



# STRIVING FOR PERFECTION ON THE WORKSITE

## REFLECTIONS FROM THE INDUSTRY

With a view to harmonizing relations  
among the various participants and improving  
the management of construction projects



ASSOCIATION  
DE LA CONSTRUCTION  
DU QUEBEC  
Quebec

**acq.org**

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#### FRENCH-LANGUAGE VERSION

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#### ENGLISH-LANGUAGE VERSION

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Prepared by a task force composed of work providers, contractors, consultants, and specification writers, suppliers of goods and services, and surety brokers.

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**QUEBEC CITY**



## TOWARDS THE PERFECT PROJECT

### Reflections from the industry...

**"Give me six hours to chop down a tree and  
I will spend the first four hours sharpening the axe!"**  
-ABRAHAM LINCOLN

The success of a construction project depends on a multitude of elements that must be mastered by all its participants. The participants must not only understand their own roles and perform them successfully, they must also comprehend the roles, responsibilities and concerns of all of the other participants.

This is a model which, while simple to state, is not easy to implement. It is within this context that the Association de la construction du Québec-Québec City has worked, over the past few years, through its Networking Committee, to encourage the various industry participants to adopt both an approach and work methods which would lead to **TOWARDS THE PERFECT PROJECT**.

And so, on Construction Day in 2012, ACQ-Québec City established a committee composed of industry experts (contractors, consultants and providers) to present their vision of "the perfect worksite":

The purpose of this effort was to develop a list of the most important problems encountered on construction projects within the region and to collect them, together with some possible solutions, in a brief. This document subsequently served as the basis for discussions which were held among the various participants with a view to harmonizing relations among the various participants and improving their project management.

The Networking Committee stayed on course and decided to complete this document and to introduce it publicly during the next ACQ-Québec City Construction Day, to be held at the Manoir Richelieu on March 7<sup>th</sup>, 2013. To this end, four subcommittees were formed for the purposes of selecting the most important problems from among those which had been raised and of seeking possible solutions which would apply to general and specialized contractors, consultants and work providers. A strict schedule was imposed on each subcommittee so that the project could be delivered both on time and within budget!

A draft version of the document prepared by these subcommittees was presented to the Committee of General Contractors and to the Committee of Specialized Contractors at the ACQ Rendez-vous meetings held in Québec City on December 5<sup>th</sup> and 6<sup>th</sup>, 2012. These committees added certain elements to the document and then endorsed the list of problems and solutions that were proposed within.

On behalf of ACQ-Québec, I am pleased to present you with the fruits of our labour. I trust that this will be the first step in an industry-wide process in which all of the participants will share and that will see us all **TOWARDS THE PERFECT PROJECT**.

Happy reading,

Nelson Bouffard, President  
ACQ- Québec City



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DU QUÉBEC  
Québec

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# ACKNOWLEDGMENTS

The reflections contained within this document are the result of two years of intensive work on the part of volunteers (contractors, consultants and work providers), all of whom invested considerable time in presenting their ideas and comments on how to strive for perfection on the worksite.

Firstly, we would like to thank Mr. Louis Fontaine who came up with the idea of this ambitious project. Without his support, a project of this magnitude could not have been brought to fruition.

We also offer our sincere thanks to the many people who generously and willingly shared their expertise on various aspects of the construction process acquired during their daily presence on project worksites with us. The work methods, tricks of the trade, pitfalls and frustrations encountered by each participant in his particular field were carefully analyzed prior to the preparation of this document.

We express our appreciation to Me Sandra Tremblay and Me Pierre Hamel of the Department of Legal and Governmental Affairs of the Association de la Construction du Québec for their interest in our project as they helped us to examine, improve and formulate the ideas that ensued.

We are grateful to Marjolaine Bédard and Stephanie Andrews, staff members of ACQ-Quebec City, for their patience and support in coordinating the many meetings, and in preparing the minutes of these meetings.

Lastly, we express our thanks to everyone who assisted, whether from near or far, in the creation of this document.



Nicole Bourque  
Vice President ACQ- Quebec City



ASSOCIATION  
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# OBJECTIVES

## Towards the Perfect Project

### **Reflections from the industry on harmonizing relations among the various participants and improving on the management of construction projects**

This document is intended for all of the participants in the construction industry, individuals as well as organizations, without distinction. The participants include work providers (both public and private), contractors (general and specialized), suppliers of goods and services, and consultants (architects, engineers, soil and materials specialists, construction economists and project managers).

The task force that developed this guide was composed of a broad range of persons associated with every milieu of the construction industry. The members of the task force were unanimous in proposing good industry practices and in supporting the following objectives:

- More positive and more proactive business relationships
- Better planning by each participant
- Improved awareness of each of our roles
- A better understanding of our own roles and responsibilities as well as those of others
- Heightened awareness of the complementary nature of these roles
- Work practices that support these roles and responsibilities
- Increased productivity on the part of the participants
- An increased level of satisfaction for the work that we perform
- An increased level of profitability for our businesses, organizations, governments, firms, technicians and personnel.

The task force that prepared this guide wishes to contribute to heightening the awareness of each of the industry participants; the members of the task force also hope to inspire the participants to adopt good trade practices so that both individuals and the industry as a whole will become more proactive. We must work with each other in order to achieve better results. Let us all, whether contractor, work provider, consultant or other participant, work together to implement the recommendations contained in this document.

In so doing, we will achieve the (near) perfect worksite!

Happy reading!



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## Towards the Perfect Project

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2. Guide to the typical sequence of tasks in approval and payment of changes procedures
3. Guide to the typical sequence of tasks for the release and payout of the holdbacks
4. Construction document flow chart (prepared by Guy Duchesneau, FCSC)

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- ./ Act Respecting Contracting by Public Bodies, LRQ,c. C-65.1
- ./ T. Sloodman PLANNING OF MEGA-PROJECTS -Influence of Execution Planning on Project Performance, University of Twente, January 2007
- ./ Canadian Handbook of Practice for Architects, Second edition, pertinent extracts from the following sections of Volume 2, Section 2.3, *Management of the Project*:
  - 2.3.1 Management of the Project
  - 2.3.2 Types of Construction Project Delivery
  - 2.3.3 Cost Planning and Control
  - Etc.



# 1- PRE-DESIGN AND DESIGN

## 1. Scope of project: needs, costs and work schedule

### Context

The scope of the work provider's project is the basis for every project. The work provider is the one who determines the scope of the project the parameters of the construction program, the cost and the work schedule in accordance to his needs.

### Problem definition

The needs of the work provider may evolve during the course of a project or they may not have been clearly defined during the planning phase. As a result, it is more difficult to evaluate impacts and to monitor the budget and the work schedule, and this can lead to cost overruns, scheduling delays and increase the risk of errors. Moreover, the functional and technical needs of the work provider are often poorly understood and inadequately assessed.

In addition to having an impact on costs, scheduling and the risk of errors, changes in needs can have other consequences for the overall project:

- The consultants' work load will increase considerably
- This increased work load will often lead to delays during the bidding process (increased number of addenda, unanswered questions, etc.)
- Sufficient time to permit proper changes to be made is often not provided or, due to lack of time, the plans issued for bidding are often incomplete
- Addenda are often issued without taking into account their impact on the budget
- As a result, coordination with the various consultants suffers
- The number of changes occurring during the project increases, as does the cost of implementing them
- The understanding or lack of understanding of the program by the consultants can lead to an excessive level of quality in the plans and specifications and ultimately, to a budget overrun. Conversely, a lesser level of quality than that required by the work provider may also be the result.

When there is not enough time assigned to the pre-design phase because of the need to meet an "administrative" delivery date, some tasks are simply skipped. On the other hand, if delays occur during the pre-design phase, the construction schedule may have to be shortened and this could lead to increased costs. In addition, delays in the pre-design phase will have an impact on the schedules for the bidding and construction phases.

### General recommendations

The scope of the work provider's needs must be clearly defined, understood and carried out in accordance with the available budget.

It is advisable to schedule meetings with the work provider's participants to discuss the allocation of the functional and technical program (FTP).

Value engineering meetings are also advised so that the FTP can be modified to suit the available budget.

# RECOMMENDATIONS



## For the general contractor:

- 1- During the bidding period, obtain all of the required clarifications concerning the plans and specifications.

## For the specialized contractor:

- 1 - During the bidding period, obtain all of the required clarifications concerning the plans and specifications.

## For the consultants:

- 1- Obtain all of the information required in order to understand and define the work provider's objectives and needs.
- 2- Check regularly with the designated representative of the work provider to ensure that the work provider's objectives and needs are being met (at least at each important milestone).
- 3- To permit a full understanding of the needs, budget and schedule and to obtain all of the information required to design and build the project, prepare a questionnaire intended specifically for the project and complete it together with the work provider.

## For the work provider:

- 1 - Ensure that the mandate given to the consultants reflects the actual needs that were communicated to them.
- 2 - Ensure that the objectives and needs have been adequately communicated to the consultants.
- 3 - Establish a direct relationship with the consultants. Appoint a representative who is empowered to make decisions.
- 4- During the entire design development phase, ensure that the consultants, the end users and the operators of the project remain in contact with each other.
- 5- Participate in the completion of the questionnaire which was prepared by the consultant.
- 6- Hire internal cost estimators in order to improve long-term budget planning (for work providers with large-scale projects).
- 7- Provide adequate time during the pre-design phase so that tasks do not have to be skipped and so that the construction schedule does not have to be shortened.
- 8- Allot time judiciously for the various phases of the project, from the pre-design phase to the construction phase.
- 9- Organize the pre-design phase so that the bidding and construction phases can be scheduled for the most favourable periods.



# 1- PRE-DESIGN AND DESIGN

## 2. Selection of project delivery method and contract type

### Context

Since every project is unique, each one must be analyzed in order to determine the best delivery method to be used for it.

- There are several methods of project delivery, each with its own advantages and disadvantages:
  - Design+ Bid+ Build (the traditional method)
    - Stipulated Price Construction Contract (traditional method)
    - Cost Plus Construction Contract
    - Unit Price Construction Contract
  - Construction Management
  - Construction Management for High-Risk Projects
  - Design-Build
  - Public-Private Partnership (PPP)
  - Integrated Project Delivery

### Problem definition

In Quebec, stipulated price construction contracts are used for most projects without taking into consideration the context, the specific details and the limitations related to quality, technical and legal aspects and to the budget, among other aspects. For delivery of the planned project, the choice of contractor(s) is most frequently based on price alone, and the contract is awarded to the lowest conforming bidder.

In addition to the traditional delivery method, there are several other delivery methods which might be more appropriate for use in achieving a successful project depending on the type, scope, overall work schedule, context, specific details and limitations of each specific project.

### General recommendations

It is essential that the work provider be in a position to select the delivery method which is best adapted to his needs, availabilities, expertise, experience, schedule, financial situation and organizational or political context.

During the pre-design phase, the context should be studied, the specific details and limitations, especially the time-related ones (work schedule) should be analyzed and the most appropriate delivery method should be selected in order to ensure the success of the project while respecting the available budget and work schedule.

# RECOMMENDATIONS



## For the general contractor:

- 1 - Select the projects in which to participate in accordance with his capacities, resources, expertise and experience.
- 2- Recognize that certain delivery methods are administratively or technically more demanding than others.
- 3- Take into account that when the project delivery method (management, design-build, PPP and integrated project delivery). Requires his participation in the design process, it is important that he contribute his construction expertise as well.
- 4- He must read and understand the bid or project development documents in order to fully comprehend the impact of the delivery method and of the contracts on himself and on all the other participants.

## For the specialized contractor:

- 1 - Select the projects in which to participate in accordance with his capabilities, resources, expertise and experience
- 2 - Recognize that certain delivery methods are administratively or technically more demanding than others
- 3- Take into account that, when the project delivery method (management, design-build, PPP and integrated project delivery) requires his participation in the design process, it is important that he contribute his construction expertise as well
- 4- He must read and understand the bid or project development documents in order to fully comprehend the impact of the delivery method and of the contracts on himself and on all the other participants.

## For the consultants:

- 1 - Become familiar with the various project delivery methods and be open to their use.
- 2- Provide adequate information to the work providers, particularly those who are infrequently involved in construction projects, concerning the different delivery methods as well as their advantages and disadvantages.
- 3- Develop an analysis grid containing the selection criteria needed to assist you in choosing the most appropriate project delivery method for the context, specific details and limitations which have been identified.
- 4- If required, advise the work provider on the choice of the most appropriate project delivery method for his project so that it can be completed on schedule and within the allotted budget (leading to a successful project for everyone).

## For the work provider:

- 1 - Study the context and determine the specific details and limitations of the project so that the project delivery method which is selected will best meet the needs, be on schedule and respect the available budget.
- 2- In order to select a participant, whether it be a project or construction manager, a general or a specialized contractor, the work provider must establish criteria which are objective, measurable and realistic for the type of project, the specific details and limitations which have been determined, regardless of the project delivery method which has been chosen.
- 3- Use an integrated design approach for the consultants in order to provide improved coordination and to favour the development of a value-added approach.

# 1- PRE-DESIGN AND DESIGN

## 3. Budget

### Context

As stated in the **Guide to Cost Predictability in Construction: An Analysis of Issues Affecting the Accuracy of Construction Cost Estimates** (prepared in November 2012 by the Canadian Construction Association in collaboration with federal work providers):

*'A complete estimate is a composite of literally thousands of individual estimate items and considerations, including construction techniques, innovative ideas, site supervision, productivity factors, front-end specifications, and scheduling, etc., all of which play crucial roles in arriving at the final cost. As well, such factors as occasional mistakes (large or small, aggressive or conservative bidding for individual bidder's reasons, misinterpretations or misunderstandings of the bid documents, and various risk control procedures also play a significant role in the final outcome.*

*Bid closing involves an amalgam of prices being received by several individuals within each firm that must be evaluated and entered, the majority of which takes place within the last half hour period before bid closing, with major decisions happening up to the final minutes and seconds. Meanwhile, similar processes happen at the multi subcontractor and supplier levels."*

The importance of establishing a realistic budget has been demonstrated on many occasions. As stated by Professor Roger Miller within the context of a study of 121 large-scale public projects built by the CIRANO Group on behalf of the Treasury Board Secretariat design-development analyses were incomplete or absent (2006RP-21, Fethi Chebii, Joanne Castonguay, Roger Miller- **La gouvernance et les grands projets d'infrastructure publique- Analyse des grands projets réalisés au Québec**, Montréal, May 2006). This and other studies led to the adoption of a General Policy on the Governance of Large Public Infrastructure Projects ("**Politique-cadre sur la gouvernance des grands projets d'infrastructure publique**") which emphasized the use of upstream planning both generally and, more specifically, for budget planning.

### Problem Definition

An inadequate or "underestimated" budget is a source of delays in the issuing of plans and specifications for bidding and in the awarding of contracts, of changes in the schedule and, as a result, of unforeseen costs and other impacts. It is also a source of unnecessary conflict. As for an "over-estimated" budget, it may delay the start-up of a project.

There may be several reasons for an inadequate budget:

- A functional and technical program which is incomplete, inadequate, poorly-defined or still evolving
- A budget of convenience intended to satisfy an objective of profitability
- A budget prepared in isolation without any involvement or consultation of the participants
- A budget hastily prepared without giving sufficient consideration to all aspects, without subjecting it to revision and without making adequate provisions for contingencies.

### General Recommendations

- The budget must be prepared jointly and cooperatively by a team of experts (estimators/estimating firm, manager, engineers, architects, other consultants, work provider).
- The following must be taken into consideration during the preparation of the budget:
  - o The expressed needs and the functional and technical program (FTP)
  - o The means of implementation and construction
  - o The market conditions
  - o The construction schedule
- The budget must be validated during each phase of the project (schematic design, design development, construction documents, bidding)
- The budget must contain a reasonable and adequate amount for contingencies related to the considerations mentioned above
- The budget must allocate sufficient time and money to permit a value analysis to be performed.

### Comment

Also refer to the **Rapport d'enquête sur le dépassement de coûts et de délais du chantier de la Société Papiers Gaspésia de Chandler** (Report of an Inquiry into Cost Overruns and Work Delays for the Gaspésia Paper Company Jobsite in Chandler, May 2005).

# RECOMMENDATIONS



## For the general contractor:

- 1- Before starting to prepare a bid and investing energy in it try to find out the magnitude of the budget so that you can judge whether it is realistic for the work that is described in the plans and specifications.
- 2- To the extent that you are able, provide unit prices and budget estimates when requested to do so.

## For the specialized contractor:

- 1- Before starting to prepare a bid and investing energy in it try to find out the magnitude of the budget so that you can judge whether it is realistic for the work that is described in the plans and specifications.
- 2- To the extent that you are able, provide unit prices and budget estimates when requested to do so.

## For the consultants:

- 1- Collaborate and participate in the preparation of the budget during each phase.
- 2- Prepare the plans and specifications to match the budgetary limitations of each discipline.
- 3- Be prepared to assume responsibility for respecting the budget.
- 4- Work together with all of the other consultants in order to develop integrated concepts which will enhance the value of the project by lowering costs and optimizing performance.

## For the work provider:

- 1 - Define your needs with precision and indicate the required timeframe.
- 2 - Ensure that you have created a multidisciplinary team to prepare the budget.
- 3 — Match your financing to the budget.
- 4- Make the consultants responsible for respecting the budget.
- 5 - Do not be hesitant about disclosing the magnitude of the available budget.
- 6- Include the cost of the bonds for the general contractor and the specialized contractors in your budget.
- 7- Be willing to provide a reasonable amount of compensation to the general contractor and to the specialized contractors if you don't go ahead with the project or if you cancel it.





# 1- PRE-DESIGN AND DESIGN

## 4. Financing

### Context

Financing is critical for making payments and for the smooth progress of the project in general.

### Problem definition

Some projects start even before complete financing is in place. The terms of the financing are sometimes different from and incompatible with the provisions of the contract which were negotiated between the work provider and the contractor (e.g. the lender may disburse funds on dates which exceed the time limits for making payments contained in the contract between the work provider and the general contractor).

### General recommendation

Financing of a construction project is important for every party to the contract including the consultants, and it must be fully in place before the project begins. Even if the work provider has to deal with other concerns during the construction phase, the general contractor, the specialized contractor and the consultants still need to be paid as the work progresses. The contractors or consultants are not responsible for financing the project.



# RECOMMENDATIONS



## For the general contractor:

- 1 - Obtain confirmation that the financing has been arranged, as you are permitted to do in accordance with GC 5.1 of CCDC 2. Refuse to sign any contract in which this clause has been deleted.
- 2- Notify the work provider that the surety requires proof of financing before a bond can be issued.
- 3- If possible, require that the lender be listed as a co-beneficiary of the bond.

## For the specialized contractor:

- 1 - Require proof of and details concerning the general contractor's bond.
- 2- Declare his contract to the work provider, to the surety of the general contractor and to the lender.
- 3 - Verify with the surety that if required by the general contractor, **will** issue a performance bond and a labour and material payment bond to the **general** contractor for each bid.

## For the consultants:

- 1 - Ensure that the financing is in place.
- 2- Ensure that the conditions and time limits imposed by the work provider and his lender for the payment for the work have been incorporated into the contractual requirements for the contractor.

## For the work provider:

- 1 - Be willing to provide evidence to the effect that the financing is in place.
- 2 - Be willing to pay the costs associated with the bonding of his contract with the general contractor. In this way, all of the parties will be protected and therefore less likely or eager to register legal hypothecs (liens).



# 1- PRE-DESIGN AND DESIGN

## S. Surveys and existing conditions

### Context

In order to be able to determine the precise cost of the work and to avoid cost overruns, it is essential to have adequate awareness and understanding of the existing conditions (soils, buildings, works of art and engineering works, etc.).

### Problem definition

The original plans of existing buildings are not always available, reliable or sufficiently detailed. Efforts made to investigate and survey the existing site conditions are not always adequate to permit a proper analysis of the project. For all of the participants, this situation often leads to significant cost increases and to difficulties in respecting the projected work schedule.

The causes of this problem are:

- that the work provider is often unable to provide the existing (as-built) plans;
- that the budget provided for performing site surveys, applying expertise and performing investigations is inadequate;
- that the time allotted to performing site surveys, applying expertise and performing investigations is insufficient.

### General recommendation

Provide a budget for performing site investigation work and be willing to accept that the consultants need to provide more precise geotechnical and environmental (including asbestos) studies.

Recommend and promote the implementation and use of Building Information Modeling (known by the acronym "BIM").

### Comments

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The Revay and Associates Limited firm, serving the construction industry for more than 40 years, has published a report, written by Bob Keen, P.Eng, MBA, entitled: The Pitfalls of Incomplete Contract Documents (Vol. 29, Number 1, March 2010).

The analysis undertaken by this firm revealed that the absence of adequate site and subsurface investigations prior to starting the design is one of the most common and significant causes of construction contract claims.

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# RECOMMENDATIONS



## For the general contractor:

- 1- During the bidding period, require that a clear description of the existing site conditions, based on reliable site surveys and soil studies, be provided.

## For the specialized contractor:

- 1- During the bidding period, require that a clear description of the existing site conditions, based on reliable site surveys and soil studies, be provided.

## For the consultants:

- 1- Increase work-provider awareness and recommend the types of site surveys, with corresponding budgets, that would be prudent and useful to undertake in order to avoid surprises and unforeseen costs during the project.
- 2- Provide the work provider with a site-survey program and indicate the benefits that would be offered by implementing it.
- 3- Perform more detailed site surveys, research, expertises and investigations with respect to the existing conditions
- 4- Anticipate using laser scanning during this phase.
- 5- Start to use BIM so that your future projects will be more fully documented.
- 6- Include, all of the information collected during the site survey and investigation work in the bid documents,
- 7- Ensure that you obtain marked-up "as-built" plans from the contractors, that you incorporate the changes into your plans, and that you return them to the work provider.
- 8- Issue updated plans on a regular basis.

## For the work provider:

- 1- Provide an adequate budget to permit more complete site surveys and geotechnical and environmental studies to be performed.
- 2- Request and obtain "as-built" plans and specifications from the contractor and the consultants. Store these properly and update them when changes, additions or repairs are undertaken with respect to a building or to any other installations.



# 1- PRE-DESIGN AND DESIGN

## 6. Comprehensive plans and specifications

### Context

In order to obtain complete and comparable bids and to approach perfection on the worksite, it is essential to prepare both a clear, precise and complete functional and technical program and clear, precise and properly-coordinated plans and specifications.

### Problem definition

The time allotted for the production of the plans and specifications is often too short. Consultants will then agree to accept or are simply pressured into accepting these short time limits. As a result, the consultants work independently of each other and without suitable and adequate coordination.

The following consequences are the result of this situation:

- The plans and specifications that are produced are incomplete, imprecise and poorly-coordinated among the various consultants.
- Many addenda are required, and this often causes confusion with respect to the documents, postponements in the bid closing date, additional costs for all of the bidders, and delays in the overall project schedule
- During the construction phase, the number of change orders increases; and this results in strained relations and delays in the performance of the work, and may even cause prejudice and lead to disputes and potential claims.
- Responsibility for preparing the construction details falls on the contractors. Excessive use of the terms "see Architect" and "see Engineer" also occurs.

### Comments

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As stated in the "Conclusion" of the Revay study entitled **The Pitfalls of Incomplete Contract Documents (Volume 29, Number 1, March 2010)**:

"There are no revolutionary suggested practices in this report, simply some logical fundamentals for achieving the schedule and cost objectives of a project. The most critical of the requirements is having drawings, specifications and other parts of the contract documents as close to 100% complete as possible at the time of executing an agreement or contract. If 100% is not achievable for one reason or another, then budget contingencies must be adjusted, an alternative type of contract should be considered, and the contract documents must make provisions for fair and equitable adjustments to the time and price in the contract as changes are issued. Otherwise, the spectre of claims and potential litigation loom on the horizon, to the peril of all parties involved in the contract."

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# RECOMMENDATIONS



## For the general contractor:

- 1 - During the bidding period, ensure that you obtain all required clarifications concerning the plans and specifications.

## For the specialized contractor:

- 1 - During the bidding period, ensure that you obtain all required clarifications concerning the plans and specifications.

## For the consultants:

- 1 - Notify the work provider of:
  - the period of time that is required for the preparation of clear, precise and complete plans and specifications.
  - the consequences of not scheduling sufficient time for this preparation the current level of completion of the plans and specifications to be issued for bidding any additional time which is required as a consequence of the current level of completion of the plans and specifications to be issued for bidding.
- 2- Make every effort and act diligently in order to meet the prescribed deadlines.
- 3- Ensure excellent coordination with the other consultants involved in the project and notify the work provider if there are any problems in this area.
- 4- Include in the bid documents, all necessary and useful information concerning the bidding and contracting requirements, the general and specific requirements of the contract, and the requirements related to the organization and performance of the actual work.
- 5- Distribute bid documents which are complete, are suited to the program and to the work schedule, are coordinated among the disciplines, conform to the rules of the art and respect the jurisdictions of the trades.

## For the work provider:

- 1 - In consultation with the consultants, schedule a suitable period of time for the production of the plans and specifications, with an additional contingency period provided to cover unforeseen problems or design delays, in order to allow the following activities to be performed:
  - Site surveys investigations, studies and comparative analyses.
  - Schematic design, design development and construction documents (plans and specifications).
  - Multidisciplinary coordination.
  - Revisions and approvals.
  - Obtaining permits.
  - Preparation of budgets and work schedules.
- 2 - For certain projects, signing of the contract between the consultants and the work provider is delayed, and this does not encourage the consultants to begin work on the project. Ensure that the agreement between the work provider and the consultants encourages the consultants to start their work promptly.
- 3- Monitor the progress during each phase of the preparation of the plans and specifications.
- 4- Provide the consultants with all of the information concerning the bidding and contracting requirements, the general and specific requirements of the contract and the requirements related to the organization and performance of the work.

# 1- PRE-DESIGN AND DESIGN

## 7. Substitute products and alternative solutions

### Context

The bid documents often contain technical specifications for materials or products that are "unique" and predetermined, and are accompanied by the designation "or approved equivalent". The procedure for submitting equivalent materials and products is not always indicated in the bid or contract documents. Proposals for equivalent materials and products are sometimes authorized during the bid period, but not during the construction period.

### Problem definition

Too often, the procedure for proposing and approving equivalent materials and products or substitutes or alternative solutions is subjective and dependent on parameters for analyzing equivalence that are not comparable and are often clearly biased, so that the goal of identifying an "approved equivalent" cannot possibly be achieved because the equivalent-approval procedure itself is flawed. This flawed approval procedure may be unfair to the suppliers of materials and to the contractors who see their proposed products or alternatives rejected even when these are both more economical and equivalent.

The supplier of the "unique" product may, by a process of negotiation, favour one contractor to the detriment of another.

In addition, the consultants are often hesitant to perform the necessary evaluations, since they are not remunerated for work involving the analysis of substitute products and alternative solutions. Lastly, when their remuneration is calculated as a percentage of the cost of the work, the more that they succeed in reducing the costs, the more they reduce their fees as well!

It is not possible to avoid the reality that some consultants benefit from the support of a given supplier who accepts to prepare their specifications and technical data in exchange for the assurance that only its product will be approved.

### General recommendation

Apply the provisions of the Interpretation Bulletin issued by the Secretariat of the (Quebec) Treasury Board entitled *Specifications de matériaux ou de systèmes de construction dans les documents d'appel d'offres* (The Specification of Materials and Construction Systems in Bid Documents) (2010-10-28- RCTC. 5-1).

### Comment

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Given the importance of this phenomenon, the Secretariat of the Treasury Board (STB) has issued an interpretation bulletin entitled *Specifications de matériaux ou de systèmes de construction dans les documents d'appel d'offres* (2010-10-28- RCTC. 5-1) which we have reproduced here:

"The fundamental principles upon which the *Act Respecting Contracting by Public Bodies* is based are the promotion of honest and fair treatment of bidders and the opportunity for qualified bidders to compete in calls for bids made by public bodies (art. 2). In accordance with the Regulation respecting construction contracts of public bodies (art. 5.1), a public body must provide, in its bid documents, a description of the construction work and conditions on which the contract is to be carried out.

In the bid documents, a public body must specify the construction materials and systems that are required. Every specification must be performance-based rather than prescriptive. A material or system is only considered to meet the performance standard if it both provides the expected result and allows contractors to propose products of similar quality.

Reference to specific brand names and, preferably, to several when this must be done, is only valid for purposes of simplifying or clarifying the specifications when several possible competitive equivalents exist. The bid documents must clearly allow for the use of equivalents, as long as they meet market requirements, by using the term "or equivalent":

A public body cannot require the use of a specific material or system unless it has first conducted a performance analysis. The performance analysis must be validated by a competent consultant who will not derive any commercial benefit from the public market, or by a recognized body. The evaluation criteria for analyzing performance must be rigorous and objective and must not limit competition in any way.

Consequently, it is the responsibility of the public body to undertake every appropriate measure to promote competition. In the opinion of the STB, specifications for construction materials and systems resulting in non-competitive public contracts should be avoided:

# RECOMMENDATIONS



## For the general contractor:

- 1- Register an objection when "unique" or "directed" specifications have been used.
- 2- Where only a single supplier is permitted, ask that the bid documents provide additional remuneration.

## For the specialized contractor:

- 1- Register an objection when "unique" or "directed" specifications have been used.
- 2 - Where only a single supplier is permitted, ask that the bid documents provide additional remuneration.

## For the consultants:

- 1- Consultants should ask for suitable remuneration when they are required to specify products from several manufacturers.
- 2- In exchange for the savings from which the work provider will benefit, the consultants should ask to be given additional compensation for their work involving the analysis of equivalent products and alternative solutions.
- 3- The consultants should ensure that they include in their specifications the performance criteria which must be met by equivalent products.
- 4- Where there is indeed only a single product that meets the objectives and specifications, use pre-purchasing in order to avoid the risk that the supplier of the "unique" product might exert an unfair influence on competitiveness.

## For the work provider:

- 1 - The work provider should require that the consultants specify products from several manufacturers and he should remunerate the consultants accordingly.
- 2- In exchange for the savings that will be enjoyed by the work provider, he should provide additional compensation to the consultants for work involving the analysis of substitute products and alternative solutions.
- 3 - The work provider should ensure that the consultants specify the performance criteria that must be met by equivalent products.

# II- CONTRACTS

## 1. Structure of the documents

### Context

In North America, there is a classification system for documents and information which has been developed by various players in the construction industry (CSI<sup>1</sup> and CSC-DW) and is used to organize and classify all of the data and the different documents which are used in this field (bid and proposal requirements, general conditions of the contract, technical requirements, etc.). This classification system is the MasterFormat<sup>™</sup> standard, which is updated and improved periodically. This classification system for data and documents enjoys broad acceptance, and it is used by most of the players in the construction industry in North America, in both the public and private sectors.

### Problem definition

Although the "Procurement and Contracting Requirements" section is not followed or used by the major public work providers in Quebec, consultants are often asked to use the NMS (National Master Specifications)<sup>2</sup> for the documents that they prepare. Since these documents are structured in accordance with the MasterFormat<sup>™</sup> system for classifying and organizing documents, the result is an absence of harmony and consistency between the documents prepared by the work provider and those prepared by the consultants.

The clauses, requirements, performance conditions, etc. that are imposed on the bidders for a contract and the information which is provided to them are not organized in accordance with this classification system, and there may be considerable variations in them, depending on which body or person prepared the bid documents and the contract documents.

Consequently, each time that they bid, the various bidders and contractors have to search for the various requirements and information, whether they be of a general or specific nature, among the numerous documents that have been provided to them. This situation requires more time and effort on the part of the bidders, and it therefore results in greater costs to them and it exposes all of the parties to additional risks that could well have been avoided.

### General recommendation

Use and conform to the MasterFormat<sup>™</sup> classification system for construction documents. Note: The MasterFormat<sup>™</sup> classification system for construction documents is based on an organizational structure<sup>4</sup> that is designed to provide greater uniformity among the documents and to enable the various players to find the information and requirements which they seek in these documents, with greater ease.

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<sup>1</sup> CSI: Construction Specifications Institute (USA)

<sup>2</sup> CSC-DCC: Construction Specifications Canada- Devis de construction Canada

<sup>3</sup> NMS: National Master Specification- this is a standard specification which was originally developed by specification writers working for the Government of Canada and which was subsequently adapted for use by the private sector in Canada by persons involved in the industry and, in particular, members of CSC-DCC

<sup>4</sup> Refer to the Construction Document Flow Chart prepared by Guy Duchesneau, FCSC which has been appended to this document.



# RECOMMENDATIONS



## For the general contractor:

- 1- Study and become familiar with the National Master Specification, and update your knowledge regularly.

## For the specialized contractor:

- 1 - Study and become familiar with the National Master Specification, and update your knowledge regularly.

## For the consultants:

- 1- Have a good understanding of the National Master Specification and its method for structuring and organizing documents, and update your knowledge regularly.
- 2- Revise your identification of the bid documents, the contract documents and the sections of the specifications to conform to this standard document.
- 3- When preparing the sections of the specifications, place the descriptions of the work to be performed in the appropriate sections.
- 4- Adapt the specifications to the project, and avoid the systematic use of generic specifications that are not adapted to the specific situation.

## For the work provider:

- 1 - Require the selection and use of the National Master Specification as the classification system for the construction documents. Ensure that all of the requirements, conditions and limitations are indicated in the appropriate places in the documents, in accordance with the National Master Specification requirements.



# II- CONTRACTS

## 2. The BSDQ and its concordance with the sections of the specifications

### Context

In Quebec, the Quebec Bid Depository System (BSDQ) is a private body which was established by construction contractors. By agreement, the BSDQ governs the deposit of bids between specialized contractors and general contractors, with respect to specialties which may differ in jurisdiction from one region to another. The BSDQ and its Bidding Code are recognized by the courts as being in the public interest, and failure to follow the rules may result in legal consequences including the payment of fines, penalties and damage costs.

Even if the National Master Specification explicitly states that it is not designed for the purpose of dividing work among the various trades, the BSDQ and its Bidding Code constitute an exceptional case, and this should be taken into account in the preparation of the specifications as a whole and in the drafting of the individual sections of the specifications.

### Problem definition

The sections of the specifications (based on the National Master Specification and the MasterFormat") are not always suitably adapted to the jurisdictions of the trades and specialties, and often they do not permit the work to be properly distributed among the different specialties while taking into account the jurisdictions of the various construction trades.

In addition, a certain number of consultants, whether intentionally or not, overlook the existence of the BSDQ and therefore do not adapt the sections of their specifications to the jurisdictions of the trades and specialties.

A section of the specifications which is not limited to the jurisdiction of a single trade or specialty can result in incomplete bids containing exclusions, and this can prevent bids from being compared with each other and can eventually lead to disputes and complaints.

This situation, in which specifications have not been adapted to the realities of the BSDQ recently led specialized contractors to propose the creation of deposit guidelines which will define the work to be performed by each specialty.

### General recommendation

Ensure that the specifications are written in such a way that they take into account the manner in which the work will be performed, and, in particular:

- become familiar with the Code of the Quebec Bid Depository System and follow the deposit guidelines, insofar as possible, in the preparation of the specifications;
- choose specifications which will most readily facilitate the work on the worksite.

# RECOMMENDATIONS



## For the general contractor:

- 1- Clarify, among those with whom you associate on the worksite and elsewhere, the division of labour among the various trades and specialties governed by the BSDQ, and distribute the bidding guidelines to consultants and work providers.

## For the specialized contractor:

- 1- Clarify, among those with whom you associate on the worksite and elsewhere, the division of labour among the various trades and specialties governed by the BSDQ, and distribute the bidding guidelines to consultants and work providers.

## For the consultants:

- 1- Become familiar with the Code of the Quebec Bid
- 2- While still conforming to the MasterFormat™ Depository System and the deposit guidelines classification system used by the NMS (for the numbering and titles of the individual sections of the specifications), also take into account the bidding guides for bids that are deposited with the BSDQ, and adapt the contents of the sections of the specifications to the jurisdictions of the various trades and specialties and to the manner in which subcontracts are normally awarded
- 3- Choose specifications which are most likely to facilitate the work on the worksite.
- 4- Do not assign work to a specific speciality if doing so does not conform to the requirements of the above mentioned documents.

## For the work provider:

- 1 - Do not interfere with the distribution of the contractors' tasks in a way which is detrimental to the management of their work, since this could result in cost increases or create jurisdictional conflicts among the various trades.



# II- CONTRACTS

## 3. Selection of contractors according to their competence

### Context

- Work providers are entitled to choose to do business with contractors who have the skills, expertise, experience and resources required to execute their projects.
- Certain specific types of projects, such as hospital renovations, prisons, laboratories and others require consultants and contractors with previous experience in these types of projects and sufficient expertise to initiate execute and successfully complete them.
- Many projects, including those which are routinely encountered,, have distinctive features: tight design or construction schedules, special technical requirements, confined worksites, different financing arrangements, etc. Some of these features may require special skills on the part of the participants, whether they be consultants or contractors.
- It may also be desirable to pre-qualify the specialized contractors when needed, for example, for the replacement of the air-conditioning systems for an operating suite or for a building housing server for a computer network.
- Contractors with sufficient expertise, experience and resources will benefit from knowing whether their competitors are their peers in this respect.
- Irrespective of the delivery method which is being considered, the work provider may find it advantageous to pre-qualify the participants, whether they are contractors or consultants.
- Pre-qualification maximizes the chances for the success of a project by using competence, among other criteria, as a basis for the selection of the participants.
- Pre-qualification does not exclude the possibility of bonding the contractors (financial capacity), but it adds parameters and selection criteria. In many cases, the work provider who has pre-qualified a sufficient number of contractors may omit the requirement for bonding, thus avoiding the costs associated with it.

### Problem definition

- Where pre-qualification is not used, the work provider risks contracting with participants who lack the expertise, experience, resources and availability to complete his project successfully.
- The pre-qualification process will not be successful if:
  - o the selection criteria are subjective and cannot be quantified
  - o it is not transparent and fair
  - o it is subject to influences
  - o it is controlled by a selection committee that is biased and subject to limitations.

### General recommendation

Scrutinize the project to determine if it has distinctive features requiring that special criteria be applied to qualify consultants and general or specialized contractors.

CCDC is in the process of preparing "A Guide to Pre-qualification" which is expected to be published in 2014.

# RECOMMENDATIONS



## For the general contractor:

- 1- Recognize that certain projects or circumstances involve special needs, and that pre-qualification could create more favourable conditions for success for the work provider, the project and the contractors.

## For the specialized contractor:

- 1 - Recognize that certain projects or circumstances involve special needs, and that pre-qualification could create more favourable conditions for success for the work provider, the project and the contractors.

## For the consultants:

- 1 - Advise the work provider to select contractors for the project based on both quality and price where the specific circumstances justify this approach.

## For the work provider:

- 1- Select the consultants and the contractors for the project on the basis of their specialized competence when the particular circumstances and context require this approach.
- 2- Establish objective and verifiable criteria which can be used to evaluate and qualify the applicants.
- 3- Conduct a pre-qualification procedure which is fair, impartial and transparent.
- 4- Form a multidisciplinary, impartial and unbiased selection committee.

# II- CONTRACTS

## 4. Construction contract forms

### Context

The contract between two parties defines and establishes a framework for the roles, responsibilities and obligations of each of the parties. A work provider who wishes to carry out a project generally determines the terms of the construction contract between him and the general contractor with the help of his consultants, within the context of the applicable laws governing this activity.

### Problem definition

- The work providers, the consultants and the general contractors use a wide variety of contract forms containing many different clauses. This multiplicity of contracts requires contractors to review all of the clauses in each contract for which they wish to submit a bid or that they must sign. As a consequence of lack of time or negligence, these clauses are not always read. Considerable efforts must be made and additional resources used in order to understand and fully appreciate the scope and the different legal and contractual consequences of these new and different clauses, as well as their impact on the contract and on the work. For the most part, contractors and consultants do not have adequate legal training with respect to contracts to permit them to analyze all the subtleties with which they are confronted on each project. It should not be necessary to consult an attorney for every bidding process.
- The use of a contract and a contract structure which are "non-standard" increases the frequency with which the bid documents prepared by the consultants do not take into account the general conditions of the contract to be signed by the work provider and the general contractor. There are contradictions:
  - o between the various contractual clauses and requirements in the different documents.
  - o between the clauses of the general conditions of the work provider's contract and the general requirements for the work prepared by the consultants
  - o between the various clauses and the general requirements of the documents prepared by the various consultants.
- The use of a contract with a "non-standard" structure increases the frequency with which clauses from the general conditions of the contract are added to other documents, such as the instructions to bidders.
- The use of a contract and a contract structure which are "non-standard" increases the risk of the inclusion of abusive clauses.
- The contract to be signed by the parties is not always included in the bid documents. The absence of this contract often leads to discussions or negotiations concerning the clauses of said contract and may result in delays in the signature of the contract and in the commencement of the work for the planned project.

### General recommendation

#### STANDARDIZE THE CONTRACT FORMS

The entire industry, including work providers (private, public, Crown corporations), consultants and contractors should promote the use of standard contracts (CCDC and CCA) that are based on the consensus of all the groups involved in the construction industry or they should at least derive inspiration from the organization and structure of these documents and from the clauses within. These documents deal with all of the important points related to the rights and contractual obligations in the relationship between the work provider and the general contractor and they contain balanced and widely accepted clauses.

### Comments

The standardization of contract documents contributes to an increase in the productivity of all of the parties and to a reduction in the number of disputes. The need to standardize contract documents has been one of the long-standing demands of the industry. Among others, **Bill**, which was adopted in December 2012 by the Government of Quebec, modified portions of the *Act Respecting Contracting by Public Bodies*, including the following article:

"27. The Conseil du trésor ["Treasury Board"] may prescribe model contract forms or other standard documents to be used by public bodies or by a particular group of public bodies:"

Standardization becomes all the more possible at this level when the bodies themselves are subject to a merger. Thus, just as the CHQ (Corporation d'hébergement du Québec) merged with the SIQ (Société immobilière du Québec) so this latter body could conceivably be merged with Infrastructure Québec.

# RECOMMENDATIONS



## For the general contractor:

- 1- Carefully read the bid documents and the clauses of the contractual requirements, understand them and evaluate the consequences that they may have on the performance of the work.
- 2- Promote the use of standard contract documents (CCDC-CCA) use them and make only of the minimal modifications that a specific project requires.
- 3- Select a standard contract to suit the procurement method (stipulated price, unit price, cost plus, management design-build, integrated project delivery).
- 4- Provide and incorporate into the contract between the general contractor and the specialized contractor the same general conditions that are used in the contract between the general contractor and the work provider.

## For the specialized contractor:

- 1 - Carefully read the bid documents and the clauses of the contractual requirements, understand them and evaluate the consequences that they may have on the performance of the work.
- 2- Promote the use of and use standard contract documents (CCDC-CCA) and make only the minimal modifications to them that a specific project requires.
- 3 - Select a standard contract that suits the procurement method (stipulated price, unit price, cost plus, management, design-build, integrated project delivery).
- 4- Provide and incorporate the same general conditions into the contract between the general contractor and the specialized contractor that are used in the contract between the general contractor and the work provider.

## For the consultants:

- 1 - Match the bid documents to the standard contract which has been selected and which is to be signed. Incorporate the contract documents into the bid documents.
- 2- Clearly indicate the work schedule for the performance of the work (commencement dates, intermediate dates and completion date or duration of the work).
- 3- Match the structure of the bid documents to the structure recommended in the National Master Specification (refer to the Construction Document Flow Chart that is attached to this document).
- 4- Eliminate abusive clauses and transfers of responsibility.
- 5- Starting at the time of the bidding process, specify the documents, roles and responsibilities of each of the participants, in the contract..

## For the work provider:

- 1 - Incorporate the contract and the general conditions into the bid documents.
- 2- Use standard contracts (CCDC-CCA) and indicate, in the bid documents, the modifications made in accordance with the recommended method (document modifying a standard document).
- 3- Select a standard contract which suits the procurement method (stipulated price, unit price, cost plus, management design-build, integrated project delivery).
- 4- Ensure that the roles and responsibilities of each of the principal participants are clearly and precisely defined in the bid documents
- 5- Eliminate abusive clauses and transfers of responsibility.



# II- CONTRACTS

## 5. Role of the consultants

### Context

In addition to providing expertise, project design services and field review of the work performed by the contractors, consultants also contribute to the success of the project in other important ways.

### Problem definition

The role of the consultants is not always fully defined.

Thus, the role of the consultants with respect to the contractors and other participants is often not communicated to the latter and, moreover, it is not defined in the bid documents or in the contract documents.

In addition, too often the consultants do not assume the role which has been entrusted to them.

### General recommendations

The role, the obligations and the responsibilities of the consultants in the administration of the construction contract must be clearly defined in the contract documents.

It is essential to share all useful information concerning the role of each person on the "perfect worksite": This applies equally to the role of the consultants.

Contracts can be administered more effectively when the role of each of the parties is fully understood by all.

It is easier to execute a contract when the roles are clearly defined and when they are assumed by the responsible parties.

It is more efficient and productive for all when each participant performs his role within the framework which has been defined and communicated to the other parties. Cooperation is easier and interactions are more productive when everyone knows whom to contact and who is responsible for performing the task.



# RECOMMENDATIONS



## For the general contractor:

- 1 - Read the bid documents and the contracts in order to determine the roles and responsibilities of each party.
- 2- During the bidding process, ask for clarification concerning the roles and responsibilities of the consultants if this information is missing from the bid documents.
- 3- At all times, respect the roles and responsibilities which have been assigned to the parties and consultants.

## For the specialized contractor:

- 1 - Read the bid documents and the contracts in order to determine the roles and responsibilities of each party in the administration of the contract and in the performance of the work.
- 2- Ask the general contractor to provide detailed information concerning the obligations, roles and responsibilities of the consultants where these have an impact on the specialized contractor's contract.
- 3- At all times, respect the legal obligations which exist between him and the general contractor.
- 4- At all times, respect the roles and responsibilities which have been assigned to the consultants and to the general contractor.

## For the consultants:

- 1 - Provide suitable guidance to the work provider concerning both role distribution and the ensuing responsibilities.
- 2- In collaboration with the work provider, distribute the responsibilities among the consultants to suit their respective availabilities.
- 3- Ensure that a comprehensive description of the roles and responsibilities of the consultants is incorporated into their contracts with the work provider.
- 4- Include a description of these roles and responsibilities in the bid documents.
- 5- Perform these roles and responsibilities diligently, professionally and impartially.

## For the work provider:

- 1- When awarding mandates to the consultants, determine together with them the details of the roles that they must assume, taking into account the circumstances and availabilities of each of the parties to the contract.
- 2- Authorize the consultants to provide the bidders with a detailed description of the roles that have been assigned to them by the work provider, and ensure that these are respected.
- 3- Make the consultants accountable for the roles and responsibilities which are defined in the construction contract between the work provider and the general contractor.



# III- PERFORMANCE AND DELIVERY

## 1. Work schedule

### Context

Respect of the work schedule for each phase of a project is essential if the overall work schedule for the project is going to be met.

### Problem definition

It is difficult to prepare and monitor a work schedule.

There are many reasons why a schedule may be deficient or poorly-designed:

- Flawed allocation of time between the pre-design/design phase and the execution/construction phase.
- Inadequate details in the work schedule to permit proper monitoring.
- Work schedule prepared without giving consideration to the limitations and delays associated with approvals, decision-making, delivery, execution and climate conditions.
- Work schedule prepared with insufficient flexibility to permit adjustments to be made for climate conditions and for the impact of changes which may occur during the performance of the work.

Insofar as the monitoring is concerned, there are also several causes:

- Poor distribution or communication of the work schedule, lack of awareness on the part of the participants.
- Failure to respect or, even worse, intentional disregard of the sequence and duration of each activity.
- Failure to consider the work schedule as a contractual requirement and, therefore, as an obligation of means and of result.
- Inadequate control, follow-up and updating.

Often, the result of these failures is that the time allotted to certain activities on the work schedule must be compressed in order to compensate for other activities which exceeded their allotted time. Thus, the participants involved in the activities with a compressed work schedule are often penalized as a result of the urgency of the situation and a shortage of time, and they are subjected to pressure and prejudice even though they are not responsible for the problem.

### General recommendations

For each participant in a project, assign one or more resources that will be in charge of the monitoring and respect of the work schedule for each activity in which the participant is involved.

Act diligently and find ways to respect the work schedule rather than making excuses for not doing so.

# RECOMMENDATIONS



## For the general contractor:

- 1 - Prepare a preliminary work schedule for the performance of the work at the time of the bidding; as part of this task, consult with the principal subcontractors and participants to ensure that it will be possible to perform the work in accordance with this work schedule.
- 2- Ensure that the general contractor has a good overall understanding of his role and of those of his specialized contractors.
- 3- To reach an agreement on the manner in which the project will be carried out, hold a start-up meeting with all the participants prior to the commencement of the work.
- 4- Require all of the participants to inform the general contractor of the number of work teams, the number of workers on each team, and the duration of each activity to be carried out by each work team.
- 5- Prepare the work schedules in a serious manner and have them validated by the specialized contractors.
- 6- Prepare a detailed overall work schedule which takes into account contractual obligations, climate conditions, and the periods of time required by each of the specialized contractors for placing orders, preparing shop drawings, obtaining approvals, fabricating, delivering and installing.
- 7- Transmit the work schedule to all the participants (specialized contractors, consultants, work providers), and ensure that they have received and understood it.
- 8- Monitor the overall work schedule by dividing it into three-week periods.
- 9- Perform continuous monitoring of the three-week work schedules and assign a resource to this task.
- 10- Behave proactively concerning the work schedule, and find ways to respect it rather than making excuses for not doing so.
- 11- At each site meeting, verify that each one of the specialized contractors is respecting the overall work schedule. Require that a recovery plan be submitted when needed.
- 12- Allot the same amount of time to monitoring and supervising the overall work schedule as is allotted to the budget.
- 13- Include in the work schedule the number of days available to compensate for unfavourable weather conditions which may affect the progress of the work.

## For the specialized contractor:

- 1 - Ensure that the specialized contractor has a good overall understanding of both his role and those of the other participants in the project so that he can foresee the impact on his own work.
- 2 - Ensure that the specialized contractor has a good understanding of the overall work schedule of the general contractor and that he comments on it when necessary.
- 3- Prepare his own detailed work schedule (number of work teams, number of workers on each team, duration of each of the activities to be carried out by each work team, the periods of time required for placing orders, preparing drawings, obtaining approvals, fabricating, delivering and installing) which is integrated with the general contractor's overall work schedule and provide a copy to the general contractor.
- 4- Control and monitor his own work schedule and assign the required resources to this task.
- 5- Do not wait to be asked before making the required adjustments and corrections.
- 6- Include in the work schedule the number of days available to compensate for unfavourable weather conditions which may affect the progress of the work.
- 7- Adjust his efforts to conform to the schedule and keep the work provider informed if any deliveries are delayed.

## For the consultants:

- 1 - Ensure that the commencement date, the intermediate deadlines, the final deadlines, the durations and sequence of activities and the limitations are clearly identified in the bid documents.
- 2 - Select materials and a design which take into consideration the project work schedule and the climatic conditions.
- 3- Control, monitor and respect the completion dates for his own commitments and deliverables (respect the deadlines for producing his documents and approvals) and assign a resource.

## For the work provider:

- 1 - Hold a start-up meeting with all the participants and explain the limitations associated with the project to them. Highlight the importance of the work schedule and provide well-defined milestones.
- 2- Ensure that the work schedule is realistic from the very onset
- 3- Require that the contractor provide weekly monitoring of the work schedule. Have the participants in the project sign off on this work schedule.
- 4- Adjust the completion date (when possible) to take changes on the worksite into account
- 5- Require that an updated version of the work schedule be submitted with each application for payment.
- 6- Specify that payment will be made only if the work schedule has been provided.

# III - PERFORMANCE AND DELIVERY

## 2. Payments and payment schedules

### Context

Respect for the payment process is essential to the proper functioning of a project and to ensuring good relations among the participants. It has a very important impact on the cash flow of very small, small and medium-sized businesses, as well as on the economy in general. The serious nature of delayed payments is illustrated by certain measures which were taken in Europe. Laws to combat delays in payment where public contracts are involved were adopted in Germany (in 2000) and in France (in 2009).

### Problem context

Too often, the payment schedules provided in contracts are not respected, as often between the work provider and the general contractor as between the general contractor and the specialized contractor. As a consequence, a feeling of distrust develops and the relationships and communications among the participants become more difficult.

There are several reasons at the root of this failure to respect the payment process:

- The payment clauses in contracts are imprecise.
- The process is tedious and time-consuming.
- Failure to respect the contractual steps and payment deadlines is treated with indifference.

The principal problems encountered are the following:

- Lateness in submitting the breakdown of the stipulated price
- Lateness in approving the breakdown of the stipulated price.
- Lateness in producing the monthly application for payment.
- Lateness in approving the monthly application for payment
- Invoices which are submitted after the deadline.
- Invoices which include changes that were not approved
- Invoicing which does not conform to the approved monthly application for payment.
- Invoicing which does not conform to the required forms or which does not include the required supporting documents.
- Lateness in the issuing of the certificate for payment.

### General recommendations

Every properly-administered project should include, both in the bid documents and, thereafter, in the contract documents, a guide providing a clear and precise description of each of the tasks in the payment procedure and shows, for each of these tasks:

- The role and responsibility of each of the participants.
- The time limit or the final date of completion.
- The required documents and forms.
- The consequences associated with the failure to follow the procedure and to respect the time limits prescribed for each of the tasks. The

entire contractual process for payment should take place within a period of 30 days or less and this period should never exceed 45 days.

Special terms of payment, which take into account the production of elements that were prepared specifically for the project, should be considered so that the payment and the transfer of ownership can take place prior to the installation.

### Comments

The Bank of France has created the PAYMENT PERIODS OBSERVATORY and, according to the economic analysis that they performed, a reduction in the length of payment periods between businesses offers several advantages with respect to the financing of businesses. It imposes a de facto limit on exposure to business-to-business risks, especially for those businesses which have lengthy payment periods, and allows them to reduce the number of sequential defaults in very small, small and medium-sized businesses (see pages 23 and 24 of the 2011 report).

Ontario has also shown an interest in this type of legislation. In 2011, a law similar to the one which exists in Europe was tabled (Prompt Payment Act), but it died on the Order Paper. However, the debate concerning this matter continues.

# RECOMMENDATIONS



## For the general contractor:

- 1- Review the provisions in both the bid documents and his contract that stipulates the conditions for payment
- 2- During the bidding period, ask for the payment procedures guide.
- 3- Master the contractual payment procedure and comply with the tasks and conditions that apply to him and to his specialized contractors.
- 4- Submit the cost breakdown of the stipulated price for approval, within the prescribed time limit..
- 5- Using the previously-approved cost breakdown of the stipulated price, submit the monthly progress report for approval on the prescribed date.
- 6- When the approved level of progress is not the same as the requested level, allow a short period of time for the specialized contractors in question to defend their claim to the proper consultant.
- 7- Within the prescribed time limit, submit an invoice on the required forms, accompanied by the required supporting documents, in accordance with the approved monthly progress report.
- 8- Where changes are involved, invoice only for the changes that have been duly approved.
- 9- Require the consultant to issue and transmit a certificate for payment within the prescribed time limits.
- 10- Where applicable, respect the time limit prescribed in the "payment upon payment" clause which binds the general contractor and the specialized contractor.
- 11- Invoice for the penalties and interest charges in accordance with the provisions of the contract when the prescribed time limits for payment have not been respected.
- 12- Submit, within the prescribed time limits and in the prescribed manner, the required administrative forms (release, resolution, declaration, etc.).
- 13- Accept that he will be invoiced for late payments for which he is responsible.
- 14- In specific situations involving disputes, plan to issue joint cheques instead of accumulating late payments.

## For the specialized contractor:

- 1 - Review the provisions in both the bid documents and the contracts dealing with the conditions for payment.
- 2- During the bidding process, ask for the payment procedures guide.
- 3 - Master the contractual payment procedure and comply with the tasks and conditions that apply to him.
- 4- Submit for approval, within the prescribed time limit, the cost breakdown of the stipulated price.
- 5 - Using the previously-approved cost breakdown of the stipulated price, submit for approval on the prescribed date, the monthly progress report.
- 6- Submit an invoice in accordance with the approved monthly progress report.
- 7- Submit the invoice on the required forms, accompanied by the required supporting documents, within the prescribed time limits.
- 8- Where changes are involved, invoice only for the changes which have been duly approved.
- 9- Require the general contractor to transmit, within the prescribed time limit, a certificate for payment issued by him or by the consultant.
- 10- Invoice for the financial consequences (penalties, interest charges) when the prescribed time limits for payment have not been respected.
- 11- Submit, within the prescribed time limits and in the prescribed manner, the required administrative forms in exchange for a payment (release, resolution, declaration, etc.).
- 12- Accept that he will be invoiced for late payments for which he is responsible.

## For the consultants:

- 1- Ensure that the payment procedures guide described in the general recommendations has been prepared.
- 2- Ensure that the payment procedures guide has been incorporated into the bid documents and, thereafter, into the contract documents.
- 3- Master the contractual payment procedure.
- 4- **and comply with the tasks and conditions which apply to them** Approve the cost breakdown of the stipulated price within the prescribed time limits, and the milestones which will be used to determine the monthly work progress.
- 5- Within the prescribed time limits, approve monthly work progress.
- 6- Approve and recommend, within the prescribed time.
- 7- Issue a certificate for payment within the prescribed time limits.
- 8- Accept that he will be invoiced for any failures on his part to respect the time limits for payment prescribed in the contract.

## For the work provider:

- 1 - Participate in the preparation of the payment procedures guide described in the general recommendations.
- 2- **Ensure that the time limits and details of the contractual payment procedure conform to the limitations, time limits and obligations which are tied to the financing of the project.**
- 3- Ensure that the payment procedures guide has been incorporated into the bid documents and the contract documents.
- 4- Assume the role of the principal person responsible for the overall contractual payment procedure in order to be able to make the payments within the time limits prescribed within the contract.
- 5- Accept that he will be invoiced for any failures on his part to respect the time limits for payment prescribed in the contract.
- 6- In specific situations involving disputes, plan to issue joint cheques instead of accumulating late payments.



# III- PERFORMANCE AND DELIVERY

## 3. Approval and payment of changes

### Context

Every project is subject to changes during the performance of the work. These changes can have an impact on both the costs and the work schedule of the project.

### Problem definition

Excessive delays in payment and a settlement procedure that is often difficult combine to create a climate of distrust which, in turn, has a direct impact on the relations between participants and even, in some cases, on worksite productivity.

There may be many reasons for these long delays:

- The absence of a procedure for reaching a settlement when there are one or more changes.
- The absence of an estimate prior to the official issuing of the change by the consultant.
- The official issuing of a change without prior authorization having been given to the consultant by the work provider.
- Lateness in the official issuing of a change which leads to delays on the worksite and results in related additional consequences.
- Numerous changes which cause a logjam in the settlement process.
- Changes that are so numerous that it is difficult to evaluate the indirect impact and costs of each individual change and of all of the changes together.
- Changes submitted by the contractors which are late and incomplete.
- Inadequate time allotted for performing analyses, making recommendations and granting approvals in order to comply with the work schedule.
- Analyses and recommendations provided by a single party acting as both judge and defendant.
- Two-level or multi-level recommendation and approval processes.
- Changes which are sometimes issued in order to validate the feasibility and the costs and are then dropped at a later date (free estimate).

### General recommendations

Every good project must include in the bid documents and, later, in the contract documents, a guide clearly and precisely describing each of the tasks in the procedure for settling a change and indicating, for each one:

- The role and responsibility of each of the participants.
- The time limit or the final date of completion.
- The required documents and forms.
- The consequences associated with the failure to follow the procedure and to respect the time limits prescribed for each one of these tasks.

The bid documents and, thereafter the contract documents, must include contractual procedures facilitating settlements (hourly rate, unit cost, detailed breakdown of the base contract prices, etc.).

The overall contractual process for settling "executory" changes should at least permit the invoicing of the work done for a change which was indicated in the application for payment for the month following the performance of the change. In the absence of a final settlement, the process should provide for and allow partial invoicing in the application for payment for the month following the performance of the change. The contractor must retain the right to make a claim for the unpaid amounts.

The overall contractual process for settling changes which are "not executory" should be adapted so that the final approval does not hinder the progress of the work. Responsibility for the change settlement procedure should be assigned to a third party (cost controller).

When a change is issued, when prices are submitted and when the change is subsequently cancelled, the contractors should be compensated for the costs incurred by them for administration, estimation and profit.

### Comments

The conflicts that arise most frequently with respect to the determination of the cost of a change involve the following components: which expenses should be considered to be costs and which should be considered to be profits? The Regulation respecting Construction Contracts of Public Bodies (CQLR, c C-65.1, r 5) includes methods for partially resolving the problem of a delay in payment (Section 44 et seq) and for determining the elements to be included in the cost of a change (Schedule 6 of the Regulation). The mediation process is however infrequently used.

Standard contract CCDC 2 also lists the elements which must be considered in determining the costs associated with a change directive (Paragraph GC 6.3.7, "CCDC 2, 2008").

Also see the comments concerning the importance that respecting the payment periods has in regards to the operation of very small, small and medium sized businesses in the preceding section.

# RECOMMENDATIONS



## For the general contractor:

- 1 - Read the sections in the bid documents and in his contract which involve the change settlement procedure.
- 2 - At the time of the bidding period, ask for the change settlement procedures guide.
- 3 - Master the change settlement procedures and comply with the tasks and conditions which apply to him and to his specialized contractors.
- 4 - From the very outset, obtain approval for a list of hourly rates and a reference source for prices.
- 5 - Be diligent in submitting for approval, on time and in complete form, the price and the time limit, if any, for each of the changes. Where the change request has not been issued in writing, be sure to provide a detailed description of the change and to explain all of the implications of the change request.

- 6 - Be sure to submit both the costs and the impact on the work schedule.
- 7 - Use the required forms.
- 8 - Where the approved implications differ from the claimed implications, allow the specialized contractors who are involved to explain and defend their point of view to the involved consultant.
- 9 - Require that the involved consultant issue a written recommendation. In the absence of a written document from the consultant, ensure that you keep a written record of your verbal exchanges concerning this issue.
- 10 - Require that the work provider issue a written approval. In the absence of a written document from the work provider, ensure that you keep

a written record of your verbal exchanges concerning this..

- 11 - As soon as there is a breakdown in the settlement procedure, require that a special meeting be held to discuss and settle the matter. Prepare cost estimates and obtain authorization for the changes before executing them.
- 12 - In the absence of a prior agreement, suggest that the change be executed on a time and materials basis, and keep a daily record of the expenses.
- 13 - In the absence of an agreement concerning the existence of a change, obtain the consent of the work provider to involve a third party.
- 14 - Maintain an open-minded attitude.

## For the specialized contractor:

- 1 - Read the sections in the bid documents and in the contracts involving the change settlement procedures.
- 2 - At the time of the bidding period, ask for the change settlement procedures guide.
- 3 - Master the change settlement procedures and comply with the tasks and conditions that apply to him.
- 4 - Be diligent in submitting for approval, within the time limits and in complete form, the details of

each of the changes, whether or not there are implications. It is important to keep in mind that the general contractor is always at the mercy of the best of his specialized contractors. Where the change request has not been issued in writing, be sure to provide a detailed description of the change and to explain all of the implications of the change request.

- 5 - Be sure to submit both the costs and the impact on the work schedule.
- 6 - Use the required forms.

- 7 - Require that the general contractor issue a written approval.
- 8 - Be diligent in pointing out any discrepancies with the approved implications.
- 9 - As soon as there is a breakdown in the settlement procedure, require that a special meeting be held to discuss and settle the matter. Prepare cost estimates and obtain authorization for the changes before executing them.
- 10 - Maintain an open-minded attitude.

## For the consultants:

- 1 - Ensure that the change settlement procedures guide described in the general recommendations has been prepared.
- 2 - Ensure that the change settlement procedures guide has been incorporated into the bid documents and, thereafter, into the contract documents.
- 3 - Master the change settlement procedures guide and comply with the tasks and conditions that apply to him.

- 4 - Have the work provider issue an official authorization for each change.
- 5 - Attach an evaluation of the implications (cost and work schedule) of the change and request that the work provider issue an authorization for the change.
- 6 - Issue the changes in writing, promptly and in a timely manner, with details and particulars (sketches and drawings).
- 7 - In a spirit of openness, analyze, recommend and approve, in writing, in a diligent manner and

within the prescribed time limits, the implications (financial, work schedule) which have been submitted.

- 8 - Make known in writing, in a diligent manner and with details, any discrepancies with the claimed implications.
- 9 - Be a willing participant in the special meetings that are held with the general contractor and the specialized contractors to discuss and settle disputes.

## For the work provider:

- 1 - Participate in the preparation of the change settlement procedures guide described in the general recommendations.
- 2 - Ensure that the change settlement procedures guide has been incorporated into the bid documents and, thereafter, into the contract documents.
- 3 - Assume the role as the principal person responsible for the mandate of the consultants in accordance with the contract between him and the general contractor.
- 4 - Require that an evaluation of the implications (financial and schedule) be provided by the consultants prior to authorizing the official issuing of an authorization for each change.

- 5 - Ensure that an official authorization is issued for each change.
- 6 - Ensure that the changes are issued in writing, promptly and in a timely manner, with details and particulars (sketches and drawings).
- 7 - Ensure that the analyses, written recommendations and approvals are issued in a diligent manner and within the prescribed time limits.
- 8 - Ensure that any discrepancies with the claimed implications are made known in writing, in a diligent manner and with details.
- 9 - Be a willing participant in the special meetings.

- 10 - At the time that a change is issued, ensure that sufficient contingencies and funds are available to pay for the changes.
- 11 - Make sure to properly divulge and communicate the limitations of his participants with respect to the issuing of authorizations and approval.
- 12 - Submit the change settlement procedures to a third party who is not acting as both judge and defendant.
- 13 - Avoid last-minute changes or treat them as a separate order or as deferred work.



# III- PERFORMANCE AND DELIVERY

## 4. Cost overruns and cost control

### Context

Cost control is an activity that is performed during the execution of the work and is directly related to the initial agreements and to the changes. It is the basis for all of the decisions that are made and has an impact on the evolution of a project.

### Problem definition

There are several possible causes of cost overruns:

- Poor monitoring of the plans and budget.
- Modification of the original concept.
- Uneven work schedule.
- Insufficient contingency funds set aside for unforeseen occurrences on the site.
- Incomplete, awkward or outdated cost-control program.
- Absence of dedicated cost-control resources.

### General recommendation

The task of controlling costs must be assigned to resources who are specifically devoted to the continued analysis of the cost estimates as a function of unforeseen events and changes so that the final costs can be foreseen and deviations from the original budgets can be determined.



# RECOMMENDATIONS



## For the general contractor:

- 1- Provide the information concerning the cost of changes on time.
- 2- At the appropriate time, give notice of the claims that will be made.

## For the specialized contractor:

- 1- Provide the information concerning the impact of changes on time.
- 2 - At the appropriate time, give notice of any claims that will be made.
- 3 -When necessary, make the required revisions, in a timely fashion, and in accordance with the contracts.

## For the consultants:

- 1- Collaborate and participate in the evaluation of the changes.
- 2- Actively participate in finding solutions to reduce costs.

## For the work provider:

- 1 - Ensure financing and the availability of sufficient funds
- 2- During the project, do not be afraid to reveal the status of the available contingency funds.
- 3- Ensure that you have put a team in place to be responsible for cost control.
- 4- Require frequent cost-control monitoring and reports.
- 5- Be involved, analyze and provide feedback concerning the cost-control monitoring and reports.
- 6- Insist on being given an active role in influencing the cost-reduction efforts.
- 7- Accept responsibility for the impact of your decisions on the costs.



# III- PERFORMANCE AND DELIVERY

## S. Work quality

### Context

Everyone is entitled to receive the level of quality of the services and products that they have paid for.

### Problem definition

An absence of quality is regularly observed, both in the production of the plans and specifications and in the performance of the work at the worksite. This absence of quality originates in:

- A rushed work schedule, often affecting the quality of the deliverables (plans, specifications, work).
- Field review / supervision which are absent, inadequate or not adapted to the progression of the work.
- A lack of rigour and professionalism on the part of the contractors under the pretext that the work will be subject to a field review and inspection.

### General recommendations

- Improve control procedures and monitoring at the worksite.
- Where required, use a selection process (consultants and contractors) based on pre-qualification.
- Make use of "large-scale" samples (mock-ups) in order to define and reach an agreement on the criteria for the minimal acceptable level of quality.

# RECOMMENDATIONS



## For the general contractor:

- 1- Implement progressive methods of control, and act diligently and in a professional manner.
- 2- In conjunction with the other participants, establish control points to ensure that the specified level of performance has been met.
- 3- Develop a scoring system for the quality of the work performed by the specialized contractors to permit the identification of those who require monitoring.
- 4- Require that the consultants prepare a report of each site visit.

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## For the specialized contractor:

- 1- Implement progressive methods of control, act proactively and be self-disciplined and self-critical.
- 2 - In conjunction with the other participants, establish control points to ensure that the specified level of performance has been met.
- 3- Require that the consultants prepare a report of each site visit.

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## For the consultants:

- 1- During site visits, be proactive in keeping the contractors informed concerning irregularities and corrective work that is required.
- 2- Be sure to record these irregularities in the report prepared for each site visit.
- 3- Establish precise control points for each speciality.
- 4- Advise the work provider concerning the level of field review that is required.
- 5- During the course of his field review and inspection activities, act professionally, fairly, and with "common sense", in accordance with the context of the performance.

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## For the work provider:

- 1 - Allow yourself and others sufficient time to perform properly.
  - 2 - Require that the consultants issue, on a regular and continual basis, reports of their site visits and inspections.
  - 3- Allot budgets for field reviews that are sufficient to achieve the desired level of quality.
  - 4- Agree precisely and in detail on the level of field review and inspection that is required of the consultants, and ensure that this level of service is being provided.
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# III- PERFORMANCE AND DELIVERY

## 6. Deficiency lists and corrections

### Context

The process for the correction of deficiencies should begin when the work begins and it should not delay the delivery of the project to the work provider.

### Problem definition

Too often, the identification and correction of deficiencies is left to the end, the corrective work is improperly executed, and the delivery to the work provider may be delayed, leading to legal problems and delays in payment.

There are many possible reasons for delays in the payout of the holdback:

- Failure or negligence in identifying and correcting deficiencies as a result of contracts that lack precision or are not followed.
- Negligence on the part of the contractors in identifying and correcting deficiencies.
- Poor planning and lack of experience on the part of the participants.
- Failure to understand that there is a link between the quality of the work performed by the contractor and the willingness of the work provider to pay for it.
- Absence of communication among the various participants.
- Failure to respect the tasks or the process involved in the identification and correction of deficiencies:
  - o Failure to respect or ignorance of the technical and administrative requirements of the contract.
  - o Failure to request an inspection or delays in requesting an inspection.
  - o Delays in performing the inspection.
  - o Delays in issuing deficiency lists.
  - o Deficiency lists that are incomplete, imprecise or submitted to more than one participant for each specialty
  - o Lists including deficiencies that are poorly defined or items that are not deficiencies or that are questionable
  - o Deficiency lists submitted sequentially.
  - o Failure on the part of contractors to meet their end-of contract obligations by assuming responsibility and acting proactively with respect to deficiencies.
  - o Delays in the correction of deficiencies and in the approval of the corrections.
  - o Numerous visits to perform corrections requires that numerous inspection visits be made.
  - o Lack of accountability and follow-up by the party responsible for correcting deficiencies.
- Process based on the performance of the slowest participant, preventing those who perform more proficiently from being discharged.
- It often takes too long to have the work approved.
- Subcontractors whose work is free of deficiencies are penalized.

### General recommendations

- Improve the project delivery process
- In the bid documents and, thereafter, in the contract documents, include a guide that clearly describes each of the tasks in the procedure for identifying and correcting deficiencies:
  - o The role and responsibility of each of the participants.
  - o The allowed time limit or the deadline for completion.
  - o The required documents and forms.
  - o The consequences associated with the failure to follow the procedures and to respect the time limits prescribed for each of the tasks.
- Insofar as the technical and administrative requirements of the contract are concerned, the procedure must be clear and simple.
- The procedure and its total duration must be adapted to the duration and scope of the project
- All of the participants must act in a diligent, proactive and cooperative manner.
- The procedure must enable the work to be completed, the project to be accepted, and the holdback to be released.
- A procedure should be established to permit the release of the holdback in exchange for an additional guarantee (e.g. maintenance bond, specific holdback by the specialized contractor for each deficiency, etc.).

# RECOMMENDATIONS



## For the general contractor:

- 1- Read the bid documents and the contract, especially the sections dealing with the procedure for identifying and correcting deficiencies.
- 2- Master the procedure prescribed in the contract for identifying and correcting deficiencies and respects the tasks and conditions concerning him and the specialized contractors.
- 3- Correct the deficiencies or have them corrected, as they arise, from the beginning of the project; append the lists of deficiencies to be corrected to the minutes of the site meetings.
- 4- Perform your own inspection of the work proactively and then undertake the required corrections.
- 5- Be prompt in requesting the performance of the inspections by the consultants once he has received a similar request to do so from the specialized contractors.
- 6- Provide proactive follow-up with respect to the time limit for the issuing of the deficiency lists.
- 7- Upon receipt of the deficiency lists, separate them by specialty and distribute them to the appropriate contractors, taking care to indicate the time limits that apply to the corrective work.
- 8- Be diligent in sharing differences of opinion arising with respect to the deficiency lists issued by the consultants.
- 9- Correct the deficiencies or have them corrected in a diligent manner, within the specified time limits.
- 10- In order to limit the number of inspection visits and to make the participants accountable, require written confirmation from the specialized contractors that their deficiencies have been corrected.
- 11- After giving notice to the specialized contractors who are behind schedule, proceed with the correction of the deficiencies.
- 12- When the time limits related to the deficiencies have not been respected, invoice those responsible for any resulting financial consequences (penalties, interest charges).

## For the specialized contractor:

- 1- Read the bid documents and the contract, especially the sections dealing with the procedure for identifying and correcting deficiencies.
- 2- Correct the deficiencies, as they arise, from the beginning of the project and complete the work before vacating the site.
- 3- Master the procedure prescribed in the contract for identifying and correcting deficiencies in the work and for the subsequent payment for this work.
- 4- Perform his own inspection proactively and undertake the required corrections.
- 5- Require that the inspections by the consultants be performed promptly.
- 6- Be proactive in monitoring the time limit applicable to issuing the deficiency lists.
- 7- Be diligent in sharing differences of opinion arising with respect to the deficiency lists that are received.
- 8- Correct the deficiencies in a diligent manner, within the specified time limits.
- 9- Inspect and provide written confirmation that correction of the deficiencies has been completed.
- 10- When the time limits related to the deficiencies have not been respected, invoice those responsible for any resulting financial consequences (penalties, interest charges).
- 11- Be prepared to be invoiced when responsible for delays resulting from deficiencies.

## For the consultants:

- 1- Before certain specialties have started their work, arrange a start-up meeting with the contractors in question to address the issues of work quality and deficiency prevention.
- 2- Perform the inspections diligently and within the prescribed time limits.
- 3- Issue the deficiency lists in a diligent, clear and precise manner, on a single occasion and within the prescribed time limits, making sure to reconcile the comments received from all of the participants in the work provider's project.
- 4- Issue the certificate of final completion.

## For the work provider:

- 1- On a single occasion, together with the consultants and the contractors, participate in the identification of the deficiencies and in the preparation of the deficiency lists.
- 2- Be prepared to be invoiced for any failure to respect the time limits that are prescribed in the contract for making payments.

# III- PERFORMANCE AND DELIVERY

## 7. Delivery of the work/Completion of the contract/ Payout of the holdbacks

### Context

Payout of the holdbacks is a key step in the completion of the project and in the harmonious transfer of the project to the work provider.

### Problem definition

The phase of the project concerning the acceptance of the work involves many legal hurdles and, consequently, all of the participants wish to protect themselves legally and to retain sufficient funds to cover any claims for breach of contract. Lateness in the release of the holdback has the same impact on businesses as does lateness in the issuing of a progress payment. Lateness in paying out the holdback may extend to several months. The delays in payment are often disproportionate to the delays that occurred in performing the work. Long delays in payment have significant consequences for the businesses that are subjected to them. This has created such a widespread problem that certain contractors attempt to have their work accepted as being more complete than it actually is so that they can finance the anticipated delay in the release of the holdback.

There may be several causes for delays in the release of the holdback:

- Contractual requirements that are imprecise or not adapted to the scope and duration of the project, a process that is slow and time-consuming
  - o The absence of a list of mutual obligations and corresponding performance time limits.
  - o Submittal of required technical documentation that is imprecise and generic.
  - o Submittal of required administrative documentation that is imprecise and generic.
- Lack of communication among the participants.
- Failure to conform to the tasks in the procedure for identifying and correcting deficiencies:
  - o Failure to respect or ignorance of the technical and administrative requirements of the contract.
  - o A failure to request or a delay in requesting an inspection.
  - o Delays in performing inspections and in issuing deficiency lists by specialty.
  - o Failure on the part of contractors to accept responsibility or to behave proactively with respect to the end-of-project obligations (documentation, inspections, deficiencies).
- Process dependent on the performance of the slowest participant without providing for the more-rapid release for those who perform more proficiently.
- It often takes too long to have the work approved.

### General recommendations

- In the bid documents and, thereafter, in the contract documents, include a guide clearly describing each of the tasks of the procedure for identifying and correcting deficiencies:
  - o The role and responsibility of each of the participants.
  - o The allowed time limit or the deadline for completion.
  - o The required documents and forms.
  - o The consequences associated with the failure to follow the procedure and to respect the time limits prescribed for each of the tasks.
- Insofar as the technical and administrative requirements of the contract are concerned, the process must be clear and simple, and the total duration must be adapted to the duration and scope of the project.
- All of the participants must act in a diligent, proactive and cooperative manner: the contractors must ensure, in advance, that the documents they will be submitting (bonds, drawings, etc.) conform to the requirements (see Appendix 3, task 1A).
- The process must enable the work to be completed, the project to be accepted, and the holdback to be released.
- A procedure should be established to permit the release of the holdback in exchange for an additional guarantee (e.g. maintenance bond, specific hold back for each specialized contractor, for each deficiency, etc.).



# RECOMMENDATIONS



## For the general contractor:

- 1- Read the bid documents and the contract, especially the sections dealing with the procedure for the acceptance of the work and, in turn, the payout of the holdback.
- 2- At the time of the bidding, ask for the guide to the procedure for the acceptance of the work and, in turn, the payout of the holdback.
- 3- Master the procedure prescribed in the contract for the acceptance of the work and payout of the holdback, and respect the tasks and conditions that concern him and the specialized contractors.
- 4- Request, at the appropriate time, the lists of technical and administrative documents that need to be submitted.
- 5- Distribute to the specialized contractors the lists of the technical and administrative documents that need to be submitted.
- 6- Be diligent in meeting his end-of-contract obligations (documentation, inspections, deficiencies).
- 7- Provide the technical and administrative documentation on time and in the required format.
- 8- Submit a request to the consultant to issue the certificate of final completion.
- 9- Invoice those responsible for the financial consequences (penalties, interest charges) of failing to respect the tasks in the contract concerning the acceptance of the work.
- 10- Expect to be invoiced for failing to respect the tasks in the procedure prescribed in the contract for the acceptance of the work for which he is responsible.

## For the specialized contractor:

- 1- Read the bid documents and the contract, especially the sections dealing with the procedure for the acceptance of the work and, in turn, the payout of the holdback.
- 2- At the time of the bidding process, ask for the guide to the procedure for the acceptance of the work and the payout of the holdback.
- 3- Master the procedure prescribed in the contract for acceptance of the work and subsequent payout of the holdback, and respect the tasks and conditions which concern him.
- 4- Require, at the appropriate time, the lists of technical and administrative documents that need to be submitted.
- 5- Be proactive in meeting his end-of-contract obligations (documentation, inspections, deficiencies).
- 6- Provide the technical and administrative documents on time and in the required format.
- 7- Invoice those responsible for the financial consequences (penalties, interest charges) of failing to respect the tasks prescribed in the contract concerning the acceptance of the work.
- 8- Expect to be invoiced for failing to respect the tasks in the procedure prescribed in the contract for the acceptance of the work for which he is responsible.

## For the consultants:

- 1- Ensure that the guide to the tasks in the procedure for the acceptance of the work and the subsequent payout of the holdback as described in the general recommendations is prepared.
- 2- Ensure that the bid documents and, thereafter, the contract documents include the guide to the tasks in the procedure for acceptance of the work and payout of the holdback.
- 3- Master the procedure for acceptance of the work and subsequent payout of the holdback, and respect the tasks and conditions that concern him.
- 4- Distribute on time (if possible, at the bidding phase), in a clear, precise and non-generic manner, the required lists of technical and administrative documents.
- 5- Be diligent in approving, within the prescribed time limits, the technical and administrative documents which have been submitted.
- 6- Issue the certificate of final completion.
- 7- Invoice those responsible for the financial consequences (penalties, interest charges) of failing to respect the time limits specified in the contract for the acceptance of the work.
- 8- Expect to be invoiced for failing to respect the tasks in the procedure prescribed in the contract for the acceptance of the work for which he is responsible.

## For the work provider:

- 1- Participate in the preparation of the guide to the tasks in the procedure for the acceptance of the work and the subsequent payout of the holdback as described in the general recommendations.
- 2- Ensure that the time limits and the details of the procedure for the acceptance of the work and the payout of the holdback conform to the limitations, time limits and obligations that are tied to the financing and to the creditors of the project.
- 3- Ensure that the bid documents and, thereafter, the contract documents include the guide to the tasks in the procedure for acceptance of the work and payout of the holdback.
- 4- Agree to a process for the progressive release of the holdback (by the specialized contractor).
- 5- Ensure that the provisions of the contract make reference to precise requirements, particularly concerning the technical and administrative documentation that is required.
- 6- Agree to a process for the release of the holdback in exchange for an additional guarantee (e.g. a maintenance bond).
- 7- Assume the role of the principal person responsible for the overall procedure prescribed in the contract for the acceptance of the work and the payout of the holdback in order to be in a position to make the payments within the time limits specified in the contract.
- 8- Expect to be invoiced for failing to respect the time limits for making payments that are prescribed in the contract.

# III- PERFORMANCE AND DELIVERY

## 8. Communications

### Context

Constant communication among the participants is the key to good relations, effective progress and a successful project.

Several factors have multiplied the communications, both verbal and written, among the various participants in a construction project: the increased complexity of projects, the nature and legal framework, the increased number of participants and the rapid pace of construction.

### Problem definition

A good many problems and conflicts could have been avoided if the affected persons had made an effort to speak to and understand each other.

The ease with which it is possible to communicate by e-mail and to transmit electronic files has reduced the verbal communication and the meetings which promoted better understanding. The use of e-mail does not guarantee that the message will be understood in the desired manner.

On the contrary, where there are situations involving problems and conflicts, there is often a reduction in verbal communication and an increase in **written** communication, which results in a certain entrenchment of positions. Projects involving many changes are one possible result.

To the detriment of the common good, projects are often controlled by those who shout the loudest or adopt uncompromising positions.

### General recommendations

From the very beginning of a project, agree on the channels of communication and the reporting relationships, and obtain the coordinates of the participants.

Whatever the situation, always communicate in a polite and respectful manner.

Avoid getting "personal" about any matter.

Where there are problems or conflicts, increase the number of meetings, act in an open manner and try to put yourself in the shoes of the other person.

Focus on settlements and compromises rather than on conflicts.

### Comments

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There are different ways in which communication can have an important impact on a project:

- The involvement of the general contractor during the design phase
- Improved communication concerning the work which is to be performed each day (start-up meeting)
- Discussions about problems among consultants, general contractors, specialized contractors.

Several Canadian studies demonstrate the benefits to be derived from a better understanding (based on better communication) of the work which is to be performed and the objectives which have been defined.

On this subject consult: T. Slootman, PLANNING OF MEGA-PROJECTS -Influence of Execution Planning on Project Performance, University of Twente, January 2007

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# RECOMMENDATIONS



## For the general contractor:

- 1- Institute mandatory site meetings with the specialized contractors so that all aspects (contractual, administrative, technical, scheduling, safety) of the project can be discussed.
- 2- Create an atmosphere of openness, collaboration and transparency.
- 3- Be diligent in notifying, informing and transmitting to the specialized contractors the information that they have requested.
- 4- To respect the reporting and contractual relationships, be willing to allow direct communications to take place between the consultants and the specialized contractors. It is all the more important to do so in a situation involving a conflict.

## For the specialized contractor:

- 1- Attend and actively participate in the mandatory site meetings, and assign a dependable, well-informed person to them who is authorized to make decisions.

## For the consultants:

- 1- To respect the reporting and contractual relationships, be willing to communicate with all of the participants. It is all the more important to do so in a situation involving a conflict.

## For the work provider:

- 1 - Require that regular and mandatory coordination and site meetings take place.
- 2 - Require that you be provided with the minutes of these meetings. Be present and active in every phase of the project.
- 3- In situations involving problems and conflicts, in order to avoid or break a deadlock, require that meetings be arranged, act in an open manner and try to put yourself in the other person's shoes.
- 4- Require that all of the participants behave in a consultative manner.



# CONCLUSION

Starting right now, all of the participants in the construction industry, whether contractors, work providers, consultants or others, can put the recommendations presented in this document into practice. Some of them will offer immediate benefits, such as:

- Improved planning.
- Increased productivity.
- Reduction of risks.
- More harmonious relations.
- Greater profitability.

Each of us can also share the pertinent recommendations with people we work with or come into contact with when appropriate, and offer our cooperation in this sense. This will increase the impact of the recommendations and further improve our relations.

New methods of working and project delivery are now available to us; project modelling with BIM platforms, integrated project delivery, and even design-build and PPP will help us to be more effective and productive. Introducing more harmonious relations and improved project management to our projects will now facilitate our work in the future.

The task force also invites every participant, person and legal entity:

- To join with it in developing this guide to good practices.
- To make others aware of this guide at business and professional meetings and encounters.
- To provide criticism and comments concerning its work and the contents of this guide.

For this purpose, you can communicate with Nicole Bourque, the Executive Vice President of ACQ-Québec City, by telephone at (418) 687-4121, by fax at (418) 687-3026, or by e-mail at [bourquen@acq.org](mailto:bourquen@acq.org), or directly with any one of the members of the task force.




# APPENDIX 1 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the payment procedure

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Task #	Description of the task	Person responsible for the task	Maximum time limit or latest date for performing the task	Input (documentation required to perform the task)
1	Provide the general contractor with the reference breakdown of the stipulated price of his subcontract.	Each specialized contractor	Within five <b>(5) working days</b> following obtention of the subcontract.	Obtaining/issuing of a subcontract.
2	Provide the architect and the other consultants with the reference breakdown of the stipulated price of the general contractor's contract.	General contractor	Fifteen <b>(15) working days</b> prior to making the first application for payment.	Reference breakdown of the stipulated prices of the subcontracts of his specialized contractors.
3	Approve, make comments and return the reference breakdown of the stipulated price of the general contractor's contract to the general contractor.	Consultants	Five <b>(5) working days</b> following the receipt of this reference breakdown.	Reference breakdown of the stipulated price of the general contractor's contract.
4	Provide the specialized contractors with the approved reference breakdown of the stipulated price of their subcontract.	General contractor	Three <b>(3) working days</b> following the receipt of the comments of the consultants.	Written approval and comments from the consultants concerning the reference breakdown of the stipulated price of the general contractor's contract.
5	For his subcontract and in accordance with the approved reference breakdown, provide the general contractor with the percentage of completion of the work which is requested for work performed to the end of the current month.	Each specialized contractor	<b>On the 20th day of each month.</b>	For the first application, the written approval and comments concerning the reference breakdown of the stipulated price of the subcontract of the specialized contractor. For the second and subsequent applications, the percentages of completion approved at the time of the previous application for payment.
6	In accordance with the approved reference breakdown, supply the architect and the other consultants with the percentage of completion of the work which is requested for work performed to the end of the current month.	General contractor	<b>On the 25th day of each month.</b>	For the first request, the written approval and comments concerning the reference breakdown of the stipulated price of the general contractor's contract. For the second and subsequent requests, the percentages of completion approved at the time of the previous application for payment.
7	Visit the worksite in order to approve, provide comments and return the application for payment for work performed to the end of the current month, to the general contractor.	Consultants	Five <b>(5) working days</b> following receipt of the application for payment.	Breakdown of the stipulated price of the general contractor's contract with the percentages of completion which are being requested for work performed to the end of the current month.
8	Provide the specialized contractors with the percentage of completion approved by the consultant for each subcontract.	General contractor	Three <b>(3) working days</b> following receipt of the approval and comments of the consultants.	Written approval and comments from the consultants concerning the percentage of completion of the general contractor's contract.

# APPENDIX 1 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the payment procedure

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Output (documentation required by the end of the task)	Consequences of the failure to perform the task	Comments
Reference breakdown of the stipulated price of the subcontract in the manner prescribed by the work provider or the general contractor.	For each specialty, the subcontractor will be obliged to use the reference breakdown prepared by the general contractor.	Submitting a balanced and detailed breakdown on time will reduce the need of discussions and will facilitate monthly payments at the agreed time.
Reference breakdown of the stipulated price of the general contractor's contract in the manner prescribed by the work provider.	The processing of the first application for payment will be delayed.	Submitting a balanced and detailed breakdown on time will reduce the need for discussions and will facilitate monthly payments at the agreed time.
Written approval and comments concerning the reference breakdown of the stipulated price of the general contractor's contract.	Accept responsibility for paying interest charges if the first payment is not made on time by the work provider.	If the breakdown is not approved as submitted and if the general contractor and the subcontractors cannot agree on the modifications, meet with the contractors so that an agreement can be reached as to which reference breakdown will be used.
Written approval and comments concerning the reference breakdown of the stipulated price of the specialized contractor's subcontract.	Assume responsibility for paying interest charges if the first payment is not made on time by the work provider.	If the breakdown is not approved as submitted and if the specialized contractors cannot agree on the modifications, arrange meetings between the specialized contractors and the consultants so that an agreement can be reached as to which reference breakdown will be used.
Reference breakdown of the stipulated price of the subcontract with the requested percentages of completion for work performed to the end of the current month.	Be obliged to agree to being paid according to the percentages proposed by the general contractor or be obliged to wait until the following month.	<b>For this task, it is not a question of applying for payment but rather of submitting the percentages upon which the invoicing will be based following approval.</b>
Breakdown of the stipulated price of the contract with the requested percentages of completion for work performed to the end of the current month.	Be obliged to accept late payment by the work provider and to pay interest charges on the late payments made to the subcontractors.	<b>For this task, it is not a question of applying for payment but rather of submitting the percentages upon which the invoicing will be based following approval.</b>
Written approval and comments concerning the breakdown of the stipulated price of the contract with the percentages of completion for work performed to the end of the current month.	Assume responsibility for paying interest charges if the first payment is not made on time by the work provider.	If the progress payment is not approved as submitted and if the general contractor and the specialized contractors cannot agree on the modifications, meet with the contractors so that an agreement can be reached concerning the percentages of completion to be used for invoicing.
Written approval and comments concerning the percentages of completion for each of the subcontracts.	Assume responsibility for paying interest charges if the first payment is not made on time by the work provider and for paying interest charges on the first payment to the subcontractors if it is late.	

# APPENDIX 111 STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the payment procedure

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Task#	Description of the task	Person responsible for the task	Maximum time limit or latest date for performing the task	Input (documentation required to perform the task)
<b>9</b>	For each subcontract, produce and transmit to the general contractor an invoice calculated in accordance with the approved percentage of completion of the work performed during the past month.	Each specialized contractor.	Three (3) <b>working days</b> following receipt of the approval of the application for payment.	Approval and written comments from the general contractor concerning the percentage of completion of his subcontract.
<b>10</b>	Prepare and transmit to the designated consultant or to the work provider his invoice calculated in accordance with the approved percentage of completion of the work performed during the past month.	General contractor.	Three (3) <b>working days</b> following the receipt of the approval of the application for payment.	Approval and written comments from the consultants concerning the percentage of completion of the contract.
<b>11</b>	Prepare and return to the general contractor and the work provider a certificate for payment attesting that the invoice accurately reflects the percentage of completion of the work	Consultants	Three (3) <b>working days</b> following receipt of the invoice	Monthly invoicing from the general contractor in the manner prescribed by the work provider and in accordance with the approved percentages and elements
<b>12</b>	Prepare, transmit and ensure receipt of the monthly payment by the general contractor.	Work provider.	Within the time limit defined in the contract between the work provider and the general contractor.	Certificate for payment by the consultants.
<b>13</b>	In return for payment, supply the documentation required by the contract (release, declaration, attestation, certificates of compliance, etc.)	General contractor.	At the time of payment by the work provider.	Payment by the work provider.
<b>14</b>	Prepare, transmit and ensure payment of the monthly payment by the specialized contractors.	General contractor.	Within the time limits defined in each of the subcontracts between the general contractor and a subcontractor. This time limit may be shorter or longer than the payment period which applies between the general contractor and the work provider.	Where there is a "pay when paid" clause, payment by the work provider. Otherwise, in accordance with the provisions in each of the contracts between the general contractor and a specialized contractor.
<b>15</b>	In return for payment, supply the documentation required by the contract (release, declaration, attestation, certificates of compliance, etc.)	Each specialized contractor.	At the time of payment by the general contractor.	Payment by the general contractor.

# APPENDIX 111 STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the payment procedure

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Output (documentation required by the end of the task)	Consequences of the failure to perform the task	Comments
Monthly invoicing in the manner determined by the general contractor in accordance with the approved percentages and elements.	Be obliged to accept late payment or be obliged to wait until the following month.	<b>Invoices often contain mistakes with respect to the name of the general contractor, the title of the project, the period covered, the cumulative percentages of the previous invoicing periods and that of the invoice for the current period, the holdback, the elements which are subject to invoicing, and taxes.</b>
Monthly invoicing in the manner determined by the work provider in accordance with the approved percentages and elements.	Be obliged to accept late payment from the work provider and be obliged to pay interest charges on any late payments made to subcontractors.	<b>Invoices often contain mistakes with respect to the name of the entity to be invoiced (work provider), the title of project, the period covered, the preceding cumulative percentages, the time limit, the elements which are subject to invoicing, and taxes.</b>
Certificate for payment.	Be obliged to pay interest charges if the payment is not made on time by the work provider.	
Payment to the general contractor.	Be obliged to pay interest charges if the payment is not made within the time limit specified in the contract.	<b>The time limit between the end of task 7 and the end of task 12 must not exceed 30 calendar days, regardless of the time of year (summer and winter construction holidays). The work provider is responsible for ensuring that the time limits for tasks 3, 7, 11 and 12 are respected by the affected parties.</b>
The documentation required by the contract (release, declaration, attestation, certificates of compliance, etc.)	Be obliged to accept late payment from the work provider and to pay interest charges on any late payments made to subcontractors.	<b>The documentation required by the contract is often incomplete or it contains mistakes with respect to the name of the entities, the title of the project, the time limits and the amounts.</b>
Payment to the specialized contractor.	Be obliged to pay interest charges if the payment is not made within the time limits specified in the contract.	<b>The time limit between the end of task 7 and the end of task 14 must not exceed 35 calendar days, regardless of the time of year (summer and winter construction holidays). The general contractor is responsible for ensuring that the time limits for tasks 2, 4, 6, 8, 10, 13 and 14 are respected by the affected parties.</b>
The documentation required by the contract (release, declaration, attestation, certificates of compliance, etc.)	Be obliged to accept late payment from the general contractor.	<b>The documentation required by the contract is often incomplete or it contains mistakes with respect to the name of the entities, the title of the project, the time limit and the amounts.</b>



# APPENDIX 2 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the procedure for the approval and payment of changes

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Task #	Description of the task	Person responsible for the task	Maximum time limit or latest date for performing the task	Input (documentation required to perform the task)
1	Request authorization from the work provider for the official issuing of each of the changes.	Consultants.	Within three <b>(3) working days</b> of learning of the required change.	Needs arising from a design change, unforeseen events related to the design, site conditions, unforeseen events related to the worksite conditions, changes in the program, errors and omissions and others.
2	Analyze, provide comments, authorize or refuse the request to issue a change, and ensure the availability of financial resources for the proposed change.	Work provider.	Within three <b>(3) working days</b> of the receipt of the request to issue a change.	Request for the issuing of a change. Draft version of the change, accompanied by a time limit for issuing of the change once it has been approved by the work provider and by evaluations of the financial impact on the cost of the work and of the impact on the work schedule.
3	Official issuing of the change to the general contractor.	Consultants.	Varies according to the nature and scope of the change. All within the time limit communicated to the work provider at the time that the request to issue the change was made.	Written confirmation authorizing the issuing of a change. Approved as submitted or with comments and modifications.
4	Distribution, to the specialized contractors, of the request for a change.	General contractor.	Two <b>(2) working days</b> following the receipt of the request for a change.	Official request for a change together with the plans, details, sketches, schematics and technical specifications which are needed and required.
5	Analysis and response, from the specialized contractors, to the request for a change.	Each specialized contractor.	Within the time limit indicated by the general contractor at the time of the transfer of the request for a change.	Receipt, from the general contractor, of the request for a change.
6	Analysis and response, from the general contractor, to the request for a change.	General contractor.	Within the time limit indicated by the consultant at the time of the issuing of the request for a change	Response, from the specialized contractors, to the request for a change.
7	Analysis of the response, from the general contractor, to the request for a change, negotiations and meetings when required, and recommendation made to the work provider.	Consultants.	Equal or, preferably, shorter time limit allocated to the general contractor for responding to the request for a change.	Response, from the general contractor, to the request for a change.



# APPENDIX 2 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the procedure for the approval and payment of changes

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Output (documentation required by the end of the task)	Consequences of the failure to perform the task	Comments
Request for the issuing of a change. Draft version of the change, accompanied by a time limit for issuing the change once it has been approved by the work provider and by evaluations of the financial impact on the cost of the work and of the impact on the work schedule.	Accept responsibility for delays and for their impact on the work.	The consultant requesting the issuing of the change must determine the impact (cost, schedule) of the change on the other consultants' disciplines.
Written confirmation authorizing the issuing of a change. Approval as submitted or with comments and modifications. Ruling as to whether the request for a change is executory or not.	Accept responsibility for delays and for their impact on the work.	
Official request for a change together with the plans, details, sketches, schematics and technical specifications that are needed and required. Indication as to whether the request for a change is executory or not.	Accept responsibility for delays and for their impact on the work.	According to the nature of the change, the request for a change should indicate a reasonable time limit for communicating the impacts of the change in question and the information that the general contractor and the affected specialized contractors are required to submit. When the request for a change is not executory, ask that separate costs be provided for the estimate and for the overhead and profit for the request for a change in case it needs to be modified later or perhaps is simply not executed.
Official transmittal form/transmitted to each of the specialized contractors affected by the request for a change.	Accept the short time limit and the impacts on the work of the specialized contractors.	According to the nature of the change, the transfer should indicate for each one, a reasonable time limit for the communication of the impacts of the change in question and the information which each one of the affected specialized contractors is required to submit. Upon receipt of the request for a change, the general contractor must notify the consultant if he is in disagreement concerning the time limits which are required in order to minimize the impacts and concerning the details to be submitted.
Response to the request for a change by transmitting, in the manner prescribed in the request for a change, the impact on the costs and on the schedule.	Be obliged to accept to be paid the amount which was calculated by the general contractor.	Upon receipt of the request for a change, the specialized contractor must inform the general contractor if he is in disagreement concerning the time limits required for submitting the impacts and concerning the details to be submitted.
Response to the request for a change by transmitting, in the manner prescribed in the request for a change, the impact on the costs and on the schedule.	Be obliged to accept delays in the processing of the request for a change or be obliged to accept the impacts.	
Recommendation to the work provider.	Be obliged to accept delays in the processing of the request for a change and the impacts on the work.	When the impacts are not approved as submitted and when the general contractor or the specialized contractors do not agree with the analyses made by the consultant, meet with the contractors and try to come to an agreement. All differences of opinion between the consultant and the contractors shall be discussed or at least addressed by the parties before a recommendation is issued.

# APPENDIX 211 STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the procedure for the approval and payment of changes

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Task#	Description of the task	Person responsible for the task	Maximum time limit or latest date for performing the task	Input (documentation required to perform the task)
<b>8A</b>	Change order: When the request for a change is <b>not executory</b> .	Work provider / consultants.	Three (3) <b>working days</b> following receipt of the recommendation.	Recommendation to the work provider.
<b>88</b>	Change order : when the request for a change is <b>executory</b> .	Work provider /consultants.	Three (3) <b>working days</b> following receipt of the recommendation.	Recommendation to the work provider.
<b>9</b>	Approval or refusal of a change order issued by the work provider.	General contractor.	Three (3) <b>working days</b> following receipt of the change order from the work provider.	Change order issued by the work provider to the general contractor.
<b>10</b>	Issuing of the change orders to the specialized contractors.	General contractor.	Five (5) <b>working days</b> following receipt of the change order from the work provider.	Approval of the change order issued to the general contractor by the work provider.
<b>11</b>	Approval or refusal of a change order issued by the general contractor.	Each specialized contractor.	Two (2) <b>working days</b> following receipt of the change order from the general contractor.	Issuing of change orders to the specialized contractors.
<b>12</b>	Invoicing for the changes.	Each contractor.	Only approved changes, whether they are executory or not, are subject to monthly invoicing and payment in the same manner as the basic work.	

### NOTES:

This guide intentionally excludes a discussion of the parameters that may facilitate or accelerate the settlement of changes, namely the defining of hourly rates, unit costs, a detailed breakdown of the base contract prices, reimbursable expenses, etc. Ideally, these parameters should be defined in the bid documents and contract documents and **should not have to be negotiated** during the performance of the work and the settlement process for changes.

Since this guide is intended to accelerate the procedure for the processing and payment of changes, it intentionally omits a discussion of the process for resolving disputes arising from the changes, since the dispute-resolution process may vary (arbitration, mediation, legal, ...) and provisions governing it should be incorporated into the contract documents.

When there is a request to authorize the issuing of a change, the work provider will determine who is **responsible for evaluating and estimating** the impacts of the change on the costs and schedule (i.e. the consultant who issued the request or to a third party).

Following a request for a change, the work provider will determine who is responsible for analyzing, negotiating and recommending a response to the general contractor (i.e. the consultant who issued it, a third party or the work provider himself). This responsibility must be entrusted to a single entity; there must not be a two-level process in which the higher level may refuse the recommendation made by the lower level.

# APPENDIX 2 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks in the procedure for the approval and payment of changes

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and an aide-memoire, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Output (documentation required by the end of the task)	Consequences of the failure to perform the task	Comments
Ruling on the recommendation: Approved as is and proceed with the work; refused and do not proceed with the work; modify the request and recommence the procedure with a new request for a change. If the recommendation is approved, distribute a change order to the general contractor's contract.	Be obliged to accept the impact of any delays in starting the work which is covered by the change order.	In the event of a refusal or a modification, distribute a change order to cover the costs of the estimate, the overhead and the profit for a change order which will not be executed or which must be modified.
Issuing of a change order to the general contractor by the work provider.	Be obliged to pay interest charges if the invoicing is not performed within the time limit specified in the contract.	
Returning of the signed change order to the work provider when it has been approved as is. Returning of the change order with comments in the event of a refusal or of conditional approval.	Loss of right to contest or to impose conditions.	
Issuing of change orders to the specialized contractors.	<u>Non-executory</u> : Accept responsibility for the time limits at the beginning of the execution of the work of the specialized contractors which is covered by the change order. <u>Executory</u> : Accept responsibility for the interest charges if the invoicing is not performed within the time limits specified in the contracts.	
Returning of the signed change order to the specialized contractor if it has been approved as is. Returning of the change order with comments in the event of a refusal or a conditional approval.	Loss of right to contest or to impose conditions.	

### NOTES:

**Executory directive:** A directive involving work that cannot be postponed because of the need to respect the schedule or because of the impact that postponement would have on the direct or indirect costs. The executory nature of the work **necessarily implies the eventual issuing of a change order** to the contracts of the contractors. **The approval procedure for the change must allow invoicing no later than the month following the performance or it must allow partial invoicing of the work in anticipation of the conclusion of a final settlement concerning the change during the month following the execution.**

**Non-executory directive:** A directive involving work that, if postponed, will not have a detrimental impact on the schedule or on the direct or indirect costs. The non-executory nature of the work **necessarily also implies the eventual issuing of a change order** to the contracts of the contractors. **The approval procedure allows invoicing of the work during the same month as the execution of the work or invoicing of the costs of the estimate, the overhead and the profit during the same month when the work provider decides not to proceed with the work or to modify the request for a change or at the expiry of the time limit that applies to providing a recommendation and making a decision.**

# APPENDIX 3 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks for the release and payout of the holdbacks

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Task #	Description of the task	Person responsible for the task	Maximum time limit or latest date for performing the task	Input (documentation required to perform the task)
1A	Schedule / list of the technical documentation to be supplied during and at the end of the project.	Consultants.	Together with the technical bid documents	The plans and specifications for the project.
1B	Schedule/list of the administrative documentation to be supplied during and at the end of the project.	Work provider or consultant in charge of the administration of the general contractor's	Together with the general bid documents.	General or specific conditions of the bid call.
1C	Elements required prior to provisional acceptance/substantial acceptance/conditional acceptance.	Work provider or consultant in charge of the administration of the general contractor's contract.	Together with the general bid documents.	General or specific conditions of the bid call.
2	Incorporation into his contracts with the specialized contractors of the schedules / lists of the technical and administrative documentation to be supplied during and at the end of the work, as well as the elements which are prerequisite to provisional acceptance / substantial acceptance / conditional acceptance.	General contractor.	During the awarding of the subcontracts.	Schedules / lists of the technical and administrative documentation to be supplied during and at the end of the work and included in the bid documents. Elements required as a prerequisite to provisional acceptance / substantial acceptance / conditional acceptance.
3	Monitoring of the tasks and time limits for submitting the technical and administrative documentation.		At all times.	Schedules / lists of the technical and administrative documentation to be supplied during and at the end of the work and included in the bid documents.
4	Proactive monitoring of the quality of the execution of the work.		At all times.	Professionalism.
5	Request for the inspection of the work and for the issuing of the certificate of provisional acceptance / substantial acceptance / conditional acceptance for his subcontract.	Each specialized contractor.	When his contractual level of progress has been reached and when the prerequisite documentation has been supplied.	Inspection of his own work to verify the level of progress and the quality of his own work. Prerequisite documentation supplied.
6	Request for work inspection and to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	General contractor.	When the contractual level of progress has been reached and when the prerequisite documentation has been supplied.	Inspection of his own work to verify the level of progress and the quality of his own work. Prerequisite documentation supplied. Official written requests received from the specialized contractors.

# APPENDIX 3 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks for the release and payout of the holdbacks

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Output (documentation required by the end of the task)	Consequences of the failure to perform the task	Comments
<b>For each section of the specifications and construction specialty or trade</b> , indicate precisely, <b>in a manner adapted to the specific nature of the project (and not in a generic, general, broad or vague manner)</b> , the list of deliverables required for this project, their form, and the time during the execution of the work when they will be required.	Accept responsibility for the cost of requiring the supply of elements which were not clearly specified in the bid documents.	Technical documentation signifies: shop drawings, fabrication drawings, installation drawings, samples, technical data sheets, procedures, substitute materials, LEED documentation, as-built plans, operating and maintenance manuals and instructions, warranty, test results and reports, inspection reports, certification/certificate, training and proof of training, etc.
<b>For each construction specialty or trade</b> , indicate precisely, <b>in a manner adapted to the specific nature of the project (and not in a generic, general, broad or vague manner)</b> , the list of deliverables required for this project, their form, and the time during the execution of the work when they will be required.	Accept responsibility for the cost of requiring the supply of elements which were not clearly specified in the bid documents.	Administrative documentation signifies: license, permit, insurance, bonds, work schedule, work schedule update, release, resolution, statutory declaration, certificates of compliance.
Describe clearly the tasks, the degree of completion, the documentation to be submitted before the contractors request provisional acceptance / substantial acceptance / conditional acceptance.	Accept responsibility for the cost of requiring the supply of elements which were not clearly specified in the bid documents. Accept responsibility for paying the cost of numerous visits and inspections.	
Contract clauses governing this.	Accept responsibility for the cost of requiring the supply of elements which were not clearly specified in the contract documents. Accept responsibility for paying the cost of numerous visits and inspections.	
Technical and administrative documentation to be supplied during and at the end of the project.	Accept responsibility for delays and for the consequences of failing to respect the submittal tasks and dates.	
<u>Contractor</u> : undertake their own inspections of the work and perform the required corrective work as the project advances. Consultants: For each site visit, produce a written report containing their comments, observations and requests for corrective work.	<u>All</u> : Accept responsibility for paying the costs of numerous visits and inspections.	
Official written request to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance for his subcontract.	When obligations have not been met, expect to be invoiced for the time lost by third parties and for the additional inspections and visits that were required.	
Official written request to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance for his contract.	When obligations have not been met, expect to be invoiced for the time lost by third parties and for the additional inspections and visits which were required	



# APPENDIX 3 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks for the release and payout of the holdbacks

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Task #	Description of the task	Person responsible for the task	Maximum time limit or latest date for performing the task	Input (documentation required to perform the task)
<b>7</b>	Inspection of the work and issuing of the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Consultants.	Within five <b>(5) working days</b> following the request to issue, perform continuous inspection of the work and produce a report within (5) working days of the end of the inspection work.	Official written request from the general contractor to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.
<b>8A</b>	Distribution of the reasons for the refusal, when there is a refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	General contractor.	Two <b>(2) working days</b> following receipt of the reasons for the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Receipt of the reasons for the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance.
<b>8B</b>	Contestation, by the specialized contractors, of the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance.	Each affected specialized contractor.	Two <b>(2) working days</b> following receipt of the reasons for the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance of his work.	Receipt of the reasons for the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance for his work.
<b>8C</b>	Contestation, by the specialized contractors, of the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance.	General contractor.	Two <b>(2) working days</b> following receipt, from the specialized contractors, of their written contestation of the reasons for the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance of their work.	Receipt, from the specialized contractors, of their written contestation of the reasons for the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance of their work.
<b>8D</b>	Analysis of the contestation of the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Consultants.	Two <b>(2) working days</b> following receipt, from the general contractor, of the written contestation of the reasons for the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance for his work.	Receipt, from the general contractor, of his written contestation of the reasons for the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.
<b>8E</b>	No contestation of the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Contractors (general and specialized).	Expiry of the time limits for tasks 8A, 8B and 8C.	No contestation of the reasons for the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.
<b>9</b>	Distribution of the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	General contractor.	Two <b>(2) working days</b> following receipt of the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Receipt of the certificate of provisional acceptance / substantial acceptance / conditional acceptance.
<b>10A</b>	Contestation, by the specialized contractors, of the assignment of responsibility for the deficiencies and for the obligation to supply the missing documents indicated in the certificate of provisional acceptance / substantial acceptance / conditional acceptance	Each affected specialized contractor.	Two <b>(2) working days</b> following receipt of the certificate of provisional acceptance / substantial acceptance / conditional acceptance, of the appendices and of the assignment, by the general contractor, of responsibility for each deficiency and for each missing document to a specific contractor	Receipt of the certificate of provisional acceptance / substantial acceptance / conditional acceptance, of the appendices and of the assignment, by the general contractor, of responsibility for each deficiency and for each missing document to a specific contractor

# APPENDIX 3 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks for the release and payout of the holdbacks

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Output (documentation required by the end of the task)	Consequences of the failure to perform the task	Comments
When the level of progress has been reached and the prerequisite conditions have been met, prepare a certificate of provisional acceptance / substantial acceptance / conditional acceptance. When the level of progress has not been reached and the prerequisite conditions have not been met, indicate in writing the reasons for refusing to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Accept the consequences of failing to respect the time limits.	The certificate of provisional acceptance / substantial acceptance / conditional acceptance must include complete and detailed lists of the work which remains to be completed, the postponed work, the deficiencies to be corrected, for each discipline, the list of the end-of-project technical and administrative documents to be supplied, and the time limit allotted for completing the work, performing the postponed work, correcting the deficiencies and providing the missing documentation. The deficiency lists must originate from a single source, for each discipline, and be presented in the same sequence, for each discipline.
Distribute, to the affected specialized contractors, the reasons for the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance.	Accept responsibility for delays and for the resulting consequences.	
Contest, in writing, the reasons for refusing to grant provisional acceptance / substantial acceptance / conditional acceptance of his work.	Lose his right to contest and be obliged to pay for the costs of the additional visits and inspections.	If there is no contestation of the refusal to grant provisional acceptance / substantial acceptance / conditional acceptance, proceed directly to task 8E.
The general contractor may contest, in writing, the reasons for the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Lose his right to contest and be obliged to pay for the costs of the additional visits and inspections.	If there is no contestation of the refusal to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance, proceed directly to task 8E.
Organize meetings to permit discussions and negotiations so that an agreement can be reached as to whether or not to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	Be obliged to issue the certificate of provisional acceptance / substantial acceptance / conditional acceptance.	
Start again from task 5.	Pay for the costs of the additional visits and inspections.	
Distribute the certificate of provisional acceptance / substantial acceptance / conditional acceptance and its appendices to the affected specialized contractors, taking care to assign the corrective work for each deficiency and the supply of each missing document to a specific specialized contractor.	Accept the consequences of failing to respect the time limits.	
Contest, in writing, the apportioning and assignment, by the general contractor, of responsibility for each deficiency and for each missing document that concerns him.	Lose the right to contest and be obliged to correct the deficiencies and supply the missing documents.	

# APPENDIX 3 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks for the release and payout of the holdbacks

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Task #	Description of the task	Person responsible for the task	Maximum time limit or latest date for performing the task	Input (documentation required to perform the task)
10B	Analysis of the contestation of the assignment, by the general contractor, of responsibility for each deficiency and for each missing document, to the affected specialized contractors.	General contractor and each affected specialized contractor.	Two <b>(2) working days</b> following receipt of the assignment by the general contractor of responsibility for each deficiency and for each missing document, to the specialized contractors.	Receipt, from the general contractor, of the contestation of the assignment of responsibility to the specialized contractors for each deficiency and each missing document.
11	Start again from task 5, bearing in mind that this only involves the incomplete work, the postponed work, the deficiencies to be corrected and the missing documentation that is mentioned in the certificate of provisional acceptance / substantial acceptance / conditional acceptance. The ultimate goal is to enable a request for the issuing of the certificate of final acceptance / unconditional acceptance to be made.			

### NOTES:

This guide intentionally excludes a discussion of the tasks leading to the **release of the holdbacks to the specialized contractors** as they fulfil their contractual obligations. While this is a worthy topic, it should be covered in the bid and contract documents and this guide should be adjusted accordingly.

This guide also intentionally excludes a discussion of the **percentage of the holdback to be released**, either when the certificate of provisional acceptance / substantial acceptance / conditional acceptance is issued or when all of the obligations related to the certificate of final acceptance / unconditional acceptance have been met. These matters should be covered in the bid and contract documents and this guide should be adjusted accordingly.

Since this guide is intended as a tool to accelerate the processing and release of the holdbacks, it intentionally excludes a discussion of any matters which may involve **penalties, bonuses, liquidated damages or charge backs** for additional visits and inspections or for interest charges. These matters should be covered in the bid and contract documents.

Where applicable during each task, the consultants must return their approvals and comments on the technical and administrative documentation that has been provided, within five (5) working days following receipt.



# APPENDIX 3 || STRIVING FOR PERFECTION ON THE WORKSITE

## Guide to the typical sequence of tasks for the release and payout of the holdbacks

(Note: The content of this appendix is intended to be as exhaustive as possible so that it can serve as both a guide and a checklist, and it should be adapted as needed to suit the specific delivery method, nature and scope of each project.)

Output (documentation required by the end of the task)	Consequences of the failure to perform the task	Comments
Organize meetings to permit discussions and negotiations so that the responsibility for each deficiency and each missing document can be assigned to the affected specialized contractors.	Be obliged to accept the contestations.	
Start again at task 5, bearing in mind that this only involves the work that remains to be completed, the postponed work, the deficiencies to be corrected and the missing documentation that is mentioned in the certificate of provisional acceptance / substantial acceptance / conditional acceptance. The ultimate goal is to enable a request for the issuing of the certificate of final acceptance / unconditional acceptance to be made.		

# APPENDIX 4 || STRIVING FOR PERFECTION ON THE WORKSITE

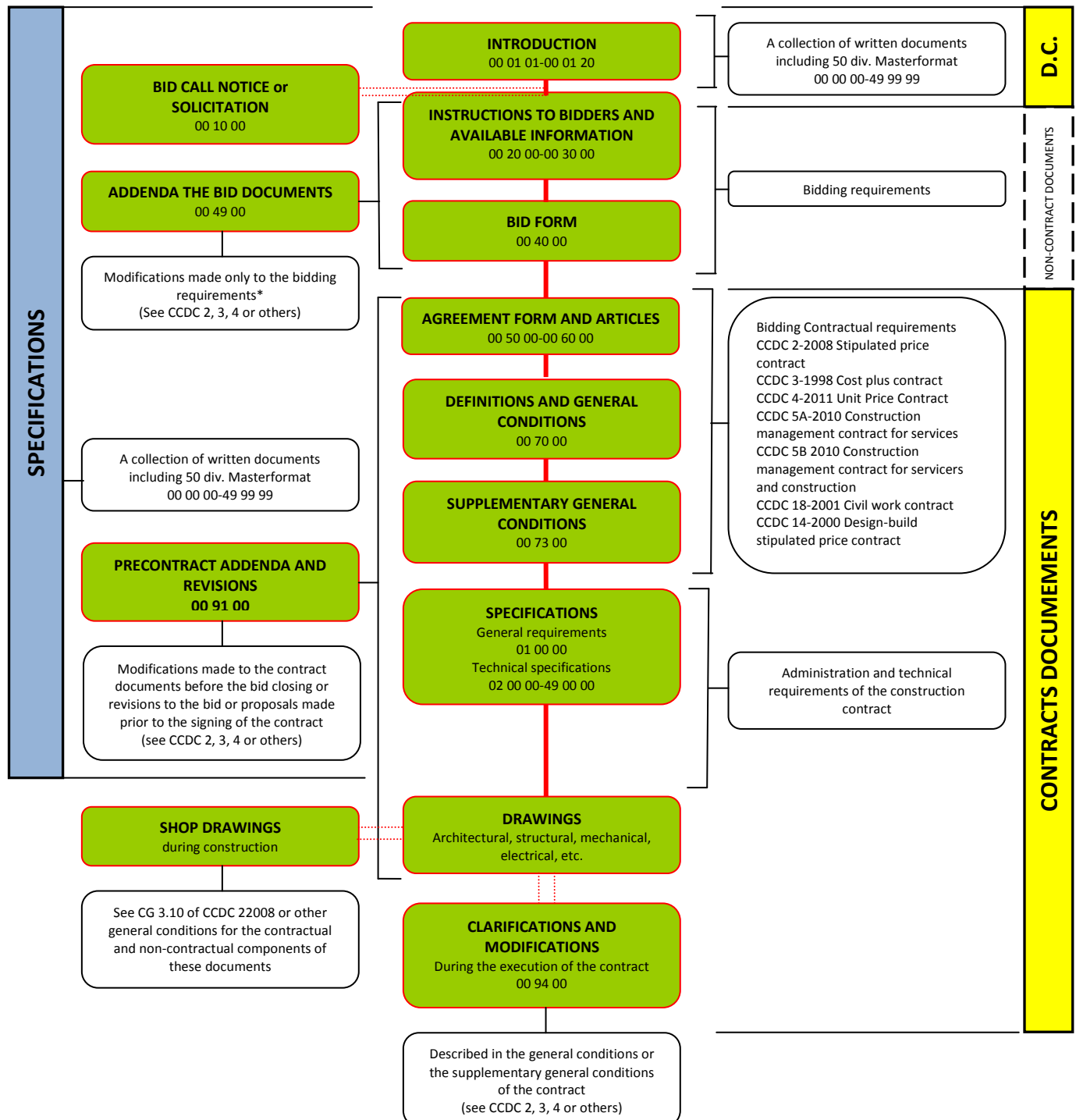
Construction document flow chart (prepared by Guy Duchesneau, FCSC)

## CONSTRUCTION DOCUMENT FLOW CHART

(Bidding Requirements + Contract Documents)

MasterFormat "2011, in so Divisions

Numbering format using 6 numbers: XX XX XX



\*All registered tidders are notified of these modifications