

## **INHERENT CONFLICTS IN THE CONSTRUCTION INDUSTRY AND THE STRUCTURE OF CONTRACTS**

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# **INHERENT CONFLICTS IN THE CONSTRUCTION INDUSTRY AND THE STRUCTURE OF CONTRACTS**

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## **INTRODUCTION**

The nature of the construction industry in North America in 2005 is such that there is an inherent conflict between the major construction project participants, owners, design professionals and contractors. This age-old conflict is well known to the major construction players who have participated in this process over many years.

Construction is construction, and no matter how sophisticated the technology, the scheduling, claims preparation, materials testing, manufacturing or computer modelling processes become, the very nature of the construction process ensures that the never-ending tug-of-war between the major construction protagonists will likely be with us forever.

Given the inevitability of disputes and conflicts indigenous to the construction process, one might be inclined to ask the questions as to whether there is any hope for the industry in attempting to reduce the severity and extent of conflicts and disputes? The purpose of this paper is to suggest that all is not lost, and that if the major participants to the construction process are armed with a modicum of knowledge, flexibility and innovation, there are indeed ways of structuring relationships on construction projects so as to reduce the likelihood of conflict and dispute.

### **(i) The Importance Of Construction Contracts**

It seems self-evident, but nevertheless worthy of mention, that construction contracts represent most of the source of disputes in the construction industry today. At least 95% of all claims arising out of construction situations arise out of the contractual relationships between the parties

to the process. It goes without saying, contracts define the major obligations between the parties, and, as such, they also generate most of the claims by the parties against one another.

Given the importance of construction contracts, it is anomalous as well as a source of never-ending amazement to writers in the industry, that the principal players place so little time and emphasis on these important documents which represent the source of most of their liability exposure.

**(ii) Standard Forms – Their Use And Abuse**

One of the principal problems associated with construction contracts is the proclivity on the part of the parties in the industry to employ standard forms, almost to the point of blind faith. There are a multitude of standard form contracts in the North American market, and particularly in Canada and the United States, and their use and abuse is rampant.

Standard forms are distributed by various and sundry groups and associations with differing allegiances and internal hidden agendas. Some forms are more contractor-friendly. Others are more inclined towards the owner's position. Whatever their political and social bent, standard forms are to be employed with some degree of scepticism.

There is no standard form of contract yet devised for the construction industry which can meet every permutation and combination of construction project, each with its own fine particularities and sensitivities related to budget, construction time, site and environmental considerations.

Too often, the parties to the construction process do not appreciate the power of a construction contract, and their own ability to set both the tone and the likely course of their future liability exposure by foreseeing problems and drafting contracts or amending standard contracts to deal with risks in accordance with preconceived techniques for risk abatement and allocation. With this ability, it behoves owners, contractors and design professionals to review their contracts in great detail and tailor their contracts to the particular risks indigenous to the project at hand, rather than attempting to make the project conform to a standard form contract which, more

often than not, does not contemplate the particular needs, requirements and complexities of the project under consideration.

Too often, the parties to the process employ forms of contract which are either inapplicable to the type of project being built, or which contain terms which are inappropriate to the project, or which require modification so as to make them appropriate. Since no particular contract can apply to every conceivable type or project situation, it is necessary for the parties to devise contracts which meet the needs of individual projects, the parties themselves, as well as the requirements of authorities having jurisdiction. In some cases, this may entail the preparation of customized documents, and in others, the review and amendment of a standard form by use of Supplementary Conditions. At the very least, all of the terms of the standard forms must be reviewed in detail to ascertain that they apply to the project at hand and that they do not introduce ambiguity or inconsistency into the process, which often lead to later disputes requiring adjudication.

### **(iii) The Five “I’s” Of Contract**

The five “I’s” of contract describe the problems in the drafting and use of construction contracts, standard form and otherwise, which lead to abuse and ultimately to irreconcilable differences at great cost and time expenditure of the parties concerned. The five “I’s” of contract are: inappropriate contracts, incomplete contracts, incomprehensible contracts, incompatible contracts and inequitable contracts.

As the name implies, inappropriate contracts are contracts which are not appropriate or do not contain terms which are relevant to the risks associated with a particular construction project situation. Accordingly, an inappropriate contract when employed for use on a particular project situation is almost certain to result in future acrimony and litigation.

Incomplete contracts include contracts which are inadequate, in that they fail to address all of the material factors which, taken together, represent the risks inherent in a particular construction

project. By leaving certain risks unaccounted for or unallocated, the danger remains that disputes will arise which will be difficult, if not impossible, to resolve.

Incomprehensible contracts are contracts which are internally ambiguous, inconsistent or unworkable, such that these forms of agreement usually lead to breakdowns in contract performance by all parties concerned.

Incompatible contracts are contracts which result in incompatibility between the project risks and responsibilities of the various participants to the construction process. Because parties interact and interface with each other on construction projects, such as the relationship between the project design professional and the owner and the contractor, it is important that the owner's contract with the design professional be compatible with his separate contract with the contractor so as to ensure that where the design professional is required to provide contract administration services, for example, that he will have the actual power to do so as set out in the contractual arrangement between the owner and the contractor.

Inequitable contracts are contracts that fail to account for the fairness or "equity" between the parties to the contract, whereby the agreement may be unfair or one-sided in favour of one party over the other. This leads to distrust and claims as the project proceeds through its various phases.

#### **A. TYPICAL CONFLICTS BETWEEN OWNERS, DESIGN PROFESSIONALS AND CONTRACTORS**

Because of the nature of the construction referred to earlier, conflicts among owners, design professionals and contractors are commonplace. To suggest that these parties are prone to adversarial interaction and conflict would be a major understatement.

Owners are constantly bickering with their design professionals over design service allegations of errors and omissions in design or field services rendered, aesthetic considerations and budget overruns. Owners and contractors are constantly at odds regarding design *versus* construction failures, and the relative responsibility of each party for the failure of a design or a construction

component to result in a facility which either meets the owner's functional or budgetary requirements or which is fit for the very purpose intended by the owner.

In addition, design professionals and contractors are constantly involved in an exercise in mutual finger-pointing, suggesting that the others' design or workmanship and materials are the real source of the owner's complaints. This tends to place the parties with the best opportunity to correct the owner's problems and disillusionment into a veritable dance of death, where they each take turns in attempting to assassinate one another's professional reputation, while the owner is usually left to languish on the sidelines until he finds it necessary to sue both his contractor and his design professional.

Typical sources of conflict between the major parties include incomplete scope definition, poor communications between the parties, uncertainty, unrealistic expectations and incompatibility of interests.

Incomplete scope definition typically suggests animosity between the owner and the contractor and between the owner and the design professional. It is usually the design professional's obligation to define and design the project scope so as to meet the owner's functional, aesthetic, budgetary, time and environmental project criteria. When the design professional fails to meet these obligations, the owner is almost always dissatisfied with the result, with the effect that acrimonious correspondence soon ensues between the parties.

By the same token, when the scope of the work is ill-defined, this presents a fertile breeding ground for future unhappy relations between the owner and the contractor, arguing about the scope and quality of the work, and whether in fact the work is properly defined by the contract documents prepared by the design professional.

Poor communications are unfortunately a common, everyday occurrence in the construction industry. Poor communications between an owner and his design professional mean inconsistencies or ambiguities in the design which may not meet the owner's overall functional, cost, aesthetic and time requirements. This will inevitably translate into a set of Contract

Documents for construction which will be rife with potential dispute inducers between the owner and the contractor. Since the design documents that were prepared by the design professional are provided to the contractor as agent for the owner, the documents will be deemed to have been provided by the owner, thereby affording the contractor a claim in contract against the owner for any increased costs occasioned by ambiguities or inconsistencies in the design which the contractor could not have been expected to ascertain or provide for in his tender.

As between the design professional and the contractor, poor communication can and often does mean a lack of cooperation in the interpretation of design documents and a general feeling of distrust by the contracting community of the architect's/engineer's responsibility to assess the quality and quantity of the construction workmanship, materials and equipment so as to pass the contractor's monthly payment applications. The daily conflict represented by the design professional's desire to protect his client from inadequate construction and materials, and the contractor's desire to complete the work as quickly and as cheaply as possible, present a volatile situation from day 1 of almost every construction project.

Unrealistic expectations can also be another source of difficulty, in that the parties typically have their expectations raised to a level which can never be satisfied. This can be the result of "over selling" by either the construction community or by the design professional community in their dealings with the owner. Once the owner perceives that the project is behind schedule, over budget, and contains workmanship or materials which do not conform to his understanding as to the quality of construction which he was to receive, he will often lash out at the contractor to achieve some level of retribution, often employing the design professional as his ally in the battle. Occasionally, the owner will seek legal redress from both the contractor and the design professional. In addition, contractors have become attuned to the predisposition of the courts to impart an obligation on the part of the design professional towards the contractor. Jurisprudence today indicates that where an architect or an engineer prepares a design which it knows or should know will be employed by the contracting community in preparing tenders, that the design professional has a duty to provide designs and other Contract Documents for tendering purposes which are accurate and which will not cause the contractors to underbid the work or, even worse, bid upon work which is incapable of being constructed.

## **B. INHERENT CONFLICTS IN PROJECT DELIVERY METHODS**

There are various types of project delivery methods, each with its own individual characteristics which lead to construction disputes. The most traditional form of construction contract is the so-called design/bid/build contract. It is characterized in its three phases by its independent contracts between the architect and the owner, and the contractor and the owner.

The process involves three phases. In the first phase, the owner engages the architect to design and prepare construction documents for the project. In the second phase, the design professional's documents are used for construction bidding and the contractor is selected and cost commitments are made. In the third phase, the owner hires the contractor to build the project.

The principal advantages of this project delivery method are the clear roles assigned to each party, the definitive completion of the design prior to construction and its linear process. The disadvantages of this system are that it is considered to be a lengthy process with the separation of design and construction restricting communication. Also, changes to this type of project and resultant delay claims are more likely to arise in this scenario than in the other delivery methods. This method spawns more claims and litigation than all of the other methods combined.

Another typical project delivery method which can lead to conflict is the so-called construction management method. Under this system, a construction manager is added to the building team to oversee elements such as schedule, cost, construction, project management or building technology. Construction management is appropriate for both public and private projects that are relatively complex, for which budget or schedule must be closely monitored, as well as those requiring extensive coordination of consultants or subcontractors.

In certain situations, the construction manager acts as an advisor to the owner. In this situation, the architect and the contractor generally maintain their conventional roles. The four major players under this method include the owner, construction manager, architect and contractor. The typical process would see the owner contract with a design professional to prepare the design

and construction documents. When involved in this phase, the construction manager will oversee design in terms of its implications for cost, schedule and constructability. Contract documents are then used for construction bidding or negotiation. A contractor is selected with the advice of the construction manager, and agreements are made. The owner would then engage the contractor to construct the project. The construction manager remains as advisor through the completion of construction.

This method is appropriate for large, complex projects. The principal advantage includes the fact that there is a direct contractual relationship with the owner, careful monitoring of costs and schedule and the continuous oversight throughout the process that makes it easier for owners to manage. The disadvantages of this system include the added cost of an additional consultant and the relatively lengthy process and more complex relationships.

Another project delivery mechanism is where the construction manager acts as agent. Under this system, the construction manager basically stands in the shoes of the owner. Construction managers standing in the shoes of the owner and acting as his agent assume financial authority for the project. A typical construction manager agent process involves four phases. The construction manager is hired by the owner to act as his or her agent and to oversee all project activities through the completion of construction. The design professional is engaged and contracts through the construction manager. The project is bid or negotiated to select a general contractor who also contracts through the construction manager. The contractor builds the project after cost commitments are made.

This process is useful for owners who do not intend to be involved in the day-to-day responsibilities of design and construction. This gives to owners a single point of responsibility, and the management expertise of the owner's agent can often shorten the project schedule. Disadvantages include blocked or lesser communication between the owner and the design professional and contractor, the added cost of the consultant as well as additional time to select a contractor.

There is an additional construction manager at risk project delivery method, whereby the construction manager is hired prior to the completion of the design to act as the project coordinator and general contractor. The construction manager/contractor may be hired by bid to deliver the building for a guaranteed maximum price or by creating multiple bid packages. In either case, the construction manager assumes all the liability and responsibility of the general contractor.

This method is common among owners for whom cost, schedule or construction is expected to be complicated to manage or when a project will be fast-tracked. The principal advantages are the focus on design issues, construction advice during the design process, oversight of costs and schedule, early cost commitments and opportunities to shorten the overall project duration. The disadvantages of the process include the potential for adversarial relationships, change order and delay claims from low bidding prime or trade contractors as well as the reduced ability of the owner to control construction quality.

Another common construction delivery method which results in other forms of conflict is the design/build approach. Under this approach, the owner hires a design/build or EPC contractor, who has a single-point responsibility for both the design and the workmanship, materials and equipment components of the project. The design/build entity could be a single firm, a consortium or a joint venture of firms. Typically, the design/builder includes a designer and a contractor who may be in joint venture, or one may be a subcontractor to the other, most typically, the design professional is a subcontractor to the construction entity.

Even though one of the advantages of design/build are a single point of responsibility, which removes finger pointing between the design professional and the contractor when things go wrong, there are also many downsides which lead to project conflict. Design/build is common for project that need to move with some degree of expedition. It is best when the project is clearly defined at the outset, but the process may also be relatively complex, requiring extensive coordination of consultants and subcontractors. The single point of responsibility minimizes the owner's risk, and reduces the likelihood of changes and construction delays. The primary disadvantages include the lack of direct connection between the owner and the design

professional, the lack of design input by the owner and the potential for cost-saving strategies to erode design and construction quality as the design/builder now has *carte blanche* to produce a design for a project that meets the owner's project requirements or construction specifications.

Design/build also has problems with regard to surety bonding, as many bonding companies will steer clear of this form of project delivery as the scope of the work is often not clearly defined, or does not clearly delineate between the design component and the construction component. In addition, the single point of responsibility means that the design professional is now a part of the design/build joint venture or is a subconsultant to the design/build contractor. As a result, there is no longer anyone occupying the role of the former consultant in the design/bid/build scenario, where an independent architect or engineer oversees the work by the contractor to ascertain defects and deficiencies, as well as determining the value of the work performed by the contractor on a month-by-month basis. In the design/build scenario, no one occupies the role of the protective design professional; and, accordingly, the owner is often at the mercy of the design/builder with regard to both quality and quantity of the work performed. Because of this lack of independent protection, bonding companies will often refuse to bond design/build projects.

One method of protecting the owner in the design/build delivery system is to have the owner engage an independent architect or engineer to define the preliminary design and performance specifications and also serve as the owner's representative during the project. The original design and performance specifications are used to solicit bids from design/build contractors to execute the project. In this way, even though the successful design/build contractor has the right to meet the owner's general performance requirements and specifications, at least there will be an independent design professional to protect the owner's interest where such protective powers are built into the design/build contract between the owner and the design/builder. Also, the design professional in this situation will have some intimate knowledge of the design requirements for the project, which would be preferable to a situation where only the design/builder has that knowledge, and any independent third party engaged by the owner would be at a severe disadvantage in attempting to discern the contractor's conformance to the owner's

project specifications and adherence to good design and construction practice in an area of construction which may be within the design/builder's expertise only.

The main advantages of this approach include attention to design issues, competitive bidding and single-point of responsibility. The disadvantages are its complexity, the need for more extensive management by the owner, possible conflicts between the owner's design professional and the design/builder, and the potential for short-term cost saving strategies to outweigh building and construction quality.

In reviewing the project delivery methods discussed above, it is clear that each project delivery method has its own advantages and disadvantages. Ultimately, the project delivery method chosen must conform to the particularities and requirements of the project under consideration, and a considered and comprehensive analysis of an individual project's requirements should be undertaken by the owner and his construction advisors before embarking on a construction delivery method. As stated earlier, it is critical that the form of project delivery method chosen should fit with and be tailored to the project under consideration. Standard forms of contract, whether related to traditional design/bid/build scenarios, construction management delivery or design/build techniques, should be custom-fitted to the project by ensuring that the provisions of the contract conform to the specialized needs of the project. In this regard, it is essential that the owner and his construction advisors do a detailed analysis of the project, its functional requirements, budgetary restrictions, time requirements, environment needs, etc. to foresee problems that might result during the course of design, construction and post-construction commissioning, and seek to reduce those risks by allocating them to either the owner or the contractor, in accordance with the owner's ability to accept risk or its need to pass that risk on to the contractor.

### **C. HOW CONTRACT STRUCTURE AND CONFIGURATION AFFECT THE BOTTOM LINE**

Contract structure, including the structure indigenous to the various project delivery methods referred to in Section B, can have a dramatic effect on the economic bottom line of a project. The manner in which the parties are related to one another in their contractual relationships, and the

manner in which the project delivery methods are structured should also be a matter of review and consideration by the owner and his consultant prior to blithely entering into one form of contract delivery method or another. In doing so, it is important to prepare for the uncertainty of construction project risks. While each project risk may have uncertainty associated with it regarding the degree that a particular risk will manifest itself, the identification of major project risk factors is key to the success of any project, and must be an exercise in which the owner indulges prior to choosing a particular delivery method.

Some of the major project risks which can be effectively dealt with in choosing methods of project delivery and in structuring contracts to appropriately allocate risk, include cost escalations, time for completion and construction delays, changes in project scope, geotechnical and site-related problems, weather and *force majeure* conditions and negligence in both design and construction.

Contracts provide a rare opportunity between the contracting parties to foresee problems and to draft contractual provisions to take care of those problems, or at least to diminish the effect of those problems on the project when and if they occur.

As indicated earlier, in order to assess the appropriate contract delivery method to employ on a particular project, it is first necessary to undertake a complete risk assessment. Therefore, prior to embarking on a project, the parties should undergo a thorough assessment and evaluation process which should include the following:

1. assessing and evaluating the sensitivities and needs of the various project participants;
2. assessing and evaluating the individual sensitivities of each project;
3. assessing and evaluating the role to be played by each of the project participants on the project and how they will interact with one another.

Deciding how best to allocate project risk amongst project participants is a critical exercise. Generally, risk is thought to be best allocated to the party who is in the optimum position to bear

it. In particular contract situations, a number of factors should be reviewed, including the ability of the parties to bear risk.

The conflict-prone nature of construction projects is primarily based upon the incompatibility of the parties' initial interests and objectives. Incompatible project objectives are responsible for frequent disagreements on how to approach and complete a project. For example, on most construction projects, the owner wishes to obtain maximum quality, functionality, aesthetics and capacity at minimum cost. On the other hand, the contractor seeks to achieve financial goals that are advanced by expending the minimum resources required to meet a minimum scope of work.

The very structure of a construction project in terms of which project delivery method is employed and the manner in which the parties relate to one another can reduce or create conflict amongst multiple project participants. As an example, simply reviewing the transitional relationships on a design/bid/build delivery system illustrates the situation where the design professional and the contractor have a communication relationship with one another, but their roles on the project are defined in their separate contracts with the owner. Accordingly, as indicated earlier, it is important to ensure that both the design contract and the construction contract are compatible with one another; notwithstanding the fact that they represent entirely different relationships with the owner.

Contracts provide a rare opportunity for construction participants to achieve dispute resolution or at least use contracts to minimize the likelihood of disputes arising on construction projects. Employing contracts to achieve dispute prevention requires us to become involved in various dispute prevention techniques. These include the following:

1. equitable risk sharing;
2. innovative project award and delivery systems, incentive programs, constructability analysis and cost and schedule controls.

While the costs of implementing these techniques is often viewed by owners as additional costs, the benefits that owners ultimately obtain far exceed the costs.

Key questions that arise on every project that should be addressed by the project participants include the following:

1. Is this the appropriate project delivery system?
2. With many project participants, how does one keep misunderstandings to a minimum?
3. How should project risks be allocated?

This paper will suggest some methods for dealing with the above issues in an effort to reduce the incidence and volatility of disputes which are inherent in today's construction industry. These suggestions include the following:

### **Equitable Risk Sharing**

The general guiding principle of risk allocation should be that the different parties involved should seek a multi-beneficial distribution of risk. Successful risk allocation is based on having fair project contracts which are understood by everyone. As a means of promoting the equitable distribution of construction project risks, the following contract ideas are being put forward. Again, some of these ideas may seem to be heresy to some, depending upon whose ox is being gored. The writer makes no suggestion that these ideas represent a panacea for the construction industry. They are only put forward for thought and quiet consideration.

### **Economic Price Adjustment**

This allows for controlled price escalation during the life of a project. Fixed price contracts are the most prone to claims. This is particularly the case for complex design projects which have a construction duration in excess of three years. In this context, contracts would set a limit on the price escalation to be carried by the contractor, leaving anything above that amount to the owner. This way, if costs increase significantly during the life of the project, the contract contains a formula and the conditions for compensating the contractor, potentially eliminating or reducing the need for claims.

## 1. **Innovative Project Award And Delivery Mechanisms**

A new bidding method for earthwork and tunnelling jobs is suggested. This involves a “Negotiated Cooperative Process”. This bidding/selection system divides the contract award into three steps as follows:

- (a) The selection of contractors. The owner and the consultant qualify interested contractors.
- (b) Joint decisions. Selected contractors meet with the owner and the consultant to jointly decide on the best type of equipment to be employed on the project. This is important in pricing earthwork and tunnelling jobs. In addition, other possible issues critical to the execution of the project are also discussed, including geotechnical reports which are reviewed and jointly interpreted.
- (c) Awarding the contract. Each contractor presents a bid based upon the criteria agreed on in the previous steps of the process. The owner then awards the contract.

The benefit to the three-step bidding system described above is that it provides a more balanced distribution of project risk, since some of the equipment and other uncertainties are reduced. The joint decision aspect allows for significant savings during submittals and start-up for all parties. It limits problems associated with equipment, productivity and schedule sequence during construction.

## 2. **Procurement, Engineering And Construction Process**

This is a response to the increasing role major suppliers of equipment and materials are playing in the construction process.

In this process, we utilize the expertise and knowledge of key suppliers in all phases of the project life cycle by developing an advance procurement strategy, and by reaching a full

commercial agreement with suppliers of strategic procurement items and/or systems prior to the principal engineering activities.

That is, critical pieces of equipment and materials are negotiated and procured before the engineering takes place, based upon conceptual designs and the owner's detailed performance requirements.

With the suppliers on board, the engineering design process incorporates their input, special requirements and experience into the design.

The benefits from such a process include improved quality of detailed design; improved system and facility performance; more equitable allocation of risk; improved use of supplier expertise; reduction or elimination of redundant work; and reduced need for owners and contractors to maintain areas of expertise that are more cost and time-effectively maintained and delivered by suppliers.

### **3. Bridging The Design/Build Gap**

The use of the design/build delivery system has grown significantly in recent years, both in private and public sector projects. The design/build process is characterized by a single source of project responsibility by an entity that is responsible for both the design and construction component of the project. There is also usually a single point of communication between the owner and the design builder.

The design/build process reduces the potential for argument regarding the source of construction problems being either design or construction, as a single entity is responsible for both. The design/build delivery system is usually employed to procure design/build contractors with particular areas of expertise.

Some of the problems associated with design/build project delivery include the fact that the owner loses control over the design and a "gap" is generated between the owner's objectives and the design process run by the design/builder. In addition, the design portion of the design/build

firm participation is often based on price, rather than on superior design qualifications and expertise.

In the design/build process, there is less competition in the selection and award phases as the owner is often required to compare “apples and oranges” in order to choose a contractor, since differing proposals often differ in their interpretation of what the significant project design and/or performance parameters are.

In addition, the final design/build product is often a mixture of owner/contractor objectives and interpretations which may fail to meet the original project criteria. Lastly, the owner is often left to choose from several completely different proposals, none of which is 100% satisfactory.

In order to correct these problems indigenous to the design/build process, the use of an owner’s consultant is proposed to bridge the gap between the owner and the design process, without losing the advantages of the design/build delivery system.

The benefits to be derived from having a bridging consultant, include the fact that the owner retains control of the portions of the design that are usually of more importance to him, and usually includes the conceptual and schematic design phases. Through his own consultant, the owner maintains direct communication with the design process. The bridging consultant can be selected by the owner taking the consultant’s qualifications into account.

The conceptual and schematic designs benefit as the goals and objectives of the owner will be properly translated. In other words, the existence of a conceptual design which is more compatible with the owner’s objectives will result in proposals from design/build contractors that are easier to compare and select, taking price, design, materials, technical solutions and future operating costs into consideration.

### **Incentive Programs**

In the writer’s previous academic life, he was involved in a Masters Program in psychology. In advancing his studies, he noted the effect of positive incentives versus negative reinforcement on

test rats. In dealing with people, many of the same positive and negative reinforcement techniques can be used to achieve a desired result. In the writer's opinion, the positive incentives in dealing with rats and in dealing with parties to the construction process, are to be preferred and are more likely to achieve the result that both the owner and the contractor would prefer to see.

Performance incentive programs tend to strengthen the project team members' commitment to speed the project towards completion. Incentive programs assist in aligning the contractor's motivation and performance with the owner's objectives. In order to make such an incentive system work, the owner must devise attainable and challenging goals for the construction team.

The owner must continually evaluate the performance of the contractor against a set of objective goals to ascertain if the contractor has earned the incentive, and also whether the overall project goals will be achieved based upon progress made up to that point.

In order to perform this monitoring or evaluation process, it will be necessary for the contractor and the project consultant to initiate and institute appropriate construction scheduling and monitoring techniques which will make it possible to assess the progress of the work daily, weekly, monthly, and overall. In order to do this, a full and detailed CPM schedule will often be employed.

Incentives in construction contracts usually consist of performance bonuses based upon achievement of milestone dates, as well as contractors sharing in proportion to any savings based upon stipulated cost goals set out within the contract.

### **Constructability Analysis**

This is often referred to as “value engineering”. This is a way of reducing disagreements and disputes based upon contract ambiguities. This analysis is performed during the planning, design and procurement phases, and can mitigate problems and claims during construction. Analysis is often performed by a contractor’s representative who liaises with the project consultant, or by an independent construction expert consultant engaged by the owner to interact with the project consultant.

This process can identify errors, omissions and impractical design details which, if later uncovered by the contractor or supplier, would result in additional costs and delays to the project.

### **Cost And Schedule Controls**

The control of costs and schedule remains one of the most difficult goals to accomplish on any construction project. One technique is the requirement that contractors report (with their monthly invoices) any claims regarding the performance of the work in connection with cost and schedule changes during that monthly period.

Every month, before payment is made by the owner, the consultant completes a report based upon the work performed during that month. That report becomes the monthly progress certificate, and is given to the contractor for review and approval. If the contractor does not report a claim that has become apparent during that period, it loses its rights to make that claim in the future. In every monthly report, the contractor must report new claims as well as any outstanding ones from previous months. This forces the parties to acknowledge the existence of any outstanding issues every pay period and forces them to address the matter promptly.

### **As-Built Schedules**

Owners may require the contractor to submit an as-built schedule every month before the Consultant issues his Certificate for Payment as well as before releasing the final payment on the project. The as-built schedule will become the basis for review of any after-completion claims.

By submitting a schedule that reflects the actual construction sequence and total duration, this will discourage the submission, at a later date, of delay claims that were not previously shown.

The as-built schedule can be required by the owner to be submitted monthly during the course of the work since the schedule itself is a summary of all of the construction activities and their duration throughout the project.

### **Forward-Price Change Orders**

Impact or indirect costs, such as home office overhead, field staffing or overtime work, represent change order work beyond straight hard costs, such as labour, equipment and materials.

To reduce disputes, owners and contractors can agree in their contract on the guidelines and methods for determining impact costs. A series of impact factors and formulae can be developed for issues like the timing of changes, number of trades involved, effect on the schedule, effect on office and field staffing and the cumulative nature of disruptions.

Subsequently, when change orders are priced and negotiated, owners and contractors will be in a position to incorporate both hard costs and impact costs, and they will be in a position to more easily settle on a final adjustment to the contract value.

### **Impact Claim Deadlines On Change Order Cost Quotations**

When contractors price change orders, they usually include “reservation of rights” language to allow themselves the opportunity to make future claims for additional time or money to complete the project.

A disclaimer is often used by the contractor in the change order quotation to allow for further review in order to assess the impact the change order will have on the construction schedule sequence of activities and the overall project duration. This is reasonable since, in most cases, the contractor will not have had an opportunity to complete a total assessment of the time and cost implications of the change order. A compromise may be to allow the contractor a reasonable identified period of time after the change order is signed to analyze and predict its cost and time impact on the overall project. The contractor then informs the owner about its conclusions and the contractor's claims are then crystallized and dealt with. The period for the contractor to analyze, formulate and transmit its claims to the owner may vary with the type and magnitude of the project, but it could range from one to six months.

If a contractor does not inform the owner within the designated period of the cost and time impact of the change order, the contractor then waives the right to any additional time or cost resulting from the change order. If the monthly as-built schedule procedure described earlier is employed, this will assist the contractor to formulate its impact claims arising from project change orders.

### **Dispute Resolution Provisions**

You can substantially mitigate the effect of disputes on projects by providing for provisions that describe how disputes will be resolved. Contracts that fail to define the dispute resolution process, fail to provide alternatives to litigation.

Some of the dispute resolution alternatives include negotiation, mediation and arbitration. In many cases, mandatory mediation and arbitration provisions should be stipulated in contracts, depending upon the nature of the contracts and whether they would likely be amenable to shorter and more efficient resolution through alternative dispute resolution techniques rather than resorting to costly and time consuming litigation. In addition, in their dispute resolution contractual provisions, the parties have an opportunity at the outset of the contractual relationship, and before matters have gone off the rails, to name future mediators and arbitrators who would be involved in the ADR process should the need arise.

## **Negotiation Training**

Negotiation skills are critical to the speedy and efficient resolution of construction disputes. Not everyone is a born negotiator. Firms in the construction industry should endeavour to put forward individuals to negotiate contracts and claims who are diplomatic, show some degree of flexibility and also some facility for the English language. It would also be helpful if negotiation skills were high on such individuals' resume.

Formal training in dispute prevention, resolution and communications and negotiations should be a key ingredient in any successful ADR program, and should be a critical issue for any firm in the construction industry seeking to avoid prolonged, expensive and reputation impugning disputes.