CONSTRUCTION LAW—2004 UPDATE

PROCUREMENT METHODS

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PROCUREMENT METHODS

I. Delivery Methods for Your Project

A. Resources/Appendices

Choosing the Best Delivery Method for your Project
By Construction Management Association of America
http://camaanet.org.best_delivery_method.php

Selecting Project Delivery Systems
By Victor Sanvido and Mark Konchar
http://construction-institute.org/services/catalog/products/more/133_1_more.htm

An Owner's Guide to Using the 'Construction Management' Project Delivery System on Alberta Infrastructure Funded Building Projects
By Alberta Infrastructure
http://www.infras.gov.ab.ca/home/index/asp

Task Project Management – Article and Illustration – "The Best Reason for Sequential Tendering"

B. Capital Asset Management Framework

The *Capital Asset Management Framework Guidelines* introduced in May of 2002 are (as they were was intended to be) an excellent resource. The publication could form a text for a procurement or

purchasing course. And I would compliment the writers—it is very well done. You can access the Guidelines at www.fin.gov.bc.ca/tbs/camf_guidelines.pdf.

II. "At Risk" Construction Management

"At Risk" Construction Management has become a hot topic recently. I'm sure folks have been practicing it in different variations for a long time, without necessarily giving this name to it.

This segment of this paper will describe the concept generally, and some of the key considerations and (often overlooked) precautions that should be taken.

A. First, what is it?

The Construction Management Association of America ("CMAA") describes it this way:

> An Owner embarking on a construction project must make an important decision regarding the method by which the project is designed and constructed—the project delivery method. This decision has become more difficult in recent years as several 'alternative delivery methods' have been developed to address weaknesses in the traditional design-bid-build scenario. Methods that have gained in popularity include *at-risk construction management*, fast-track construction, multiple prime contractors, and design-build. Proponents of particular alternative methods promise improvements over the traditional system in terms of cost, project control and reduction in disputes. ...
>
> (*The at-risk construction management*) delivery system is similar in many ways to the traditional Design-Bid-Build system, in that the CM acts as a general contractor during construction. That is, the CM holds the risk of subletting the construction work to trade subcontractors and guaranteeing completion of the project for a fixed, negotiated price following completion of the design. However, in this scenario, the CM also provides advisory professional management assistance to the owner prior to construction, offering schedule, budget and constructibility advice during the project planning phase. Thus, instead of a traditional general contractor, the owner deals with a hybrid construction manager / general contractor.

Another useful description is provided by Alberta Infrastructure, as follows:

> **Construction Manager (CM) as Constructor** is a form of Construction Management under which the Construction Manager enters into multiple trade contracts with the trade contractors and suppliers. The Construction Manager assumes responsibility for the performance of the trade contracts (subcontracts) much as a general contractor would under the traditional method, and is paid for the trade contract work on a cost reimbursement basis. The Construction Manager may, or may not, also provide a guaranteed maximum price and schedule to the Owner under a cost plus type of arrangement, or enter into a stipulated price contract [*in my experience, the stipulated sum contract is more common*], when the design is sufficiently complete. **When this is the case, this form of Construction Management is sometimes also referred to as 'CM at Risk'.**

You might be interested in checking out the CMAA website (cmaanet.org) or the Alberta Infrastructure website (infras.gov.ab.ca). They have almost as many articles and publications as our website (www.cwilson.com).

B. Pros and Cons

A useful (albeit skeptical) starting point in considering construction management is the following statement from Hudson's on Building and Engineering Contracts:

> Most of these management contract arrangements, when examined in detail ... appear to be little more than thinly disguised collective cost-plus contracts in their ultimate final effect, but with the serious added danger for owners of the opportunity they offer for a multiplicity of exaggerated inter-acting (*claims for disturbance or delay based on failures of co-ordination between the now numerous contractors, as well as any professionals*), which by their nature will be extremely difficult to analyse and refute.

A more balanced view of the pros and cons is presented at the CMAA and Alberta Infrastructure websites, as follows ***[editorial comments in brackets]***:

> In addition to providing the owner with the benefit of pre-construction services which may result in advantageous changes to the project, the CM at Risk scenario offers the opportunity to begin construction prior to completion of the design. The CM can bid and subcontract portions of the work at any time, often while design of unrelated portions is still not complete. In this circumstance, the CM and owner negotiate a guaranteed maximum price contract ***[or stipulated sum contract]*** based on a partially completed design, which includes the CM's estimate of the cost for the remaining design features. Furthermore, CM may allow performance specifications or reduced specifications to be used, since the CM's input can lead to early agreement on preferred materials, equipment types and other project features.
>
> The primary disadvantages cited in the CM at Risk system involve the contractual relationship among designer, CM and owner once construction begins. Once construction is underway, the CM converts from a professional advisory role of the construction manager to the contractual role of the general contractor. At that time, tensions over construction quality, the completeness of the design, and impacts to schedule and budget can arise. Interests and stake holding can become similar to the traditional design-bid-build system, and adversarial relationships may result. While the fixed guaranteed maximum price contract ***[or stipulated sum contract]*** is supposed to address the remaining unfinished aspects of the design, this can in fact increase disputes over assumptions of what remaining design features could have been anticipated at the time of the negotiated bid.
>
> One mitigating approach to this problem is for the CM to share with the owner its subcontractor bids, to ensure openness in the process ***[The usual CM arrangement requires this "sharing," and I suggest the owner should not depart from it under any CM at Risk arrangement.]*** The CM may further assume risk by taking some responsibility for design errors discovered during construction, if it was involved in the review of the design prior to establishing the guaranteed maximum price contract ***[or stipulated sum contract]***. In addition, arrangements can be made regarding risk sharing and profit sharing if there are over-runs or under-runs in the guaranteed maximum price contract ***[or stipulated sum contract]***.
>
> An owner wishing to use the construction management at-risk approach can realize many benefits. Chief among them are the opportunity to incorporate a contractor's perspective and input to planning and design decisions and the ability to "fast-track" early components of construction prior to full completion of design. However, since a commitment is made to a contractor earlier in the process, a premium is placed on the pro*per s*election of the CM to provide the best value to the owner.

A benefit that I would emphasise, in comparing CM at Risk with the design-bid-build scenario / stipulated price contract approach, is the transparency to the bidding process and contracts with the subtrades. This is important especially on complex jobs, such as those requiring extensive phasing where operations will be ongoing during the course of the work, and a premium is, therefore, placed on minimizing disruption. The transparency gives a greater ability to select trades that the owner will feel comfortable with.

Before the conversion from construction manager to general contractor takes effect, the construction manager (soon to be general contractor) has various duties to the owner—for example, to pass on all

identified cost savings, including of course ideas for possible costs savings, and to be forthright about bids and prices from the trades and suppliers. The parties have to understand that the duty to have done so, during the prior period, will survive and continue, even after the conversion to a fixed price contract, and the standard construction management contract has to be adapted to capture this. If a brainstorm occurs to the general contractor (formerly construction manager) after the conversion to a fixed price contract has occurred, then the saving would be for its benefit. If the brainstorm (cost saving idea) occurs before, then it should have been reported to the owner, and the benefit of the idea should go to the owner.

C. High Degree of Trust/Dependence on the long term Relationship

Construction management, in general, involves a higher degree of trust than the fixed price design-bid-build approach. Hudson's on Building and Engineering Contracts comments that construction management is more suited to owners who do a lot of projects, so that the construction manager will want to maintain that trust, in order (of course) to get more work down the road. This factor is particularly important for CM at Risk.

D. CCA 5 Supplementary Conditions, or a customized Contract

The Canadian Construction Association's "Introduction to CCA No. 5 – 1988, Standard Construction Management Contract Form" acknowledges the limitations of the form – the introduction states in part:

> It is ... important to note that CCA 5-1988 may NOT be appropriate where the Construction Manager acts as an independent contractor engaging trade contractors by way of subcontract agreements on his own account and / or guarantees the Owner a maximum price or fixed completion date.

This is reinforced in the Alberta Infrastructure publication:

> The CCA forms of contract .... (CCA 5 and CCA 17) are specifically written for CM as Agent and are not suitable for use under CM as Constructor. The introduction to CCA 5 warns against its use for this form of Construction Management. Unfortunately, there is presently no Canadian standard form of contract available for the CM as Constructor form of Construction Management (there are in the U.S.). Some Owners or their consultants attempt to modify CCA 5 to suit this form of Construction Management, but the modifications required are extensive and caution is advised. Legal or other expert advice should be sought when taking this approach. Knowledgeable owners who intend to use the CM as Constructor form of Construction Management on multiple projects usually develop their own custom written form of contract designed specifically for this form of Construction Management. Allowing the Construction Manager to propose and prepare the form of contract may put the Owner at a significant disadvantage.

We have done a number of these agreements negotiated on a case by case basis, but none developed to a template form suitable to include in this publication.

I note that the Canadian Construction Association has indicated that they are working on developing a standard document.

E. Competitive Bidding for CM at Risk

You can engage in competitive bidding for CM at Risk, using a competitive bidding process that is pretty close to a construction tender. I have done this in the form of a request for proposals where proponents are required to bid on:

(1) CM Fee: A fixed percentage fee, which is assumed to apply if the project were completed, to the end, using CM only (i.e., which assumes that the conversion to a stipulated sum contract never occurs).

(2) "general conditions" or "general expenses": A fixed amount for contractor's "general conditions" or "general expenses." In my experience, although owners and contractors speak of this as a well understood industry term, at the same time the items covered, or not covered, under this heading vary greatly from contractor to contractor (and construction manager to construction manager), so there is a need to set out a list of expectations (i.e., descriptive specifications), and require that bidders provide a detailed response as to what will and will not be included. This way, the owner will be better armed to compare apples to apples. A couple of questions to test this are—will "bonding" be included in this amount?—will "contractor's insurance" be included in this amount?

(3) General contractor's incremental fee: A fixed percentage fee (which will be in addition to the CM Fee stated above) which is assumed will apply if the owner and the contractor convert to a stipulated sum contract.

The explicit premise of this competitive bidding process is that, although at the outset the parties are not committing to the conversion to a stipulated sum contract, going in, the parties contractually subscribe to the expectation that if and when they convert to a stipulated sum contract, the stipulated sum will be the aggregate of:

(1) the amounts of all the trade contractor contracts (including, for example, the supplier of structure steel); and

(2) the fees and amounts submitted by the bidder, for items (1), (2) and (3) above.

III. Summary

CM at Risk can go a long way to achieving the benefits of both construction management and a fixed price contract. But there are limitations, and pros and cons, and customized contracting documents and a customized competitive bidding process are required.

Appendix A

Choosing the Best Delivery Method for Your Project

An Owner embarking on a construction project must make an important decision regarding the method by which the project is designed and constructed—the project delivery method. This decision has become more difficult in recent years as several "alternative delivery methods" have been developed to address weaknesses in the traditional design-bid-build scenario. Methods that have gained in popularity include at-risk construction management, fast-track construction, multiple prime contractors, and design-build. Proponents of particular alternative methods promise improvements over the traditional system in terms of cost, project control and reduction in disputes.

For the Owner, the wealth of choices can be both good and bad. The downside is that with the variety of delivery systems—along with the accompanying assurances of the superiority of one method over others—confusion can be inevitable. The good news is the increased number of alternatives offers the Owner or developer more flexibility to choose an appropriate and effective system for its particular project.

Construction management (CM) is a discipline uniquely tailored to the planning, design and construction process of capital projects. It has proven effective regardless of the chosen contract form or project delivery method. Indeed, CM has been used successfully in *all* contracting methods and delivery systems by Owners who do not continuously maintain the staff expertise or numbers necessary to deal with the complex responsibilities involved in the management of major projects. The following is a brief review of project delivery systems, along with a discussion of some of the important points an Owner should consider in choosing a delivery method.

Owner's Requirements

An Owner has several areas of concern when embarking on a construction program. The following highlights some of the key considerations in developing a construction program:

- **Budget**

The Owner has an obvious need to determine a realistic budget before design to evaluate project feasibility, to secure financing, and as a tool to choose from among alternative designs or site locations. Once the budget is determined, the Owner requires that the project be completed at or near the established figure without excessive overruns.

- **Design**

Of foremost importance to the Owner is that the desired facility function as envisioned, that the design program successfully fulfill the needs of the Owner and users. Therefore, an Owner requires that its design team be well qualified in the type of facility being designed. In addition, the Owner

must ensure that the Owner's and users' program needs are clearly conveyed to the design team. Since the design of the facility actually must be buildable and properly communicated in order to be useful, the Owner requires that the design documents are constructible, complete, and coordinated. The documents should properly incorporate unique features of the site to include subsurface conditions, interface with adjoining properties, access, and other characteristics.

- **Schedule**

The Owner has similar needs in the area of scheduling. The date of completion of a new facility can be critical, either in terms of generating revenue from the facility, or in terms of providing needed functional space by a particular deadline. Therefore, a realistic assessment of project duration and sequencing needs to be performed early in the planning process. The schedule should then be monitored throughout design and construction.

- **Risk Assessment**

The development of any facility involves many risks. In construction, issues of risk are closely tied to schedule and budget issues. The Owner requires an understanding of the risks involved in construction, and should make a conscientious decision regarding allocation of these risks among project participants, so that all areas of exposure are properly understood. In considering risk allocation, the Owner should strive to assign risks to those parties that exercise control over those aspects. For example, it would typically be problematic to require that the contractor correct problems due to design errors at no extra cost since a contractor generally has little control over the cause or magnitude of such errors.

- **Owner's Level of Expertise:**

The Owner's familiarity with the building process and level of in-house management capability will have a large influence over the amount of outside assistance required during the process and may guide the Owner in determining the appropriate project delivery system.

Review of Project Delivery Methods

Traditional Design-Bid-Build

The traditional design-bid-build system remains the most popular delivery method for construction projects. The Owner engages a designer to prepare the design of the complete facility, including construction drawings, specifications and contract packages.

Once completed, the design package is presented to interested general contractors (GC), who prepare bids for the work, and execute contracts with subcontractors to construct various specialty items. In many cases, the contractor submitting the lowest responsive bid is selected to perform the construction. This contractor is then responsible for constructing the facility in accordance with the design. The designer typically maintains limited oversight of the work and responds to questions

about the design on behalf of the Owner. The designer may also assist the Owner in administering the construction contract, including determination of project progress, for interim payments made to the contractor.

This contracting system offers the advantage of being widely applicable, well understood, and with well-established and clearly defined roles for the parties involved. It is the most common approach for public Owners having to comply with state procurement statutes. Furthermore, it offers the Owner a significant amount of control over the end product, particularly since the facility's features are fully determined and specified prior to selection of the contractor. However, many construction Owners have experienced a variety of frustrations using this system, leading to the development of other methods.

Among the chief disadvantages of the traditional system are:

- The process is time-consuming since all design work must be completed prior to solicitation of the construction contract.
- The designer may have limited ability to assess scheduling and cost ramifications as the design is developed which can lead to a more costly final product.
- The Owner generally faces exposure to contractor claims over design and constructibility issues since the Owner accepts liability for design in its contract with the contractor.
- The traditional approach tends to promote more adversarial relationships rather than cooperation or coordination among the contractor, the designer and the Owner.
- The contractor pursues a least-cost approach to completing the project, requiring increased oversight and quality review by the Owner.
- The absence of a contractor's input into the project design may limit the effectiveness and constructibility of the design. Important design decisions affecting both the types of materials specified and the means of construction may be made without full consideration of a construction perspective.

While the most common approach to bidding a project in building construction is for general contractors to submit a sealed lump-sum bid, many variations in contractor procurement exist in the traditional system.
Other methods include unit-price contracting, which is generally limited to projects that can be easily divided into small work units and quantified prior to construction. This is commonly found in heavy construction projects. At the other end of the spectrum is cost-plus contracting, generally used in circumstances where there is such high risk or variability in the work that preparing a responsible bid is impossible.

When allowed, many Owners make some effort to pre-qualify contractors, either through invitation, or through an objective set of criteria considering construction experience and financial capability.

Doing so helps assure the Owner that the contractor is capable of providing a high-quality product. Once the field of bidders is established, an Owner bidding a lump-sum project may choose to require sealed bids, wherein the lowest responsible bidder will earn the right to perform the work.

However, many private colleges and universities prefer to negotiate bids with pre-selected GC's. This can be an especially powerful technique if the Owner considers qualifications, history of claims and experience in related work along with price in its evaluation. What the Owner should really be seeking is the best value for its money, not necessarily the lowest initial cost. Through a careful negotiation or contractor evaluation, the Owner can maintain the maximum amount of control over the resulting construction portion of the project.

At-Risk Construction Management

This delivery system is similar in many ways to the traditional Design-Bid-Build system, in that the CM acts as a general contractor during construction. That is, the CM holds the risk of subletting the construction work to trade subcontractors and guaranteeing completion of the project for a fixed, negotiated price following completion of the design. However, in this scenario, the CM also provides advisory professional management assistance to the owner prior to construction, offering schedule, budget and constructibility advice during the project planning phase. Thus, instead of a traditional general contractor, the owner deals with a hybrid construction manager/general contractor.

In addition to providing the owner with the benefit of pre-construction services which may result in advantageous changes to the project, the CM-At-Risk scenario offers the opportunity to begin construction prior to completion of the design. The CM can bid and subcontract portions of the work at any time, often while design of unrelated portions is still not complete. In this circumstance, the CM and owner negotiate a guaranteed maximum price (GMP) based on a partially completed design, which includes the CM's estimate of the cost for the remaining design features. Furthermore, CM may allow performance specifications or reduced specifications to be used, since the CM's input can lead to early agreement on preferred materials, equipment types and other project features.

The primary disadvantages cited in the CM-At-Risk system involve the contractual relationship among designer, CM and owner once construction begins. Once construction is underway, the CM converts from a professional advisory role of the construction manager to the contractual role of the general contractor. At that time, tensions over construction quality, the completeness of the design, and impacts to schedule and budget can arise. Interests and stake holding can become similar to the traditional design-bid-build system, and adversarial relationships may result. While the fixed GMP is supposed to address the remaining unfinished aspects of the design, this can in fact increase disputes over assumptions of what remaining design features could have been anticipated at the time of the negotiated bid.

One mitigating approach to this problem is for the CM to share with the owner its subcontractor bids, to ensure openness in the process. The CM may further assume risk by taking some responsibility for design errors discovered during construction, if it was involved in the review of the design prior to establishing the GMP. In addition, arrangements can be made regarding risk sharing and profit sharing if there are over-runs or under-runs in the GMP.

An owner wishing to use the construction management at-risk approach can realize many benefits. Chief among them are the opportunity to incorporate a contractor's perspective and input to planning and design decisions and the ability to "fast-track" early components of construction prior to full completion of design. However, since a commitment is made to a contractor earlier in the process, a premium is placed on the proper selection of the CM to provide the best value to the owner.

Multiple-Prime Contracting

Another alternative procurement system is multiple prime contracting, in which the Owner holds separate contracts with contractors of various disciplines, such as general construction, structural, mechanical, and electrical. In this system, the Owner, or its CM, manages the overall schedule and budget during the entire construction phase.

This system, which many Owners are required to use, gained favor in part as another method of "fast-tracking" construction. Work in each construction discipline is bid separately, allowing the flexibility of awarding construction contracts on the first portions of the project as soon as the respective aspect of design is completed. This fast-track approach appears to be a highly desirable feature of this method of procurement in cases where time of performance is a critical element.

Furthermore, the system allows the Owner to have more control over the project schedule, since the Owner sets the schedule for bidding individual portions of the work. For example, if an initial phase of construction (such as foundation construction) is delayed, the Owner may reduce liability for delays by postponing the bidding of follow-on work. Another advantage of this system is that the Owner can realize savings by directly procuring major material items, such as structural steel or major mechanical equipment, avoiding contractor mark-ups.

However, the very nature of this system causes its primary disadvantages. First, the final cost of the project is not known until the final prime contract is procured. In addition, there have been numerous cases where this method did not work well due to the absence of overall authority and coordination once construction is underway. The problems primarily arise from lack of coordination and contractor delay issues. While the general construction prime contractor is often given contractual responsibility to coordinate the work among trades, including schedule, this contractor lacks the contractual authority to dictate the schedule of another contractor.

For example, during the construction of a university laboratory/classroom facility, delays arose due to coordination issues involving installation of laboratory equipment. The general contractor sought damages from the Owner for delays by the mechanical contractor, while the mechanical contractor blamed the general contractor for its delays. This type of dispute is far from unique in this form of contracting, even in cases where the Owner has used an independent CM to coordinate schedule issues.

Design-Build

The design-build (D-B) project delivery system has grown in popularity, and is seen by some in the industry as the perfect solution in addressing the limitations of other methods. For an Owner, the primary benefit is the simplicity of having one party responsible for the development of the project. While the other systems often give rise to disputes among various project participants—with the Owner acting as referee (or party ultimately to blame)—in D-B many of these disputes become internal D-B team issues which do not affect the Owner.

Under this system, the Owner contracts with a D-B team, which is often a joint venture of a general contractor and a designer. Since GC's are comfortable in the role of risking corporate capital in performing projects, they usually are the lead members of this sort of team. One variation of the typical D-B team structure, known as fee-paid developer, involves the Owner engaging a developer, which then selects its own designer and contractor partners. However formulated, the D-B team performs the complete design of the facility, usually based on a preliminary scope or design presented by the Owner.

At some point early in the process, the D-B team will usually negotiate a fixed price to complete the design and construction of the facility. Once underway, the D-B team is then responsible for construction of the project, and for all coordination between design and construction. Since the construction team is working together from the outset, D-B offers the opportunity to save time and money. However, the advantages of the system are offset by a significant loss of control and involvement by the Owner and stakeholders. Accordingly, it is difficult for the Owner to verify that it is receiving the best value for its money, without a great deal of confidence in the D-B team.

The primary caution for an Owner considering D-B is that it considers the level of involvement it requires for a successful project. First, the Owner needs to recognize the effort and completeness that must be behind its initial scope/preliminary design which forms the basis of its contract with the design-builder. Often, the Owner will require needs additional consultants to help it develop its scope or preliminary design, in the role of a traditional design firm.

Owners with highly specialized program needs or desires may not find it advantageous to turn over responsibility to an outside team, without ensuring adequate levels of oversight and communication. For example, a government Owner constructed a high-technology research facility involving highly

specialized equipment using D-B. During project development, the D-B team made several key design and equipment selection decisions without full involvement of the Owner, resulting in an unsatisfactory facility that required costly changes.

With this lesson in mind, it appears that D-B is best suited to conventional projects for which project requirements can be clearly defined and for which expertise is widely available. For example, an office facility might be a project ideally suited for D-B. In a project of this type, the Owner is not assuming undue risk in conceding control over the project, and may benefit from the advantages of D-B.

Another primary consideration for the Owner is proper selection of the D-B team. Since the Owner selects a team that has been created prior to selection, it may be difficult for the Owner to maintain the proper balance of design expertise, financial capability, construction experience, and experience in D-B team roles. In particular, the Owner should strongly favor D-B teams with a successful track record working together on previous projects in the same D-B roles. More so than in any other delivery system, the success of a D-B project may hinge on the initial selection process.

Agency Construction Management Services

Agency construction management (ACM), or construction management-for-fee, encompasses a range of services provided by a CM on behalf of an Owner. It is a common misconception that CM-for-fee represents a distinct project delivery system. In fact, agency construction management consists of a distinct set of services that are applicable to any project delivery system. These services can be used by the Owner as necessary to extend or supplement the Owner's own expertise, its own staff, and to manage the construction process to help address some of the shortfalls of the project delivery system chosen.

A CM working as an agent to the Owner primarily provides the benefit of independent, professional services provided on the Owner's behalf throughout the project. In contrast to some other project participants, the ACM has no vested financial interest in the project — in either its design or construction — and maintains a responsibility to act on the Owner's behalf and provide to provide impartial advice concerning the construction project. As such, ACM firms should be selected based on qualifications, and not on a cost or low-bid basis.

Services offered by an ACM include the following:

Pre-Design and Design: As discussed earlier, there are often advantages to obtaining construction expertise during the early planning stages of a project. Some services typically offered by ACM firms during planning stages include the following:

- **Selection of a design team:** An ACM firm, based on historical experience in the market, can assist the Owner in selecting the most qualified design team to develop project plans and specifications. Similarly, an ACM firm can also assist the Owner in evaluating various potential

construction sites.

- **Budget and Cost Estimating:** Preliminary budgets, based on historical data for similar projects, will assist the Owner in determining the feasibility of initial scope. More refined estimates are developed during the design process to pinpoint the necessary construction budget, and provide a basis of comparison to contractor bids.
- **Constructibility Review:** A review of design plans and specifications will help the Owner verify that the design as presented is clear to the contractor, poses no construction conflicts, and is economically feasible to build.
- **Value Engineering:** A multi-disciplined team reviews project features to ensure that the Owner's necessary functions are provided in the most cost-effective way, both in terms of initial and life-cycle costs.
- **Contract Bidding:** An ACM firm can assist the Owner in pre-selection of contractors and development of the bid package to ensure that the contractor selection process is fair and provides the best value to the Owner.

In fact, an ACM is often most cost effective during the planning stages of the project, since the ACM firms can provide the careful planning and organization skills that can help prevent costly problems during construction. Properly executed services such as constructibility reviews and preliminary scheduling can result in significant risk reduction and cost savings many times initial cost in terms of limiting change orders, delays, and contractor claims. Here the Owners can maximize the benefits of CM in a professional advisory role throughout the design and construction process because the CM has no stake in the construction contracting.

Construction Phase: ACM firms provide a variety of services during construction, including the following:

- **Construction Inspection and Surveillance:** Virtually all Owners desire some type of examination of project performance on a continuous or periodic basis to review progress, ensure compliance with specifications and plans, and to review housekeeping and safety issues.
- **Project Controls:** These services are provided to ensure that the project is efficiently and effectively managed. They include maintenance of project correspondence, conducting progress meetings, handling submittals and requests for information, documentation of progress, review of pay requests, schedule reviews and schedule updates.
- **Change Order Review:** These services include negotiation of change orders with the contractor, coordination with the designer over design changes, determination of responsibility for changed conditions or coordination conflict, and review of price and schedule changes.
- **Project Closeout:** Review of the project to ensure orderly and timely completion, including development of punchlists; monitoring of implementation, training and warranty periods; resolution of outstanding issues; review and analysis of claims or disputed issues.

The most frequently cited criticism of ACM services is that the CM adds a level of bureaucracy to a project, resulting in added cost. While it can be argued that such costs may actually reduce overall project costs, it should be noted that an Owner can realize the benefit of the ACM services without necessarily committing to large increases in expense by supplementing its own project management as necessary and selecting ACM on a service-specific basis.

The Owner has the option of tailoring its use of ACM services to its needs in order to provide the best combination of project control and cost. For example, many Owners have a large contingent of inspection personnel, but may lack sufficient management experience to enact effective project cost controls. Or, an Owner may wish to have more construction knowledge built into the design process by engaging an ACM firm to perform a value engineering or constructibility review. An Owner may also desire enhanced scheduling expertise in coordinating its various designers and contractors for a multiple-phase effort.

Other Owners may be very comfortable with their design team, but may need assistance in finding qualified contractors to perform the work. Many Owners use an ACM's construction closeout services to resolve intractable problems on projects which degenerate due to disputes with a contractor over schedule and delay issues.

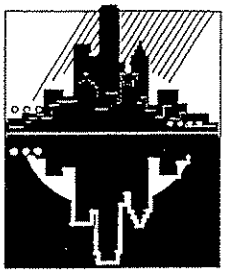
Recommendations and Conclusion

Clearly, there is no one right project delivery method for a given project. All of the methods discussed have been used successfully, and have weaknesses which can limit their success. The following considerations should guide the Owner in selecting the proper delivery method:

- **Type of Project:** The Owner should gauge the level of complexity and uniqueness of the project, and maintain an appropriate level of control.
- **Size of Project:** The amount of outside assistance and number of project participants should match the significance of the project. Obviously, the more complex and costly a project, the greater the need for professional management and advice.
- **Owner Capabilities:** The Owner should realistically assess its own in-house capabilities in evaluating project procurement methods.
- **Time Considerations:** If the project needs to be constructed in a severely compressed time limit, methods adaptable to fast-track construction should be considered. However, the Owner must weigh the need for the compressed time limit against the increased cost and risk of fast tracking.
- **Likelihood of Changes:** If the Owner is aware that its requirements may change considerably during the project, this should be evaluated against the potential cost of such changes. For example, a D-B team may present the most fluid method of incorporating changes during construction, but those changes may come at a higher cost than through other methods.

Professional construction management can help Owners in constructing the best project possible, on-

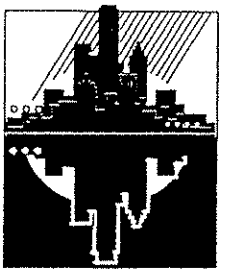
time and on-budget. Construction management services are highly desirable, if not essential, to a successful project especially for Owners lacking this expertise in-house. These services are adaptable to any project delivery system, and are scalable to meet the specific needs of the project. An Owner should thoroughly explore available options for construction procurement, and consider the benefits of professional management services regardless of the contractual approach used to deliver the project.



SELECTING PROJECT DELIVERY SYSTEMS

COMPARING DESIGN-BUILD, DESIGN-BID-BUILD AND CONSTRUCTION MANAGEMENT AT RISK.

BY VICTOR SANVIDO AND MARK KONCHAR



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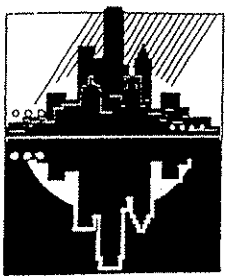

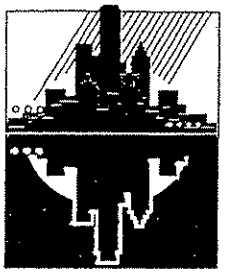

Executive Summary

This book provides a facility owner a tool to help it identify and explicitly recognize its internal organizational constraints and the business goals for the facility. Using this information the book will help it select the right project delivery system for its needs. The book defines several key project delivery terms and summarizes the results of a national study comparing the cost, schedule and quality attributes of 351 projects delivered using the three predominant U.S. project delivery systems: design-build, design-bid-build, and construction management at risk.

This study showed that on average, projects delivered using the design-build project delivery system, took 33.5% less time to deliver and had a unit cost 6.1% less than similar projects delivered under the design-bid-build project delivery system. Projects delivered under the construction management at risk project delivery system took an average of 13.3% less time to deliver and had a unit cost of 1.6% less than similar projects delivered using the design-bid-build project delivery system. Relative quality measures showed that design-bid-build projects on average resulted in the lowest possibility of meeting owner expectations.

The book then guides the owner through a procedure, developed in conjunction with a team of facility owners, to select a project delivery system. Selection of the procurement method, the project team and the contract are also addressed. Finally, this book provides the facility owner/ developer with definitions, checklists, tips for success and methods to make decisions related to successful project delivery. This is based on an analysis of the best performing projects in the study, collectively, and when sorted by project delivery system.

By using the guidance offered and the steps outlined throughout this book, an owner should be better able to select the project delivery system best suited for its particular facility goals. It should also recognize project characteristics of highly successful projects and learn ways to create these characteristics on its project. As a facility owner/ developer gains more experience with a project delivery system on different projects, it should also gain improvements in performance.

RS133-1 — Project Delivery Systems: CM at Risk, Design-Build, Design-Bid-Build

Executive Summary:

Design-Build: It is the nomenclature for a project delivery system that runs the gamut, from organizations employing it regularly, to those who tolerate it occasionally, to organizations restricted by statute from embracing it, to many who have never confronted it. Comparing its success to two other widely used delivery methods, design-bid-build and construction management (CM) at risk, was the charter of this research team. The results — proven by statistical analysis on over 350 projects — are "rock solid."

Many ways of doing business in the past have proved unacceptable today, or, at least, proved less efficient than alternate methods not formally considered. This results from changes in owner staff makeup; a focus on the owner's "core" business, which usually is not building capital projects; a need to downsize in-house capabilities; and owners' inability to respond to an "I need it now!" concept.

The delivery methods that the research team studied, design-build, design-bid-build, and CM at risk, each have had varying success in the industry. The team studied methods used, and considered project attributes, owner in-house needs and desires, and critical success factors.

The research shows that design-build systems have significantly less design and construction cost growth when compared to design-bid-build; that design-bid-build systems have the greatest design and construction schedule growth; and that quality measurement associated with design-build, often maligned by many, is better than quality performance in design-bid-build. No one method can meet all owner, project, or individual critical success factors. Any delivery system is dependent on the ever-changing dynamics of our industry. Now, however, there are statistically analyzed results that will improve the owners' ability for selection. Those results are the subject of this report.

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Alberta
INFRASTRUCTURE

Construction Management

An Owner's Guide to Using the
'Construction Management'
Project Delivery System on
Alberta Infrastructure Funded Building Projects

April 10, 2001

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Introduction

Construction Management is one of the three major categories of project delivery systems in common use for building construction projects, the other two being the traditional Design-Bid-Build system and the Design-Build system.

The relationships, roles, and responsibilities of the parties involved vary considerably under different project delivery systems. Consequently, selection of the project delivery system is one of the most important decisions affecting the success of a project. It is a decision that needs to be made very early in the process.

Each of the major project delivery systems has its advantages and disadvantages in different circumstances and may be more or less suitable for a particular project. Construction Management has increased in popularity in recent years. It can be the best choice under the right project circumstances, if properly executed and potential pitfalls are understood. It is not necessarily the best choice for all types of projects, particularly from a public sector owner's perspective, and if improperly executed, can have less than satisfactory results. The purpose of this document is to:

- Explain what Construction Management is, including its two most common forms (Construction Manager as Agent and Construction Manager as Constructor).

- Provide guidance to Owners on when Construction Management may be beneficial, what its disadvantages may be, how some of these disadvantages can be mitigated, and guidance in choosing the most appropriate form of Construction Management.

- Provide guidance to Owners on how to procure the services of a Construction Management firm.

- Convey Alberta Infrastructure approval requirements that Owners (funded entities) are expected to comply with when using Construction Management for an Alberta Infrastructure funded building project (schools, post-secondary educational institutions, hospitals, seniors' lodges, etc.)

Alberta Infrastructure does not hold any particular bias either for or against the use of Construction Management on projects funded by the department. However, Owners are expected to have given careful consideration to the benefits, as well as the shortcomings of Construction Management in its various forms, as they may apply to a particular project. In determining whether or not approval will be given to use a particular form of Construction Management for a particular project, Alberta Infrastructure will examine the Owner's rationale for selecting the proposed delivery system. A well reasoned rationale that recognizes and takes into account the guidelines outlined in this Guide, and which demonstrates that the positive factors are expected to outweigh any negative ones, is likely to be favourably received.

What is Construction Management?

Under the traditional Design-Bid-Build system, the Owner contracts first with a design consultant to 'design' the project, then solicits 'bids' from general contractors based on the completed design and, finally, contracts with a general contractor to 'build' the project. Under the Design-Build system, the Owner solicits proposals based on a statement of requirements and then contracts with a single entity to both 'design' and 'build' the project under a single contract.

The Construction Management project delivery system is different from the other two systems in that the Owner contracts separately, but somewhat simultaneously, with a design consultant and with a firm whose primary expertise is construction (the Construction Manager). The Owner procures the management services of the Construction Manager (in most cases a general contracting construction firm) early in the design phase. This enables the Construction Manager to provide significant cost, schedule, constructibility, and serviceability input to the design, as an additional member of the design team.

Under Construction Management, trade contracts may be entered into sequentially. As soon as a specific part of the design is complete, bids for that trade package can be solicited and construction can commence. This overlapping of design and construction is known as 'fast-tracking', a process with which Construction Management is often associated.

However, Construction Management may also be used when there is no intention to fast-track, i.e. the trade contracts are entered into only after the design is complete. After construction commences (with or without fast-tracking) the Construction Manager manages the trade contract work and functions much as a general contractor does under the traditional Design-Bid-Build system.

Construction Management should not be confused with Project Management. Project Management implies a much broader set of responsibilities than Construction Management. Project Management is the overall management by, or on behalf of, the Owner of all aspects of a project from its inception through design, construction and use. An Owner's Project Manager makes decisions on the Owner's behalf and is, amongst other things, typically responsible for procuring, for the Owner, the services of the design consultant, other specialty consultants, and the Construction Manager. Some firms may be capable of providing both Project Management and Construction Management services, although usually not on the same project.

A contract for the provision of Construction Management services, as initially defined above, will usually take one of two significantly different contractual approaches:

- **Construction Manager (CM) as Agent** is a form of Construction Management under which the Construction Manager acts as an agent of, and advisor to, the Owner. The *Owner* enters into multiple trade contracts with the trade contractors and suppliers. The Construction Manager is retained on a fee for service basis and acts on the Owner's behalf in managing and coordinating the trade contracts in the best interests of the Owner. The Owner retains all of the contracting risks inherent in each of the trade contracts. It essentially involves the Owner acting as its own general contractor, with the assistance of a Construction Manager. This form of Construction Management is sometimes also referred to as the 'CM as Advisor' or 'owner contracted' form of Construction Management.

- **Construction Manager (CM) as Constructor** is a form of Construction Management under which the *Construction Manager* enters into multiple trade contracts with the trade contractors and suppliers. The Construction Manager assumes responsibility for the performance of the trade contracts (subcontracts) much as a general contractor would under the traditional method, and is paid for the trade contract work on a cost reimbursement basis. The Construction Manager may, or may not, also provide a guaranteed maximum price and schedule to the Owner under a cost plus type of arrangement, or enter into a stipulated price contract, when the design is sufficiently complete. When this is the case, this form of Construction Management is sometimes also referred to as 'CM at Risk'.

CM as Constructor services are invariably provided by construction companies which are experienced in and capable of providing general contracting services under the traditional Design-Bid-Build system. CM as Agent services are commonly provided by construction companies as well, but are also provided by consulting firms possessing specialist expertise in construction management.

Unsophisticated Owners sometimes use an individual or small firm which has neither the capabilities and resources of a full fledged construction company, nor the capabilities of a consulting firm possessing proper construction management expertise, to manage multiple trade contracts on the Owner's behalf (by definition, CM as Agent). The rationale for this approach is usually seen to be cost savings. However, this approach may end up costing more in the long run, through the increased assumption of risk by the Owner. This approach is particularly risky when the person acting as the CM as Agent is an employee of the Owner and is managing multiple trade contracts as an adjunct to other responsibilities. This Guide assumes that Construction Management services will be procured, by contract, from firms that are properly qualified, experienced and have the necessary resources to provide such services. Procuring Construction Management services from individuals or one or two person firms holding themselves out to be Construction Managers is not advised.

In some cases under CM as Agent, usually when the Construction Manager is other than a construction company, the Construction Manager's authority under the agency relationship may extend as far as being permitted to sign the trade contracts (as the Owner's agent). This should not be confused with CM as Constructor.

What Services does a Construction Manager Provide?

The basic services that typically are (or should be) provided by a Construction Manager are summarized below. The Construction Management contract for a particular project will usually include a more detailed and comprehensive scope of services, which may vary from this listing.

Design Phase:

- Assists in development of overall project concept.
- Provides advice on availability of materials, equipment and labour.
- Evaluates alternative design concepts, materials and systems, taking into consideration construction methods, cost,* schedule, quality and performance, including durability, serviceability and maintainability issues (value analysis).
- Prepares a work breakdown structure and updates it as the design progresses.
- Prepares a project schedule and updates it as the design progresses.
- Prepares a construction cost estimate* and updates it as the design progresses.

Construction Phase:

- Arranges for and provides temporary services and site facilities.
- Establishes procedures for materials delivery, storage and handling (particularly for congested sites and user occupied facilities).
- Ensures that all necessary construction permits and approvals are obtained.
- Provides advice on and coordinates the packaging and sequencing of trade work for bidding.
- Solicits, receives and evaluates trade contract bids and makes award recommendations to the Owner.
- Arranges for the execution of trade contracts and ensures that required bonding, insurance, etc. is in place.
- Establishes and administers a health and safety program for the site, usually assuming the role of "prime contractor" as defined in the Occupational Health and Safety Act.
- Coordinates and supervises work of all trade contracts.
- Performs 'own forces' construction work to the extent permitted by the Owner.
- Expedites the processing of product data, shop drawings and other submittals.
- Expedites the processing of trade contractor and supplier invoices.
- Negotiates and processes changes in the work, in consultation with the design consultant and Owner.
- Submits progress reports, including construction cost* and schedule updates, to the Owner on a regular basis.
- Ensures that record drawings, operating and maintenance data, etc. are properly delivered to the Owner.

*One of the primary services provided by the Construction Manager is provision of cost estimates at various stages. Notwithstanding this, for medium to large, or complex, projects, Owners are strongly advised to also retain an independent cost consultant, particularly to provide functional and elemental cost estimates and value analysis in the early design phases, which the Construction Manager may be somewhat less adept at providing. These services should be coordinated to avoid any unnecessary duplication.

Post-Construction Phase:

- Inspects the work for defects and deficiencies.
- Assists the Owner's operating staff to ensure a smooth take-over.
- Administers warranties provided by trade contractors and suppliers.

When Is Construction Management Beneficial?

The type of input that can be provided by a Construction Manager during the design phase is potentially beneficial to the Owner on virtually any project. However, considering that this input will be a cost to the project, the question is more accurately stated as: when is the Owner most likely to receive good value in return for what the Owner is paying for this service? Construction Management is most likely to provide good value to the Owner, and is therefore worth considering, when one or more of the following conditions exist:

- When the project is a complex, multi-phased renovation of an existing user occupied facility, particularly a complex use-occupied facility (e.g. a hospital). For these types of projects, early and ongoing advice from a contractor's perspective with respect to work sequencing, packaging, and scheduling as well as site coordination during construction can be very beneficial.

- When time is critical and it is essential to attain a completion date earlier than that attainable by the traditional Design-Bid-Build system, or when an earlier completion date will result in significant operational cost savings. Construction Management can be expected to result in a shorter overall project delivery time than Design-Bid-Build, mainly as a result of fast-tracking (overlapping design and construction).

- When the design will be extraordinary or innovative, and early, unbiased, advice on constructibility, construction methods, costing and scheduling is required.

- When the Owner's needs and requirements are in a state of flux or are difficult to determine in the early stages of a project. Fast-tracking permits some of the design work for later phases of construction to be deferred.

- When market conditions are rapidly changing in the locality of the project, particularly if labour is in short supply. A good Construction Manager uses knowledge of market conditions to provide advice on alternative materials and methods.

One recent U.S. study that compared Construction Management (assuming CM as Constructor and fast-tracking) with the other major project delivery systems showed that the most significant advantage of this form of Construction Management over Design-Bid-Build is with respect to time (13.3% faster delivery speed) rather than cost or quality which were shown to be the same or only slightly better than Design-Bid-Build[1]

When there is no intention to fast-track, one of the most significant benefits of Construction Management (namely faster delivery) does not apply to nearly the same degree. The question of whether the use of Construction Management without fast-tracking provides good value and a net benefit to the Owner may therefore be more difficult to ascertain and there are conflicting views in this regard. It may well depend on variables, such as:

- the extent to which the other conditions listed above, which do not necessarily call for fast-tracking, apply,
- the extent to which a project lends itself to alternative design solutions (and thus the extent of opportunity for the Construction Manager to have a positive influence),
- the dynamics of a particular Construction Manager/Consultant/Owner team and a particular Owner's experiences with particular Construction Managers, or
- the allocation of risk and the method by which the Construction Manager is remunerated under a particular contracting arrangement.

What are the Disadvantages of Construction Management?

While Construction Management may be beneficial in some circumstances, Owners should recognize that it may also have some disadvantages compared to the traditional Design-Bid-Build system. It should be mentioned here that the traditional method has its disadvantages as well, however a complete discussion of all of the pros and cons of all of the major project delivery systems in comparison to each other is beyond the scope of this Guide. Also, the disadvantages identified here are primarily related to the contracting arrangements by which Construction Managers are typically remunerated. These disadvantages are commonly seen in Construction Management, but are not necessarily inherent to this project delivery system. They can be mitigated by means of more creative contractual arrangements specifically designed to address these issues.

The most significant disadvantage of many Construction Management contracting arrangements is that significant portions of the *total* services for which the Construction Manager is remunerated are not subject to competitive bidding. Consequently, it is much less likely that the Owner will be charged the lowest possible 'market rates' for these services (as is otherwise the case for so-called 'hard bid' construction contracts under Design-Bid-Build).

[1] Victor Sanvido and Mark Konchar, Selecting Project Delivery Systems (Pennsylvania: the project delivery institute, 1999), p. 13-18

A second commonly seen disadvantage is the open-ended nature of many Construction Management contractual arrangements, which unnecessarily expose the Owner to the risk of unanticipated cost increases. Depending on how the Construction Manager is to be remunerated, there may be a built-in disincentive for the Construction Manager to minimize costs (e.g. if there is a cost plus a percentage component in the Construction Management services contract). There can also be a built-in disincentive to complete the work as quickly as possible (e.g. if the Construction Manager is paid additional money for additional time spent on the project). Contractual arrangements that may have this effect should be avoided.

Alternatively, under CM as Constructor, and especially when no fast-tracking is intended, these concerns can be mitigated by establishing a guaranteed maximum price, or by converting the Construction Management services contract to a stipulated price construction contract prior to the commencement of construction. Unless and until this happens, Owners should be aware that the Construction Manager is not contractually committed to the construction cost estimate and that there exists the potential for significant unanticipated cost increases. (This may be somewhat offset however by the Construction Manager's desire to maintain a reputation for meeting budgets.)

While the security provided by a guaranteed maximum price, or a stipulated price, is often attractive to Owners, it should be borne in mind that this security comes at a price, since the guaranteed maximum price or stipulated price will invariably include a 'cushion' to cover risks which may or may not materialize.

Which Form of Construction Management?

Concurrent with the decision to use Construction Management, a decision must also be made on which form of Construction Management to use: CM as Agent or CM as Constructor. This decision must be made before any steps are taken to procure the services of a Construction Management firm, since the type of contract entered into, the scope of services, and the method of remuneration are highly dependent on the form of Construction Management to be used.

Failure by the Owner to clearly articulate which form of Construction Management is intended to be used can lead to confusion and a serious misunderstanding of roles, responsibilities and risk allocation.

Each form of Construction Management has its relative advantages and disadvantages, which Owners are advised to carefully consider when choosing the most appropriate form for their project.

Under CM as Agent, the Construction Manager has less risk, in that although responsible for coordination of the trade contracts, the Construction Manager is not contractually responsible for any of the trade work itself. Virtually all of the Construction Manager's efforts can be devoted to acting solely in the best interests of the Owner, since the Construction Management fee is not usually affected by the decisions the Construction Manager makes. However the CM as Agent form of Construction Management also has some inherent disadvantages:

- The Owner assumes all of the contracting risks under each individual trade contract.
- The Owner assumes a potentially onerous administrative burden, due to the large number of individual trade contracts entered into, each of which must be administered separately in terms of contract signing, payment, holdback, warranty, etc.
- The CM as Agent is not in a position to provide, at any point in the process, a contractually guaranteed maximum price or stipulated price for the project. The Owner assumes the risk of cost growth.
- When a trade contractor contracts directly with an Owner on a one-time basis, rather than with a general contractor with whom there may be numerous other contracts (past, present and future) there are some significant differences in the relationship, which may ultimately be detrimental to the Owner.

Under CM as Constructor, the Construction Manager carries the risk and administrative burden associated with the trade contract work, for which the Construction Manager is contractually responsible. But it should be understood by Owners that, with this form of Construction Management, there is also a greater likelihood for the Construction Manager to act in self- interest, to the detriment of the Owner's interests.

CM as Constructor has, in recent years, become the more common of the two forms and is the form that most Owners and Construction Managers prefer.

Whether or Not to Fast-Track

This is, again, a very important decision that must be made by the Owner early in the process. The major advantage commonly associated with Construction Management, namely faster delivery, is primarily attributable to fast-tracking. But fast-tracking also carries certain inherent disadvantages:

- The Owner must irrevocably 'commit' to undertake construction work at a point in time when the final cost of construction is still largely unknown (because much of the construction work has yet to be designed or bid). This contributes to an increased likelihood of cost growth compared to Design-Bid-Build[2].

- Additional fees typically charged by design consultants for additional services in preparing multiple trade packages, etc.

- Early design decisions are literally 'cast in concrete' and are often extremely difficult or impossible to change later on as the design progresses (unlike a design on paper).

- Because the design of various components is often not very far ahead of its construction in the field, incomplete or insufficiently detailed drawings and specifications can lead to numerous changes, rework and other inefficiencies that can lead to claims for additional costs and delays.

- The Owner must be in virtually constant communication with the design consultant and Construction Manager and may often be forced to make critical decisions under extreme time pressures.

Construction Management with fast-tracking should only be considered when time is of paramount importance and achieving an earlier completion date than what would otherwise be possible outweighs all of the disadvantages described above.

How Should Construction Management Services be Procured?

The services of a Construction Management firm can be procured using either of two methods:

- **'Best value' method:** A Request for Proposals (RFP) is issued to prospective Construction Management firms. Qualifications, experience, and various other relevant factors (including price) are taken into consideration in selecting the successful Construction Manager.

- **'Low bid' method:** The terms of the Construction Management services contract are provided to prequalified Construction Management firms and the contract is simply awarded to the firm submitting the lowest valid bid. Price is the only selection factor.

'Best value' is the more commonly used method for Construction Management services.

[2] Sanvido and Konchar, p.17

With the possible exception of a CM as Agent contract for a relatively small project, most Construction Management contracts will be subject to the Agreement on Internal Trade (AIT). The thresholds for the so-called 'MASH' sector (municipalities, academic institutions, schools and hospitals) are:

- $100,000 for a services contract (applicable to CM as Agent) and
- $250,000 for construction contracts (applicable to CM as Constructor -- the total value of the trade contracts is part of the value of the Construction Management contract).

If the estimated total value of a Construction Management contract exceeds the AIT threshold amounts, the opportunity to compete for a Construction Management services contract must be publicly advertised. This may be done at the pre-qualification stage, if there is a separate Request for Qualifications (RFQ). Otherwise, it must be done at the Request for Proposals (RFP) or request for bids stage. A notice should be placed electronically on CoolNet or MERX (or both) in which case a newspaper advertisement is not essential.

Regardless of whether the AIT applies or not, sole source selection of Construction Management services without a competitive process of some kind is not acceptable for publicly funded projects. A pure qualifications based selection process for Construction Management services, which does not take price into account at all, is similarly unacceptable.

When and How Should Construction Managers be Prequalified?

Although virtually all general contracting construction firms will suggest that they can provide Construction Management services, some firms have much superior qualifications and experience in the Construction Manager role than others. If the 'low bid' procurement method is to be used, a separate pre-qualification stage is essential.

If the 'best value' approach is used, and if qualifications and experience are factored into the RFP evaluation methodology (as they should be) a separate pre-qualification stage preceding the RFP is not essential. If desired, pre-qualification can however be used to limit (or shortlist) the number of respondents to an RFP that need to be evaluated.

A Request for Qualifications (RFQ) should list *all* of the primary criteria that will be used in evaluating the respondents. These criteria, and the information requested in the responses should be stated in such a way as to minimize the amount of subjectivity required in the evaluation. Also, a conscious decision should be made, and RFQ documents should specify, whether the intent of the prequalification is simply to prequalify *all* respondents that 'pass' a certain level of specified criteria, or whether it is to shortlist a pre-determined number of the 'best' qualified respondents. In the latter case, the pre-determined number of respondents that will be prequalified should be specified (should be no less than three).

RFP Evaluation Criteria and Process

A Request for Proposals (RFP) should disclose *all* of the primary criteria that will be used in evaluating the proposals. Following is a listing of the criteria that might typically be used in evaluating proposals for Construction Management services (assuming no prior prequalification). Additional criteria could be added to the list or these criteria could be further broken down into subcategories. However, the criteria should be limited to those which can be characterized as either 'very important' or 'having some importance'. Generally, the fewer the criteria (beyond the following list) the better.

- Fee proposal
- Experience as a Construction Manager (number, size and type of projects)
- Experience as a Construction Manager on projects similar in type and size to the one under consideration (number of similar projects)
- Present workload; availability of resources
- Relevant qualifications and experience of personnel available to be assigned to the project
- Safety record; safety program; safety certification
- Financial strength and stability; bonding capacity
- *Cost management abilities (meeting budget)
- *Time management abilities (meeting schedule)
- *Ability to be innovative, solve problems, and provide value added design input
- *Ability to cooperate and function as a team player
- *Administrative abilities

* These factors are difficult to evaluate based solely on information provided in the proposal submissions. They are best evaluated by contacting references that the proponent has been requested to provide, by contacting other owners or consultants known to have worked with the proponent, or from the Owner's own experience with the proponent on a previous project.

The RFP should assign a weighting indicating the relative importance of each primary criterion (or each major group of criteria). This is mandatory for contracts subject to the Agreement on Internal Trade. It is particularly important to state the weighting that the fee proposal (price) will be have in relation to the other criteria. The weighting given to the fee proposal should be sufficiently high, relative to the other criteria, to ensure that pricing remains competitive.

The fee proposal should be required to address all aspects of the fee, including lump sum amounts, percentages, unit rates for labour and other items, mark-ups on reimbursable costs and own forces work, etc. The evaluation methodology that will be used (e.g. any minimum or mandatory criteria, the point scoring system, etc.) should also be clearly specified.

The selection decision should be based strictly on the criteria and methodology set out in the RFP. No additional subjective factors that were not disclosed to the proponents should be considered. The evaluation should be performed by an evaluation team comprised of at least three people, with at least one person representing the Owner and at least one representing the design consultant. (If requested, Alberta Infrastructure staff may also be available to participate in the evaluation.)

Requiring the fee proposal to be submitted in a separate envelope, and evaluating it only after completion of the evaluation based on all of the other criteria, is a good practice. It ensures that the fee proposal does not unduly influence the evaluation of the other factors unrelated to the fee.

If an interview is required as part of the process, its purpose should be to obtain additional information to be factored into the previously established evaluation methodology. An interview should not be used to override, on a purely subjective basis, the results of the evaluation methodology. Any negotiation of minor terms of the Construction Management contract should be with the successful proponent only, after that proponent has been selected through the formal evaluation process.

It is advisable to give unsuccessful proponents the opportunity for a debriefing, to explain to them why they were unsuccessful. However, care should be taken not to disclose detailed information about competitors' proposals or how competitors' proposals were evaluated.

How Should the Construction Manager be Remunerated?

Invariably, a Construction Management services contract, be it *CM as Agent or CM as Constructor*, will have one or more 'fixed price' components and one or more 'cost reimbursement' components, with some of the services covered by the fixed price(s) and others cost reimbursable.

- A 'fixed price' component is based on a pre-determined estimate of the Construction Manager's costs for items covered by the fixed price, plus an allowance for overhead and profit. This 'fixed price' may be based on a lump sum stipulated price, units (e.g. wage rates on an hourly or monthly basis) or a percentage (e.g. percentage of total project cost), but its defining characteristic is that it is paid by the Owner *irrespective of the Construction Manager's actual costs*.

- A 'cost reimbursement' component is paid *based on the Construction Manager's actual costs*, with or without a mark-up (usually a percentage) added on.

It is essential that there be a clear understanding between the parties with respect to which particular services will be covered by 'fixed fees' and which will be 'cost reimbursable'. The importance of this cannot be overemphasized. Owners should bear in mind that it is in the Construction Manager's interest to maximize the 'cost reimbursable' items to which a percentage fee may be attached, and to minimize the services covered by a 'fixed fee', because this reduces the Construction Manager's risk. The opposite is in the Owner's interest, because it reduces the Owner's risk of unforeseen additional costs.

However, this understanding should not necessarily lead to the conclusion that it is in the Owner's interest to have most of the services covered by a fixed fee. The more risk that the Construction Manager is required to assume under a fixed fee, the greater that fixed fee will necessarily have to be. This is because the fixed fee will include an allowance for the Construction Manager's risks. These risks may or may not materialize. If they do not materialize, the Owner will have paid more than if the Owner had assumed the risk.

Ideally, the risk associated with each service and cost item should be assessed and a decision made by the Owner (or design consultant) as to whether it is best to include it in the fixed fee or as a reimbursable cost. The Owner and design consultant should pay particular attention to this and ensure that the basis for remuneration is clearly set out in the RFP or bid solicitation documents. This ensures that price proposals can be fairly compared and evaluated. It becomes even more important for it to be clearly stipulated in the Construction Management contract. Otherwise the Owner may be at a significant disadvantage and it may lead to disputes.

Own Forces Work by Construction Manager

The Construction Management firm usually performs a limited amount of construction work with its own forces. Typically this includes temporary facilities and services (e.g. hoarding, temporary heat, site office, power, water, security, hoisting, etc.) clean-up, miscellaneous cutting, patching, blocking, and other similar items not usually included in trade contract work. Requiring each trade to provide its own services is this regard would be inefficient and impractical, as would retaining a separate 'trade' contractor to perform this kind of work.

This work is typically remunerated on a 'cost reimbursable' rather than a 'fixed price' basis, and because it is performed by the Construction Management firm's own forces, is not subject to competitive bidding. For this reason, it is often in the Construction Manager's interest to maximize the amount of work performed by its own forces, and to provide as own forces work other types of work typically performed by a general contractor's own forces (e.g. cast-in-place concrete work). This is not, however, necessarily in the Owner's interest, so the Construction Management contract should strictly limit the kinds of work permitted to be performed by the Construction Manager's own forces, and maximize the amount of work that can reasonably be put out for competitive bidding by trade contractors and suppliers.

If, for example, the Construction Manager is permitted to do cast-in-place concrete work for a large project with the Construction Manager's own forces, it should be made clear that the concrete supply and the reinforcing steel (supply and placement) is to be competitively bid. This effectively leaves only the formwork and concrete placing and finishing to be performed by the Construction Manager's own forces.

In summary, cost reimbursable construction work performed by the Construction Manager's own forces, and which is not competitively bid, should be kept to a practical minimum. As a rule, it should never exceed 10% of the total construction cost of the project.

The Construction Management Services Contract

It is essential that the services contract with the Construction Management firm be finalized and executed by both parties before the Construction Manager provides any services or any trade contracts are awarded. To do otherwise is exceedingly poor business practice and fraught with risk.

The contract itself will differ significantly, depending on the form of Construction Management being used. Each is discussed separately below:

CM as Agent

The Canadian Construction Association publishes an industry standard model form of contract entitled Canadian Standard Construction Management Contract Form Between Owner and Construction Manager CCA Document No. 5 -1988. There is also a companion form of contract entitled Stipulated Price Contract for Trade Contractors on Construction Management Projects CCA 17 – 1996 which is intended for use by the Owner and trade contractors when entering into the various trade contracts.

Use of CCA 5 is recommended when CM as Agent is used, subject to modification by means of Supplementary Conditions. Supplementary Conditions should be used as necessary to more appropriately balance risks between Owner and Construction Manager and to address some of the remuneration issues previously discussed.

It is essential that the contract clearly address the following issues, some of which may require extensive modification of CCA 5 by means of Supplementary Conditions:

- Delineation of the extent of the Construction Manager's authority under the agency relationship.
- A comprehensive description of the services to be provided by the Construction Manager (and costs that may be incurred) that will be covered by the fixed price(s).
- A comprehensive description of the services and costs that will be cost reimbursable, and the mark-ups applicable thereto.
- The scope of work permitted to be performed by the Construction Manager's own forces and a requirement for the Owner's prior approval of any own forces work outside of this scope.
- A requirement for the Construction Manager to maintain a valid accreditation in a relevant safety certification program and an explicit statement requiring the Construction Manager to assume 'prime contractor' responsibilities as defined under the Occupational Health and Safety Act.
- Roles and responsibilities of the Owner, Consultant and Construction Manager with respect to soliciting, receiving and evaluating trade contract bids and preparing trade contracts for execution by the Owner and trade contractors.
- Construction Manager's responsibilities with respect to coordination, scheduling, etc.
- Alternative dispute resolution provisions, e.g. mediation and arbitration. (It is recommended that the 'Dispute Resolution Process for Government of Alberta Construction Contracts' be incorporated into the contract by reference. Copies are available from the Queen's Printer.)

The above list only highlights a few of the most significant issues that must be addressed. There are numerous other important issues that need to be considered and addressed in the Construction Management services contract. A design consultant experienced in the CM as Agent form of Construction Management should be able to assist in the preparation of the contract and appropriate Supplementary Conditions.

CM as Constructor

The CCA forms of contract described under CM as Agent (CCA 5 and CCA 17) are specifically written for CM as Agent and are not suitable for use under CM as Constructor. The introduction to CCA 5 warns against its use for this form of Construction Management. Unfortunately, there is presently no Canadian standard form of contract available for the CM as Constructor form of Construction Management (there are in the U.S.).

Some Owners or their consultants attempt to modify CCA 5 to suit this form of Construction Management, but the modifications required are extensive and caution is advised. Legal or other expert advice should be sought when taking this approach.

Knowledgeable owners who intend to use the CM as Constructor form of Construction Management on multiple projects usually develop their own custom written form of contract designed specifically for this form of Construction Management. The Capital Health Authority, for example, has developed such a form of contract.

Allowing the Construction Manager to propose and prepare the form of contract may put the Owner at a significant disadvantage.

It is essential that the CM as Constructor contract clearly address the following issues, as a minimum:

- A comprehensive description of the services to be provided by the Construction Manager (and any costs that may be incurred) that will be covered by the fixed price(s).
- A comprehensive description of the services and costs that will be cost reimbursable, and the applicable mark-ups.
- The scope of work permitted to be performed by the Construction Manager's own forces and a requirement for the Owner's prior approval of any own forces work outside of this scope.
- A requirement for the Construction Manager to maintain a valid accreditation in a relevant safety certification program and an explicit statement requiring the Construction Manager to assume 'prime contractor' responsibilities as defined under the Occupational Health and Safety Act.
- A requirement for all trade subcontractor and supplier contracts to be competitively bid and to be subject to the Owner's approval prior to award. The bidding process, the bids, the subcontracts and other records of the Construction Manager must be open to scrutiny by the Owner at all times.
- Alternative dispute resolution provisions, e.g. mediation and arbitration. (It is recommended that the 'Dispute Resolution Process for Government of Alberta Construction Contracts' be incorporated into the contract by reference. Copies are available from the Queen's Printer.)

If the Construction Management contract is to be superseded in some fashion by a stipulated price contract (typically CCDC 2) the rights and obligations of both parties under the original Construction Management contract must be properly carried forward into the new contract and the original contract must be properly closed out. Owners are advised to seek legal or other expert advice in this regard. In particular, the Owner should insist on a detailed cost breakdown, the total of which equals the stipulated price. The breakdown should show the value of:

- each trade contract, based on the lowest valid bid prices received,
- all own forces work to be performed by the Construction Manager,
- all 'general conditions' items,
- any contingency or cash allowance amounts, and
- the Construction Manager's overhead and profit, including how it was arrived at, particularly if some or all of this number was a part of the original Construction Management contract.

Before the new contract is signed, there should also be an accounting and confirmation of how much the Owner has paid under the original Construction Management contract, and how much, if anything, will remain to be paid under the original contract after entering into the new stipulated price contract.

What Approvals are Required from Alberta Infrastructure?

Owners of funded building projects to be delivered using Construction Management are required to obtain the following approvals, in writing, from Alberta Infrastructure, at various stages of the process.

- **Use of Construction Management:** Approval is required to use the Construction Management project delivery system for a given project. Submit with the request for approval a rationale explaining why Construction Management will best meet project objectives, which of the two forms of Construction Management is proposed, and whether or not fast-tracking is intended. This approval is required **prior to** the preparation of any documentation for the purpose of soliciting proposals or bids for Construction Management services.

- **Solicitation of Proposals/Bids:** Approval is required to solicit proposals or bids for Construction Management services and of the documentation proposed for this purpose. Submit with the request for approval a copy of the documentation proposed to be used to solicit proposals or bids. This approval is required **prior to** issuing RFP or bid documents to Construction Management firms.

- **Award of CM Contract:** Approval is required to enter into the contract for Construction Management services (and any subsequent stipulated or guaranteed maximum price contract that supersedes the original Construction Management contract). Submit with the request for approval:

  - A copy of the final RFP or bid documents issued to proponents/bidders, including any addenda (if not previously submitted).
  - A summary of the evaluation process and the results thereof (point scores) supporting the proposed selection.
  - A copy of the proposed Construction Management services contract.
  - A cost breakdown and summary of the Construction Manager's total anticipated remuneration under the contract (fixed price and reimbursable cost components) using estimates where actual costs are unknown at time of approval.
  - If available, provide a detailed cost breakdown of the estimated value of all trade contract work and all own forces work by the Construction Manager. If not available, provide an estimate of the total cost of such work.

  This approval is required **prior to** issuance of a contract award letter or contract to the successful Construction Management firm.

- **Award of Trade Contracts:** For each trade contract whose value exceeds $100,000, approval to enter into the contract is required (in the case of CM as Agent) or approval for the Construction Manager to enter into the contract (in the case of CM as Constructor). Submit with the request for approval:

  - List of all bidders and their respective prices (including base bid prices and alternative/separate prices where applicable.
  - Copy of the bid or proposal submission (including all attachments) for which approval to award is requested.
  - If applicable, copy of any contract changes negotiated after bid closing and prior to award.

  This approval is required **prior to** award of the trade contract.

- **Change in Contract Price:** Approval is required **prior to** any payment being made under a Construction Management services contract (CM as Agent or CM as Constructor) that would cause the *actual* total value of the contract to exceed the *estimated* total value of the contract (as submitted with the request for approval to award the CM contract) by more than 10%. Alternatively, approval to increase the estimated total value of the Construction Management services contract may be requested at any time. Submit with the request for approval justification for the increase.

These approval requirements are intended to apply in principle to all Alberta Infrastructure funded Construction Management projects. However, for funded entities which have significant, on-going, construction programs and proven project management capabilities, blanket approvals or additional thresholds below which the above approvals would not be required, may be agreed to on an exception basis.

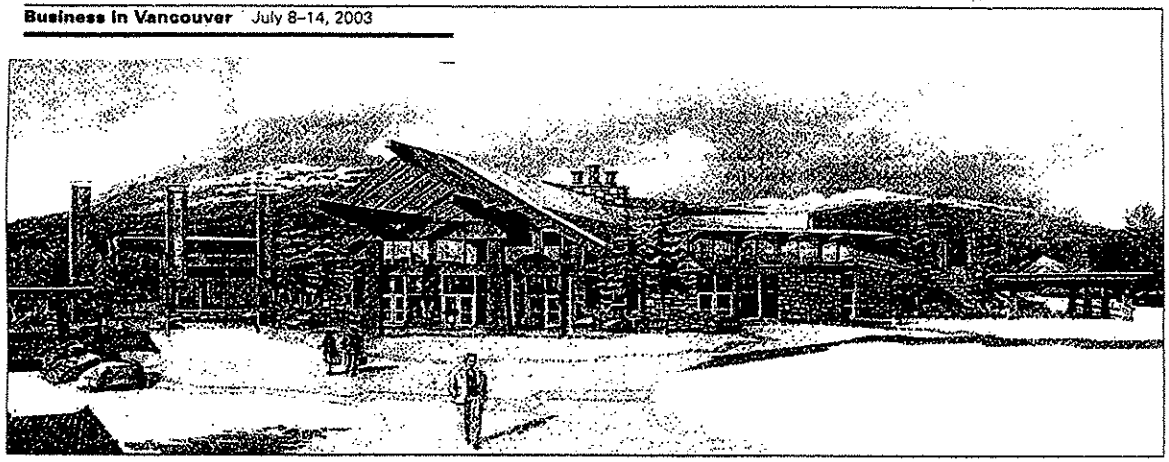
Alberta Infrastructure staff are available to provide assistance and input at any stage of the process, including review and comment on proposed RFQ, RFP or contract documentation. Owners of Alberta Infrastructure funded projects are encouraged to take advantage of this available resource.

Further Reading

The Technical Resources and Standards Branch Library at Alberta Infrastructure contains considerable information on project delivery systems in general, including Construction Management in particular, as well as information on contracts and contracting, procurement methodologies and other related topics.

Following is partial listing of available resources, and the source for much of the information contained in this guide document:

- Asner, Michael. The Request for Proposal Handbook. 1995.
- Construction Management Association of America Standards of Practice. 1986.
- Guide to Construction Management Contracts CCA 26 2000. Canadian Construction Association, 2000.
- Handbook on Project Delivery. American Institute of Architects - California Council, 1996.
- Masterman, J.W.E. An Introduction to Building Procurement Systems. 1992.
- Sanvido, Victor, and Konchar, Mark. Selecting Project Delivery Systems. 1999.
- Trauner, Theodore J., Jr. Managing the Construction Project. 1993.
- Which Builder? Tendering and Contractual Arrangements. The Aqua Group, 1975.



The Whistler Conference Centre is one of many projects in B.C. handled by Task Construction Management, a "pure construction management" company. It manages projects on the owners' behalf

Task an innovator in construction management

Construction management firm provides "pure" management services

Brian Martin

The traditional ways in which construction is sold are changing. This is the first in a series of stories in which Construction in Vancouver will look at different companies noted for marketing their services.

In the first 30 seconds of the interview John Hiebert sums up the gist of what he has to say: "We are," he says, "a different kind of company."

Hiebert is the president of Task Construction Management in Burnaby. They are not general contractors and they do not bid on tendered jobs.

Their specialty is what Hiebert calls "pure" construction management. They act as agents for owners. This involves managing the construction process and managing all the various subcontractors needed to build a project. At the end of the day, however, the subcontractors work for the project's owner. They do not work for Task as they would if Task were a general contractor.

The company is one of very few in Canada offering their type of service.

Construction management allows Task to offer completely unbiased advice to owners, says, Hiebert.

It is considerably different from the type of construction delivery that is normally used in either public construction or private construction. In public construction some 80 per cent is still handled through open tendering. In private construction the tendering is normally confined to a closed group of invited general contractors.

In the middle somewhere between general contracting and construction management is a hybrid called "construction management at risk." It is more common than "pure" construction management and is offered by many of the major players in the industry. In "construction management at risk" a contractor comes in initially as an advisor but during the process will offer to do a project at a fixed price. At that point the contractor has assumed the risk for bringing the project in on budget, just as he would in any tendering process. In the jobs Task takes on the risk remains with the owner of the project.

"This," says Hiebert, "empowers owners to build for themselves with our kind of input and expertise"

Very few companies in Canada offer their type of service

Task has built in many parts of the province and is now slowly moving into Alberta. In recent years, though, they have carved out a special reputation in the Southern Interior. They have been particularly successful in managing the construction of municipal recreation and arts facilities. Just a partial list includes an aquatic centre in Trail, an upgrade to the Memorial Arena in Trail, a $22 million Cranbrook Recreation Centre; and a new recreation centre and performing arts centre in Vernon with a combined value of about $25 million.

It is apparent that Task is doing something right.

In its 15-year history it has yet to be sued even once – something that is almost unheard of in the construction business.

Task's challenge when it comes to "selling" is to convince an owner to go with construction management in the first place. To accomplish this the company likes to get its message in early – the very minute someone starts to even think about a project. By the time a job hits the point of calling for tenders it's no longer of interest to them.

"On the other hand" says Hiebert,

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continued from p. 3

"marketing, as opposed to selling, means that if we have been doing our job an owner should already know who we are. So, it is not even a cold call when we contact them."

Task is active in industry associations and trade shows. Hiebert regularly makes time to speak do different groups and his company has won five awards and one honorary mention in the Awards of Excellence program run by the Vancouver Regional Construction Association. Two of the awards were for a zero accident frequency record. The rest were all for excellence in building.

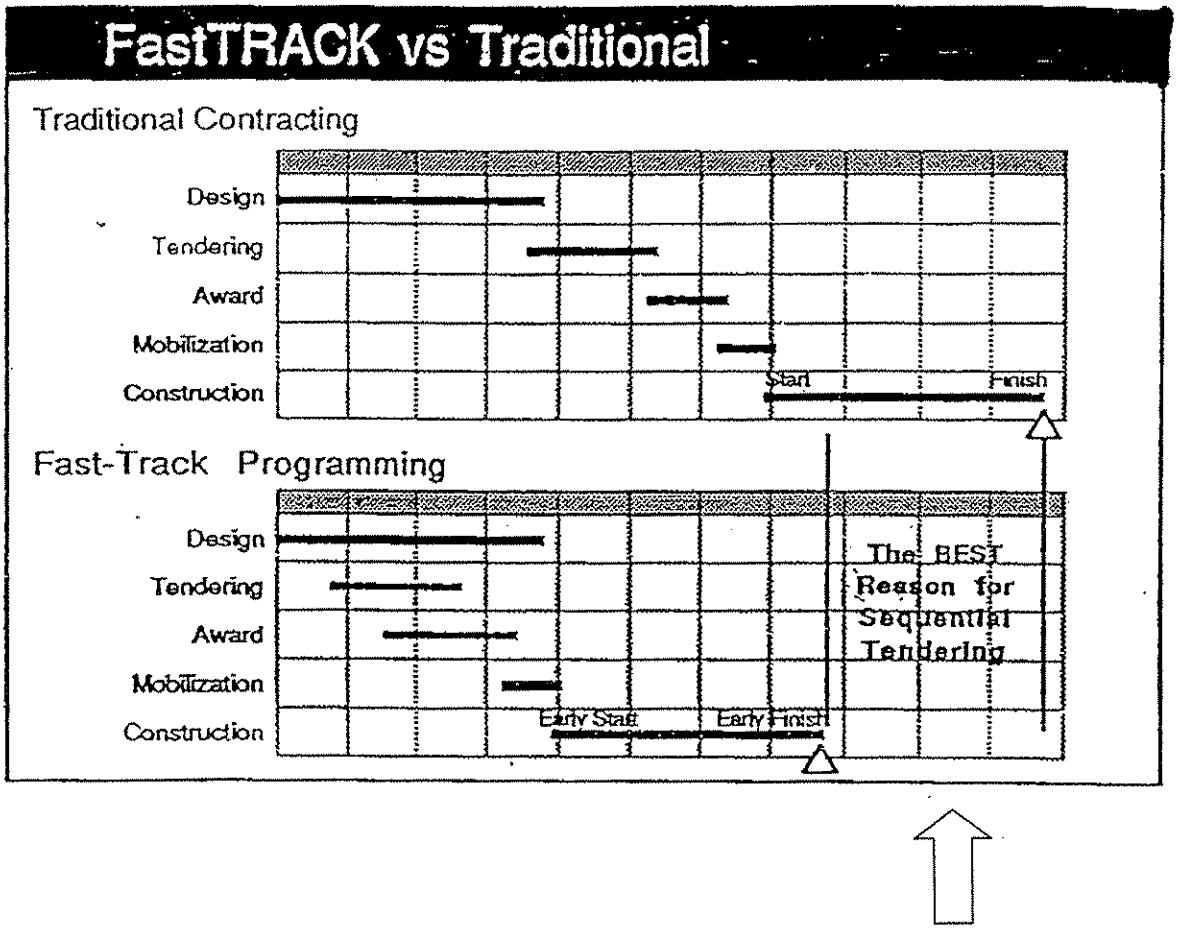
In addition Task is very savvy when it comes to understanding how business is done in small town British Columbia – an important factor when dealing at the municipal level.

While Task does not deal with preferential tendering nor do they hire directly they do make sure the components of specific jobs are broken down into segments small enough that local trade contractors have a good chance at successfully bidding them. In this way the projects ensure the opportunity for hometown employment. Hiebert describes this as a "big, big thing" for his company.

"We're in the reputation business," says Hiebert. He readily provides prospects with lists of satisfied clients. Those clients are, he insists, his best selling point.

"The Number One way of improving your marketing is to improve your service. We are a professional service company. We believe construction is a service. It is not a product. It is not a commodity. The project we're building is not my building. It's not my concrete or my steel going into it.

"If you start out with the premise that construction is a service then how you market is totally different."


FastTRACK vs Traditional
Traditional Contracting
Design
Tendering
Award
Mobilization
Construction
Start
Finish
Fast-Track Programming
Design
Tendering
Award
Mobilization
Construction
Early Start
Early Finish
The BEST Reason for Sequential Tendering

TASK