD's lead outside attorney on the project, David Cartwright of O'Melveny & Meyers LLP, demonstrates the underlying reasons why DB was the delivery method of choice for the BLC. In his letter to Richard Phillips of Hillman Biddison & Loevenguth, Mr. Cartwright states:

> I want to respond in writing to your questions regarding school design/quality controls by reason of the fact that the architect is on the developer team rather than the LAUSD team. This is a critical technical issue on which there are pro's and con's. We have tried in the [disposition and development agreement] to retain the positive consequences of an architect/developer team and substantially diminish the potential ramifications.
>
> As you know, the use of the "design-build" format necessarily involves some shift in control of a project from the owner to the developer. The Belmont Project is no exception. We concluded that this shift in control was justifiable for the following reasons: (i) past LAUSD experience with architects has been replete with problems and misunderstandings with the legal requirement being limited to professional negligence, (ii) the ready availability of the architect to the LAUSD (by reason of a contractual relationship) has resulted in continual design changes, delays, change orders and cost escalations with no discernable positive improvement in the product, (iii) in past LAUSD projects, architectural costs were not subject to a "cap" and thus were well in excess of anticipated costs by project completion, and (iv) LAUSD's project developers and contractors inevitably blamed the architect (and thus the LAUSD) for every problem, thus justifying costly change orders. There are a myriad of other reasons as well. Obviously,

there is plenty of blame to go around and the foregoing comments are not intended to place all the blame on the architect.

'Given the LAUSD's experiences, the design-build format offered an intriguing alternative if we could minimize any negative ramifications from loss of control over the architect.

Mr. Cartwright goes on to list a series of modifications to the DB process in an attempt to mitigate the perceived disadvantages of DB. Rather than debating the merits of Mr. Cartwright's approach to mitigating the weaknesses of DB, the committee wishes to take a step back and ask why the DB process was selected for this project in the first place. Rather than selecting DB for its merits alone, it appears DB was selected over DBB to compensate for the LAUSD's inability to perform normal owner functions.

(i) *Past LAUSD experience with architects has been replete with problems and misunderstandings with the legal requirement being limited to professional negligence.*
It would appear the problem here is not with the DBB process but with the LAUSD's apparent inability to effectively communicate with their architect, select a qualified architect and draft an adequate contract. Further, as with most of this analysis, there appears to be inadequate organization and pre-planning on the part of the District.

(ii) *The ready availability of the architect to the LAUSD (by reason of a contractual relationship) has resulted in continual design changes, delays, change orders and cost escalations with no discernable positive improvement in the product.*
Are we to understand that the "problem" here is the District's has too much access to their architect? Does not such a position beg the question as to where the blame really lies, with the DBB process or with the District's seeming inability to responsibly manage their relationship with the architect? It would appear that the move to DB is more an attempt to run away from the District's own internal dysfunction than a desire to improve on DBB performance.

(iii) *In past LAUSD projects, architectural costs were not subject to a "cap" and thus were well in excess of anticipated costs by project completion.*

This "problem" of excessive architectural costs would appear to be a function of poorly worded contracts rather than with the DBB process itself. After all, the architect-owner relationship in DBB is an agency one and as such is fee based in a set amount at the time when the contract is initially signed. If uncontrollable architectural costs are a problem for the LAUSD, it would appear the problem lies internally and not with the dynamics of DBB.

(iv) *LAUSD's project developers and contractors inevitably blamed the architect (and thus the LAUSD) for every problem, thus justifying costly change orders.*

It is arguable that a majority of construction problem arise from poor planning and ineffective communication between the owner and architect. Simply because historically there appears to be chronic dysfunction associated with a majority of construction projects attempted by the LAUSD, there appears to be no justification to blame these problems on DBB. Rather, it would appear that the LAUSD's problems are better remedied internally than asking the State to change its laws to accommodate DB as a means of compensating for bureaucratic dysfunction.

Design-Bid-Build vs. Design-Build: Bridging the Performance Gap

The remaining question is whether shortened duration is a characteristic unique to the DB process or whether DBB can adequately address delivery speed concerns without sacrificing the accountability inherent in the traditional DBB. Considering the conclusion of the above Federal Construction Counsel report, that DB resulted in a faster delivery time but was plagued by higher administrative costs and longer preparation time, is it possible there exists a correlation between these two "disadvantages" and DB's one proven advantage, faster delivery time? Further, would it be possible to adjust DBB to produce a faster delivery time if owners were willing to place more emphasis on preparation? Going back to Mr. Hummel's testimony, he essentially makes this argument. Mr. Hummel testified that:

> One thing everyone has to understand that design build requires a great deal of up-front work. You spend your time one place or another, and many people feel that in a design build system your time is best spent up front, making sure that all decisions are positively made before you have an agreement to start work. If we really do our design, bid, build project properly, we do that also, but in the second sense here of the design, bid, build projects, we need the ability to be more selective and have a right to pre-qualify contracts more than we do now, rather than just select or just let any contractor in the business bid on a school.
>
> If you don't do your up-front work extremely well, then you're going to find that problems arise out of the design build system exactly the same way that they arise out of the design, bid, build system—simply if in changes in a project or incomplete decisions being made in the original aspect of the projects. So I really do believe that both systems are very acceptable, but we have to make sure that we do have the contracts placed in the right place so there's no conflict of interest.

When considering bridging the gap between DBB and DB it appears reasonable to analyze those additional efforts DB proponents agree are needed to ensure DB's success. As indicated by the Federal Construction Counsel's study, project preparation time and administrative investment are the "downside" of DB. When these up-front efforts are combined with the need for complicated contracts and prequalification requirements, another way of looking at these additional efforts is to say that DB requires a higher degree of owner sophistication and effort.

This notion that DB requires enhanced owner sophistication was a common theme throughout the hearing. During Hummel's testimony, the following exchange occurred:

> MR. WILDMAN: Some of the literature that I've read has indicated that one of the clearly defining characteristics of design build and it's viability and effectiveness is owner sophistication. What do you believe in terms of local school districts from your experience about that owner sophistication? What kind of assistance could the Division of the State Architect provide to local districts to assure that they do have the kind of sophistication necessary to embark on these kinds of projects?
>
> MR. HUMMEL: Well, I think that's best provided by the Department of Education in their up-front planning because by the time we get into the act, projects are pretty well along except those that we have been reviewing up front for accessibility and fire, life, safety. And as far as establishing the project originally where the original decisions are made, that comes with a very good education spec. It comes from school boards who make up their mind and stick to it and don't change the scope once they get started. Probably the most damaging thing that can happen to any project is to have a scope change once construction is started because then you pay for it three times. You pay for it to put it in the first time, pay to take it out, pay to put it back in the way you changed your mind to. Probably one of the most important things is to have all that up-front work done really well. Whichever delivery system you use can work extremely well.

While Ms. Evans testimony only touched on the issue of enhanced owner sophistication being an integral part of a successful DB project, her prepared statement is more to the point. There is no mention of the enhanced need for additional owner sophistication in the CDE's "Resource for School Facilities Planning" despite its detailed description of DB. However, the CDE's prepared hearing statement includes the following comment:

> Before deciding on design-build as a method of project delivery, a district should asses its ability to develop a specific and detailed educational specification that will form the basis of the contract between the design-build team and the district. Without an architect who is obligated only to the district and who is available to the district during the design phase of the project, the educational specifications, completed before contract negotiations begin with the design-build team, may be the only input the district has on the educational adequacy of the project. Without a detailed and specific educational specification document, the project is open to interpretations by the design-build team that may be contrary to the educational needs of the district.
>
> The most important advice we offer districts considering design-build is stated in this publication: (1) develop detailed educational specifications and incorporate them into the contract with the design-builder; and (2) design-build should be undertaken only with legal counsel. Its use is limited under the State Contract Act and by the Field Act requirements contained in the Education Code.
>
> Before deciding on design-build a school a school district must assess its access to sophisticated legal advice to help develop a contract with the design-build team that allows the district the right to manage the educational aspects of the project and stay clear of violations of the Sate Contract Act. The contract should refer to the educational specifications and must detail, among other things, how changes to the agreed upon drawings and specifications and product substitutions are handled, who is the responsible party to the district and how cost overruns are defined. Legal advice is perhaps even more crucial in a design-build approach since, unlike the traditional design-build method,

there is not a large body of common law on which the district or courts may base decisions.

Other sophistication issues for districts to consider when deciding on the design-build approach are (1) the type and size of the project; and (2) the project management resources of the district. For specialized projects and projects with site and building constraints, a "non-traditional" approach may work best for the district.[19] Each project delivery option required a different level of project management by the district thus district must evaluate their ability to effectively manage a project in each delivery method.

Mr. Walterhouse also testified as to owner sophistication during the following exchange:

MR. WALTERHOUSE: There is an education element and perhaps a down side to design build, and that is it takes some effort for owners to first learn the process because the process is complex and is not well understood by all owners.

MR. WILDMAN: Just one question dealing with your experience in terms of private sector design build as opposed to public sector design build, what do you feel are the requirements—what are the critical issues that need to be addressed by public agencies when they're considering design build?

MR. WALTERHOUSE: Well, certainly the most critical element to design build project in my opinion is that the parties executing the contract have a thorough and complete understanding of what it is they're buying. When you order a car and you go to GM and say I want a car, you don't just say I want a car. You tell them I want a certain type of car with a certain type of engine with a certain color to it, certain type of interior. You don't specify what the door handles are going to look like or what some of the other

[19] This assertion that DB may be more appropriate for large or complicated projects is not supported by either the Federal or University studies sited above.

components are like because those are not critical. In the design build process it's critical that the parties understand what it is that they're getting when they execute that contract. A lot of times with public institutions and agencies, the design process never seems to stop. It kind of goes on throughout the life of a project, but I think the critical element is that there is an understanding of what it is they are getting when they execute that contract. Without that understanding your design build process falls apart really.

MR. WILDMAN: What is your experience in terms of sophistication of public agencies as opposed to private sector owners—public owners as opposed to private owners?

MR. WALTERHOUSE: Well, most public agencies—people associated with them—have to be educated on what the design build process is. I mean they're used to doing things in a certain manner, and they've probably been doing them for many, many years. And it's not something that you can just kind of turn on and turn off like a light bulb I think. You know, one day you understand it and the next day you don't. It's a continual educational process. One of the things that a number of public agencies that I've dealt with are doing—they are going out and hiring people who are experts in writing design build performance criteria, putting together design build specifications, and helping them prepare a package that is then presented to the design build firms, which then helps become the foundation for the understanding between the two parties.

Mr. Chong weighed in on the issue of owner sophistication during his discussion of which projects lend themselves best to DB. Mr. Chong testified that:

Our summary is to suggest that we need to restrict our temptation to search for the single most appropriate delivery methodology because we believe that it isn't out there and that while you'll hear testimony and have heard testimony this morning about how successful design build has been with the GSA, the Corps of Engineers, University of California, BART, etc., etc., all of which are quite appropriate and we agree with, there are, however, very specific instances where they may not be appropriate—design build might not be

appropriate. In fact, the Federal Construction Bulletin 22, which I'd be happy to make available to you, looked at 22 design build projects with seven federal agencies. They were procured under the same basic process, and the end result of rating those 22 design build projects was that it was basically the same as a design, bid, build—not much difference. And where they succeeded and where they failed was dependent upon the alignment between these issues that I talked about—owner expectations, cost expectations, schedule expectations and risk expectations. So the trick here then is to not exclude any of the various alternatives that are available to you but bring into alignment what those goals are of the various participants, as well as, Mr. Chairman, as you have alluded to this morning—the level of sophistication and ability to deliver those processes. It is important, we believe, that we be clear about what those skills are, not only of the users but of the resources of the design contractor teams within any geographic area to deliver those kinds of delivery methodologies.

Mr. Chong then went on to testify that:

> I think that where there is a geographical location of a school district where contractor resources or design resources are limited, that design build would be not an appropriate application. That where, again, the most important thing where there is a level of sophistication by volunteer school board members who don't understand design delivery methodologies, these kinds of approaches or where procurement objectives are different, then there may be questions where it might be less applicable.

The DBIA addresses the issue of owner sophistication in its manual wherein it states under the banner "Caveats: Cautions for the Owner:"

> *Complexity of the process*: Design-build project delivery requires careful planning and professional execution to be successful. The owner should approach the design-build process mindful of factors such as the project's complexity funding, design intent, responsibility/risk allocation and other important issues.

For owners who do not have in-house personnel with expertise in preparing and administering design-build requests for proposals and contracts, two options should be considered for securing appropriate professional guidance to assure proper project definition through the early phases. Under the first option, the design-builders consultant (sometimes called criteria professional) should be retained to prepare scope definition and RFP documents, and to provide additional consulting services as needed. With the second option, the owner may use direct selection or negotiation to bring the design-builder on-board at project inception to assist in establishing project goals, scope and definition.[20]

Team Selection

A further consideration of DB is how the team itself is selected. Selecting a GC simply based on the lowest bid can be problematic. According to the Legislative Counsel of California:

> In the context of statutes that require that contracts be let to the lowest responsible bidder, "responsible" refers "to the quality, fitness, and capacity of the low bidder" to perform the proposed work satisfactorily (City of Inglewood – L.A. County Civic Center Auth. v. Superior Court (1972) 7 Cal. 3d 861, 867; hereafter Inglewood). This, a statute that requires that a contract be let to the lowest responsible bidder requires that the contract be let to the lowest bidder unless it is found that he or she is not responsible; that is, "not qualified to do the particular work under consideration (Ibid.).[21]

Mr. Bautista, in his written remarks to the committee, makes the following observations concerning this issue of selection:

[20] Ibid. 4.
[21] "Public School Construction: Contracting - #21763," Ibid.

There is the old adage that says, "You get what you pay for." Unfortunately, in many instances when public schools are required to take the "lowest responsible bidder," one is not likely to come paying the "lowest price" indicated by the bid. Some of the reasons for this are as follows:

1. Contractor low-balls the bid and pays for it through change orders.
2. Legal costs and staff time that follows" the end of the project help exceed even the highest bid received initially.
3. "Responsible bidder" does not eliminate incompetent contractors. Districts sometimes have to hire other professionals, at more cost, to supervise these "responsible bidders."
4. Because of contractor low-ball bid habits, good qualified contractors will not waste their time or resources when they know there is not a level playing field. A level playing field is easy to create by having not only prequalificaitons for general contractors, but also for subcontractors.
5. The current bid process requires increasing the cost of school construction.
6. Without the ability to have the contractor on the team from the beginning of the project, opportunities are lost for cost saving value engineering as well as construction efficiencies.

While the Field Act requires the GC be selected based on the lowest bid, there is a powerful tool to help ensure an owner is not stuck with an undesirable contractor who happened to place the lowest bid. Prequalification of bidders allows an owner to differentiate a qualified low bid from an unqualified one. During his testimony, Mr. Chong made the following comment concerning the selection process:

> I think that the last issue that I'd like to talk about for a second is our concern where great strides could be made in the public procurement process. You've heard a comment about the concern of lowest responsible bidder. I think that is a major issue that we need your leadership and direction on that would certainly enhance the control of costs, the quality

of *** product, as opposed to looking specifically at either architects' fees or how bad architects are or how bad contractors are or different delivery methodologies, but much more holistically at each of the collective items as you are currently doing with all these hearings. I think that's really the proper approach rather than to look at what we refer to as silos or individual problems.

The DBIA manual makes the following comment under the heading "Request for Qualifications [RFQ] & Competition Prospectus:"

> In a traditional design-bid-build bidding process, all responsible licensed and bonded builders must be considered as equals by public agencies evaluating their bids. While this situation allows for an equity of opportunity among bidders, it falls short of meeting the public owner's needs on large or complicated projects because the design-bid-build process fails to recognize the builder's unique skills and experiences. The premise of the design-build process is that all design-builders, or teams of designers and builders, are not created equal, and that it is in the public's interest, and ultimately in the design and construction industry's interest, for the owner to select only the best qualified design-builders from among those who wish to be considered.
>
> This puts double importance on the RFQ. First it must attract the "best qualified" to the project and the selection process; and second, the request for proposal documents must inform the potential applicants of the project objectives the proposers are expected to meet, as well as describe the information needed and the criteria utilized determine the best qualified proposers (finalists). The Request for Design-build Qualifications and Competition Prospectus is the most effective, and in some cases, the only instrument that a public agency can use to advertise the project and prequalify the proposers.

The following exchange ensued between Mr. Wildman and Mr. Hummel as to the issue of contractor selection when he said:

MR. WILDMAN: One last question, you spoke about the ability to be able to choose contractors with design build in the private sector. In the public sector we have competitive bidding requirements, so that kind of seems somewhat contradictory. Are those contradictory or not?

MR. HUMMEL: No, because when we speak of pre-qualification, we're talking about being very careful about seeing to it that the people that are going to bid on the project are those who are not only financially capable but have the experience of building schools and are good at it and don't have a road record of being the type of organization that simply is in the business to make all bids low and make all of their business by lacing the job up with unnecessary change orders. I think if you could give everyone the right to have a good, sound pre-selection list of contractors, I think you'd eliminate much of your concerns about time and cost overruns.

Ms. Boggs discussed the notion of prequalification in her prepared remarks to the committee that were based on her experiences. Ms. Boggs writes:

> Any project is only as good as the collective quality of its team members. Design-build allows more control over the quality of people brought to the project team, thus providing the opportunity for an outstanding project. This is the greatest strength and probably the most worrisome aspect of D-B. The ability to select the team opens the opportunity for selection based on criteria other than what is best for the project. We took precautions to ensure that the process was open and appropriate, using a process similar to that traditionally used for architect selection.
>
> - Resumes of contractor and architect personnel were reviewed;
> - References were contacted;
> - Interviews were conducted by a panel of District personnel;
> - Selection recommendations were made to the governing board;
> - This process, the firms selected, and the contracts were approved in open public session of the Governing Board.

In addition to offering testimony before the committee, Ms. Schultz entered into the record a memo from Jerrett Knox who is a project manager for Rudolph and Sletten, Inc. Mr. Knox explains his company's approach to contractor selection by stating:

> R&S, along with the project team, has developed guidelines to promote the aspect of obtaining the "lowest responsible bidder." This self-qualification process includes such factors as years of experience, financial stability and sound safety record along with other valuable information. Essentially, the guidelines allow for two priorities to be met: ours – to be able to bid a project based on using responsive, qualified subcontractors; and the public agency to get the job done right at the lowest price.[22]

Arguably the most complete discussion of bidder prequalification was entered into the record by Ms. Boggs on behalf of Peter D. Nussbaum Esq. of Altshuler, Berzon, Nussbaum, Berzon & Rubin. In his paper "Prequalification of Bidders on Public Works Projects," Mr. Nussbaum explains in his introduction that:

> In selecting a contractor to perform a public works project, a public agency is <u>not</u> required to select the contractor that submitted the lowest bid. A bid can, and must, be rejected if the agency determines that is not "responsive." The term "responsive" relates to whether the bid is based upon all aspects and specifications of the job in question. For example, the bid that is below what the agency believes the job must necessarily cost – taking into account prevailing wage requirements – should be deemed "non-responsive" and rejected on that basis.
>
> In addition, the lowest bid can, and must, be rejected if the agency determines that the bidder is not "responsible." This paper will address that criterion and discusses how an agency can "prequalify" contractors to determine <u>in advance of bidding</u> if they meet the standard.

Mr. Nussbaum concludes his analysis with the following

> California law limits the award of contracts for public works projects to the "lowest responsible bidder." Thus, agencies must determine whether a low bidder is "responsible" before awarding a contract.
>
> While the determination of responsibility can be attained before or after the lowest bidder is ascertained, there are compelling reasons to make that decision beforehand by using a detailed questionnaire to prequalify bidders. A construction manager may be of great assistance in that process. While qualification of bidders may require some additional work at the beginning of the selection process, it will help assure that only qualified contractors bid and are selected to perform the work. By eliminating contractors that are not responsible from the bidding process, agencies will actually save time, money and legal expenses over the long run while meeting their statutory obligation of awarding contracts only to contractors that are responsible.

Legal Considerations

DB is legally problematic for the building of California schools due to issues of contractor selection and the requirement that the owner independently contract with the architect and GC. The CDE acknowledges these obstacles and supports their circumvention. Ms. Evans addressed this issue during her testimony when she said:

> So the two things then that we recommend before district would engage in design build, which we are very supportive of, is that they ensure that they have the capacity to develop a detailed educational specification and include it in the contract and, secondly, that they do have access to sophisticated legal counsel to ensure that they comply with the State Contract Act and the Field Act requirements contained in the Education Code. There's

[22] Letter from Jerett Knox to Marcy Schultz, July 17, 1998.

some maneuvering that needs to go on in a value neutral sense to ensure that the district's design build process complies with the law. We believe that this can be done and that in many instances it is an important alternative for districts.

The CDE's "Resources for School Facilities Planning" manual also states in its introduction to DB that:

> *Note*: Design/build is not legal in some states, and its use is limited under the State Contract Act and by Field Act requirements contained in the *Education Code*. Design/build should be undertaken only with legal counsel.[23]

Some districts have executed creative programs when building schools. Ms. Boggs explains in a post hearing statement how her district went about delivering a new school project:

> Twin Oaks was a district-funded school paid for with RDA proceeds. We owned the site and we had cash to work with (a nice situation that seems too rare.) That deal was structured as a lease-lease back. During design the district had a primary contract with the architect and a second contract with the contractor that paid him to work with the design team. We site adapted a school that had been constructed twice before. When the drawings were completed, a guaranteed maximum sum was established and new agreements were signed.
>
> There was an agreement with the construction company to lease the property, and a lease back agreement for payments roughly comparable to a construction schedule. The contractor leased the facility for $1 (the amount required by code.) There was a separate agreement with the architect that required him to work with the contractor during construction.

[23] Ibid., pg. 77.

It is an important distinction that the district contracted directly with the architect. This was required by Title 24 and is not typical of private sector design build projects.

Carrillo is a developer-funded site and school. The site was given to the district in exchange for a reduction in required mitigation payments equal to the value of the land. The DB contract is also a lease-lease back, but is different.

The design phase documents are very similar to Twin Oaks and that phase was funded by advanced payments that the developer was required to pay in order to get the school there on his timeline rather than our slower one.

The construction is being financed through a leasing company(they pay us the $1.) They will make payments to the construction company. I believe it is a 30 year lease (similar to a mortgage.) The payments will be made by CFD bonds and are secured by a vacant land tax until the new homes are in and paying taxes. This is a more complicated arrangement.

The architect again has a separate agreement requiring his cooperation during construction. He will be paid through the same financing, as will the inspector, testing company, and furniture vendors. The developer will be reimbursed for his advance funding of the design phase.

This is the plain English version (I hope), our attorneys could be more specific, but to the best of my understanding those are the particulars.

There was some discussion that if you had a developer that was interested in carrying paper, he could have structured a private lease and been paid over time with interest by CFD bonds. We didn't go with that approach.

The California Legislative Counsel rendered an opinion on behalf of Senator Leroy F. Green dated May 16, 1996, concerning creative project delivery solutions for schools. It is the opinion that:

> In view of Section 1 of Article XIII of the California Constitution, a school district may not utilize the school facility financing arrangement under Article 2 (commencing with Section 39300) of Chapter 3 of Part 23 of the Education Code, for a lease or agreement approved by the voters in the school district on or after July 1, 1978. Further, the school facility financing agreement that is set forth in Section 39305 of the Education Code may not be severed from Article 2 (commencing with Section 39300) of Chapter 3 of part 23 of the Education Code to provide independent authority, separate and apart from the other provisions in Article 2, for a school district to enter into a school facility financing arrangement that includes the lease-purchase features contained in Section 39305 of the Education Code. Further more, Section 35160 of the Education Code does not authorize a school district to enter into a school facility financing arrangement, including the lease-purchase features set forth in Section 39305 of the Education Code, or in conflict with, or consistent with, the competitive bidding requirements set forth in Article 3 (commencing with Section 20110 of Chapter 1 of Part 3 of Division 2 of the public Contract Code.

Steve Hartsell is an attorney and the Director of School District Facilities for the Kern County Superintendent of Schools Offices. During his testimony, Mr. Hartsell had the following to say about creative project delivery approaches to building schools:

> I'm an attorney with schools legal service and with that is a joint powers agency that represents over 100 school districts, community college districts and county superintendents. I've also been on the board for CASH, Coalition for Adequate School Housing, for eight years and currently serve on the board as the board's legal adviser—not their lawyer, their legal adviser. As an attorney for schools legal service, I am currently working with a couple of clients that are looking into design build for some non-Field Act structures. In the past I have used—one of the code sections I'm going to

be talking about—not in a design build context, but in a different context which is very specially suited to the situation involved.

My focus today is not to discuss, debate the pros and cons of design build. My focus is going to be on what the legal—whether it be statute or regulation—legal requirements, how it affects the use of design build by school districts. By way of quick introduction, school districts are acting on what's now called the permissive education code, which basically says they have broad authority to do many things, and they can initiate and carry out any program so long as it's not in conflict with State law and is consistent with the purposes for which they're established. Fortunately or unfortunately, depending on your perspective, and even I have different perspectives depending on what my clients are doing I guess—there are a number of laws relating to school construction that do, in fact, limit what districts can do in this regard. Bottom line it's because public construction is basically or generally required to be competitively bid. It means that school attorneys need to find some exception to the bidding requirements in order to carry out something that looks like design build.

I have found two sections or two groups of sections that provide districts with some authority to do something like design build, and as I'm going to point out, it doesn't end up being pure design build, as I understand it at least.

The first of these sections is Education Code Section 17060 and following, which was adopted by the legislature a couple of years ago. It very much speaks in terms of the State school building program, where the State Allocation Board has a great deal of authority; however, the permission or the authority granted in that section would apply, I believe, also to locally-funded projects. The law specifically requires that—and it does—you'll find that maybe lawyers like this. There's funny language which basically allows districts to do something like a design build. It's called a joint venture agreement. Sounds like fun. But, anyway, the joint venture agreement will have to be subject to a

number of existing statutory requirements, such as the selection of design professionals, compliance with the Field Act, and payment of prevailing wages.

With respect to the Field Act compliance, one of the things that will affect very much whether a district can do a classic design build is that the Field Act, as implemented in regulation--and I discuss this in greater depth than the context than the other section I'm talking about—prohibits an architect or registered engineer who is also a contracting party—and I believe they're meaning by contractor building the project—or employed by the contractor from carrying out any of the duties prescribed in the Education Code regarding design of the project or observation of the work of construction. That really means that if a district wants to use joint venture agreements, it cannot sort of have everything on the side of the "developer" because the design professional cannot be employed by whoever is actually going to do the contracting. Now it may be possible for the developer to be dealing with a contractor and an architect separately, and that may meet the requirements of the regulation, but that definitely decreases the universe of design build options that are available.

An important feature of these code sections is that they provide a way for a district to get State funding of construction undertaken pursuant to a joint venture agreement; however, I understand that the State Allocation Board has not adopted any policies or regulations, and I get the impression that it does not want to, and even if the districts could apply for State funding, additional requirements imposed on State-funded projects would make it very difficult to due a pure design build. And especially problematic from this perspective is the requirement that the joint venture agreement comply with bidding requirements that the State Allocation Board established, which it hasn't established yet, of course, and that all subcontracts, which is an interesting term because I'm not sure what the legislation really intended to mean, but all subcontracts must be competitively bid and awarded to the lowest responsible bidder.

As I understand design build, this component of requiring bidding of the construction projects really undercuts the value or what design build can offer, which is a fixed cost, and it puts incredible risk, as I understand it, on the design builder in this case.

As far as I know, no districts are using this section as authority, and it's clear to me that no district has gone to the State for funding under this. Maybe they have, but I'm not aware of it if they don't have policies in place.

The other section that I found and done some research about is Education Code Section 17406. I've put in a quote from the State Attorney General that reviewed this section's predecessor in 1973. The section and the article involved that it's part of deal with leasing and leasebacks of school district property. This particular section allows a district to lease its property for the purpose of permitting the construction of school buildings which the district will lease at such rental rates as the governing board deems in the best interest of the district without reference to competitive bidding. I don't know if you've had an opportunity to review the Attorney General opinion. There's at least a paragraph in there where the Attorney General says basically we don't quite understand what public policy was behind this, but it's not our job to question the legislature's wisdom in enacting this policy. It's our job as Attorney General to read the law as it stands and isn't to offer an opinion as to what it actually allows.

Agreements under this section are expressly subject to requirements and limitations set forth in Section 17402, which is in the same article. One of the requirements here that really makes this section not usable for a pure design build is that before you can enter into this lease agreement, the district must have already adopted plans and specifications that have been approved according to the Field Act. So, really, you can't get into the design portion of design build, which I think takes it outside of the standard model.

An interesting feature of the article is that it states that the article takes precedence or prevails over any conflicting law. This is one of the reasons why I think the Attorney

General reached the conclusion that bidding requirements don't apply. However, other provisions of law related to school construction would, in my view, still apply because they do not conflict with 17406, and in this regard I'd say that the selection of the design professional would still be covered by Government Code Section 4525 and following. Workers on the project must be paid prevailing wages, and both the design and construction would be subject to the Field Act. Again, the Field Act kicks in that problem of the design professional not being able to be an employee of the contractor. Again, that takes it outside the classic design build.

A big problem with this section is that there's no authority in it and there's no mechanism that I'm aware of for a district to get funding from the State for this.

An additional problem with using this question is posed by a 1996 opinion of the Legislative Council, and I provided a copy to your office. This opinion concluded that the section's predecessor—by the way, this section has been—I found it renumbered at least twice—not since I've been in the business, but at least we've got books that go back that far. And the opinion said that this section's predecessor could not now be utilized in the wake of Proposition 13 which invalidated the article's provisions regarding imposition of taxes. Basically, the article provided a way for school districts to fund these lease constructions by imposing taxes on a majority vote, and that obviously conflicted with Prop. 13.

With all due respect to the Legislative Council and without going into detail at this time, this is one of the few times I find the Legislative Council's reasoning not very persuasive. I think it would be very useful, however, for districts that are looking at this section to request that the Attorney General review its own 1973 opinion and specifically address the issue of whether this code section still is a way for school districts to construct school facilities.

ANALYSIS

Why use DB over DBB? The JLAC asked Ms. Evans why she, on behalf of her department, supports the use of DB. Ms. Evans responded through her Assistant Director, James Bush, who wrote:

> As Ann Evans testified at the hearing, the State Superintendent of Schools supports innovative, cost effective ways in which the design, construction and educational communities can work together to provide facilities that properly delivers the educational program of the district.
>
> The School Facilities Planning Division of the California Department of Education supports the use of Design-build as an option school districts can choose in order to construct school facilities based on the following:
>
> 1. The CDE recommends Design/Build only if the district is able to include into the pre-design work Educational Specifications definitive enough to list ALL parameters necessary to the facility.
> 2. Clear contracts are developed between the district and the Design/Build Team that implements the educational specifications.
> 3. A clear definition of the relationships between the district and the Design/Build Team needs to be developed to insure construction administration properly occurs.
> 4. Legal advice is absolutely necessary in order to carry out this process.
> 5. The local school board must be made aware of the Design/Build concept.[24]

Mr. Hummel discussed the factors effecting the decision whether or not to use DB in his testimony when he stated:

> I don't really think I could say there's any big difference in that. The reason is as a private practitioner I would use design build because I could recommend and select

contractors that I knew and trusted extremely well and they had the same feeling with myself and my clients, and we could hit budgets right on the nose. I imagine the larger projects would attract more design build effort. I'm just assuming that to be the case. But we see a tremendous number of projects that are very successful in the design, bid, build system. Architects have been doing schools for many years and working with experienced school boards have a remarkably good record of quick results, fast turnaround. We just finished a very, very large school project in Central Coastal, California, that was a design, bid, build project well ahead of schedule, right on budget, with no problems, and really that's generally the case. We all hear about the exceptions, but generally the California architects and builders and school boards are turning out a pretty darn fine product we think.

Mr. Chong suggests a more collaborative relationship between the design and building teams is possible. Mr. Chong explains that:

I think to what we're advocating is that there be an integrated approach to the whole process, and I suspect that there is some tension between some architects and some contractors who want to each continue in their own traditional methodologies, but I think you'll find an increasing number of very sophisticated architects and very sophisticated contractors who are working very collaboratively, but the important thing, additionally, I think is to include the other participants in the process that we talk about in our handbook, and those are the owner and the regulatory agencies and the managers, and they cannot be excluded from that process. The tension becomes if a—between an architect and a contractor—is if the leadership is being provided by the contractor, there's often a single point of objective which is that of cost containment, but it loses the focus on the ability of the facility to satisfy the programmatic objections. As you've heard Ann Evans talk about, facilities really are there to support a specific curriculum and to enhance learning. We can have cheap facilities, we can do that, but does it necessarily support a better curriculum? Maybe not. Can the two be blended togetner? I think through

[24] Letter from James Bush to Scott Wildman, August 6, 1998.

integrated approaches. And I think that that can occur. The design build entity as it's currently procured has some shortcomings in that direction.

I think the differences between the various processes, design, bid, build and design build, are such, if I could characterize them—design, bid, build tries to spell out as much specificity as possible. We'll never catch everything, but we try to identify as much specificity as possible so expectations will be met in the best of circumstances. In a design build process the desire is to let the design and construction team establish a better methodology to implement what is desired, so you spend less time in defining the specifics of how to do it if you will, and in doing so, the owner needs to be willing to release control of those kinds of specificity. If you're willing to do that, then it's a viable methodology, and as Dick Walterhouse of Design Build Institute of America advocates appropriately, the best collaboration can come up with some very creative ideas, but it's not necessarily meeting the expectations in a holistic perspective of what the client perceives is being the most appropriate for the solution. So that's the rub I think that we find with most sub consultants, especially engineers, is that it's driven by a different leadership, rather than a traditional design, bid, build process.

It is arguable that in the business world, every increase in benefit carries with it some related cost. Often times this related cost comes in the form of increased risk. The fact is that risk cannot be eliminated nor can it be fully transferred without cost. Since it is the opinion of this committee that public agencies spending public dollars should be risk adverse, any increase in risk is considered unacceptable – especially when that benefit is theoretical and requires more of the public agency than would be reasonably expected utilizing current practices.

Having said this, there are states, most notably Florida, who have erected a number of complex bureaucracies to facilitate public agency DB in such a way so as to apparently mitigate any increase in risk. Accepting the one apparently agreed upon attribute of DB, accelerated delivery time, it seems appropriate to distinguish between the inherent differences of the public vs. private sector. In the private sector, time is money. The sooner a factory or office is built and ready for

production or leasing, the sooner an owner can begin to realize a return on their investment. Schools, however, are another issue. Schools function on annual cycles. Good planning rather than accelerated schedules will determine the appropriate timing for most school projects. It would appear then that the only entity to realize a gain from accelerated delivery in a school construction context is the DB firm. An accelerated finish time allows a DB firm to increase their volume of business that normally leads to an increase in overall profit margin. While this committee supports increased private sector profit as a rule, it is wary of any plan that requires the subsidizing of additional publicly funded bureaucracies in order to realize this increased profit, as was done in Florida.

Again, applying the basic elements of a good project to this analysis is a good place to start. Consider the following attributes:

- Know what you want
- Restrict bidding (Prequalification)
- Write performance contracts
- Maintain agent owner

If these elements are successfully implemented as part of a construction project, the chances of success are good. The following are suggestions as to how the above might be accomplished within the constraints of DBB:

Low Bid: Currently, the Field Act requires that a GC be chosen based on the lowest responsible bid with responsableness being determined by the prequalification process. Hartsell is suggesting that the law be altered to allow selecting from the three lowest bidders with a 5-10% spread from the lowest bid. This allows for the a greater degree of owner flexibility. This would also facilitate choosing local contractors whose bids were reasonable over larger out of town firms.

There is a precedent. The Public Contract code 20118.1 allows for the selection from the three lowest bidders when choosing a computer supplier.

Performance vs. Complete Plans: Currently, a district must have a full complete set of plans approved by the State Architect prior to putting a project out for bid to a GC. This results in construction delays not normally found in the private sector. DB advocates argue that preliminary construction activities such as grading should take place while the details of a project's various systems are designed in concert with a collaborative architect and GC.

To allow this quality of DB to exist within the DBB process, current law could be altered to allow the architect to draft performance designs prior to hiring a GC. Like "deferred approval" the architect/engineer would in essence "lend" their engineer to the GC for the purpose of finishing the plans in cooperation with the GC. Cooperation between the engineer and GC would be facilitated by specific language. To assure success and accountability in this approach, a guaranteed maximum price structure would be necessary along with stringent oversight by the state to assure existing law was complied with at all times.

Monthly Public Reports Submitted to the OPSC: These reports would include comments from all three participants: the board/owner, the architect/engineer and the GC. Such a system would prevent problems from being ignored. Public disclosure would make the participants more accountable while also serving as a deterrent for those inclined to behave irresponsibly. Possibly these documents could be facilitated by an on-line system so that data could be shared both locally and at the state level. Accumulated information could also be used in future selection processes by other owners who could search the database by individual entities. In essence, such a process would facilitate partnering and effective prequalification determinations.

Considering the above, if these thoughts are applied to the DBIA's list of DB attributes, can DBB be streamlined in order to effectively produce the same results as DB?

By revisiting the distinguishing attributes of DB as presented by the DBIA, it is possible to observe the ways DBB might be realigned with current owner need to effectively perform as well as DB without the increase in risk:

Cost Savings: Since change orders are a product of unexpected costs, savings are primarily a product of good planning which is itself a product of experience. As Mr. Hummel testified, good management, a good understanding between the owner and contractor and a reasonable time to build are the qualities of any successful construction project. It is arguable that these three qualities are not the exclusive domain of DB. Were these three qualities of a successful project fully employed in the DBB scenario, it is arguable that both delivery methodologies would produce similar cost results.

Quality: DB advocates argue that trust is the cornerstone of their relationship with the DB team. It is arguable that this notion of trust is intrinsically linked to the process by which the DB team is selected. By adjusting the notion of "lowest bidder," to include any of the three lowest bids with a cap of 5-10% spread from the lowest bid, a DBB project could theoretically produce the same degree of confidence a DB project delivers.

Further, by writing into the RFP and in he final contractual agreements that the DB team is expected to work collaboratively with the architect's engineer, the same opportunities for DB quality could be realized in a DBB project.

Time Savings: DB produces time savings because construction is allowed to begin prior to the completion of plans. Yet completed plans are a prerequisite for DSA approval that must take place prior to the hiring of a GC. Although this will require new legislation, the law could be altered to allow DSA approval of "performance" plans that include all aspects of design save the specific designs of the project's systems. It is this latter part of the design process, systems design, that is normally relegated to the engineer. For example, the architect designs the buildings while the engineer designs the specifications of the systems that will heat and cool those buildings. The exact specifications of the heating and cooling system need not be spelled

out prior to the grading of the lot and pouring the structure's foundation. By allowing the architect's engineer to collaboratively partner with the builder, the checks and balances of DBB are left in place while still allowing for time savings. This arrangement would be viable in cases where a firm guaranteed maximum price is agreed upon with stringent state oversight to assure compliance with existing law.

Reduced Administrative Burden: the reduction in administrative burden is primarily a product of conducting the decision making process up-front and effectively communicating those decisions to the DB team – and then sticking by those decisions. There is no reason to suggest these quality preparation measures are the sole domain of DB.

In addition, even DB advocates list a number of additional advisory positions necessary to effectively carry out a DB project that include:

- a designer, who is actually an architect, to draft the preliminary design plans in order to facilitate selection of the DB team and then function as the owners "eyes and ears" for the remainder of the project;
- A lawyer with DB experience to draft the RFP and final contracts;
- And, in some cases, an additional staff member to manage overall issues.

Early Knowledge of Firm Costs: Again, as with cost savings, there needs to be:

- A concerted up-front effort to think through a project from beginning to end before putting it out to bid
- Effectively communicating the performance expectations to the winning bid – and then sticking to those expectations -- is an effective way to avoid the majority of change orders that come from a politician-owner changing their mind in the middle of a project.

Singular Responsibility: There is a clear trade off between the structural checks and balances of DBB vs. the notion of *singular responsibility* of DB. It is arguable that not only is the notion of singular responsibility problematic as the DB team is an agent of the owner rather than an

independent contractor and therefore hard to pin down in court, but the notion of accepting increased risk for the sake of gaining other advantages is antagonistic to the premise that all public works projects must be risk adverse regardless of the benefit.

RECOMMENDATIONS

- Increase the number of CDE field staff.
- Ensure that field staff are trained to assist the districts in their respective areas concerning the various project delivery methodologies.
- Revisit the architect compensation methodologies to ensure compensation is equitably matched to any shift in architectural responsibilities.
- Create a database on a state level that tracks the success of projects and the participants. Tying this database into a university system may prove to be cost effective and a valuable learning tool.
- A review process to ensure that change orders comply with educational specifications.
- Revisit the relationship between the Office of Public School Construction and the CDE to see where increased collaboration might effect a positive change.
- Refine the Field Act to allow selection of the GC to include any of the three lowest bidders with a spread cap of 5 – 10%.
- Allow for "performance" vs. "complete" plans when seeking DSA approval so that construction may begin while the engineer and GC work collaboratively on the systems designs, thereby allowing for DBB to match the increased speed of DB, under strict state oversight and in cases using a predetermined non-changeable GMP.
- Require monthly reports from all three parties – the owner/Board of Education, architect/engineer and the GC – to be filed electronically with the state for public view.