A Guide to Project Closeout Procedures

A joint publication of

WE BUILD ONTARIO
ONTARIO GENERAL CONTRACTORS ASSOCIATION

OAA Ontario Association of Architects

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PREFACE

Getting a construction project to the Milestones of Substantial Performance of the Work and then to Completion and Turn Over are some of the most difficult challenges to be met during the construction of a facility. This process involves thousands of actions performed by hundreds, if not thousands, of individuals from all facets of the construction chain including manufacturers, distributors, suppliers, subcontractors, sub-subcontractors, contractors, construction managers, consultants, allied professionals, project managers, developers, owners, government, end users, etc. While the obligations of each are often detailed in the project documents and various contracts, they are not always coordinated as well as they could be, which can lead to costly and delays in achieving Substantial Performance and then total completion.

If you can't get it done, you can't reach Substantial Performance. If End Users are not able to use the facility as intended, then everybody has to spend more time and money to help wrap it up and everybody's monies are delayed.

The following is a Guide to Project Closeout Procedures. It has been created to assist in the process and make things go smoother, and as a reminder that the last 3% of the project is often taking at least 15% of the effort. It takes a team effort. So let's all try to work together to make the last 3% of the project 3% or less of the effort!

This Guide has been produced by the Ontario General Contractors Association, the Ontario Association of Architects and in cooperation with industry stakeholders representing owners, contractors and electrical and mechanical contractors.

The primary purpose of this Guide is to introduce the reader to best practices which will expedite and simplify the takeover of a project by its owner from the contractor who managed its construction.

The Guide contains recommended practices following the principles and methods for successfully completing the takeover process efficiently for all parties. The use of these practices will improve the process of closeout and takeover and reduce the problems associated with this stage of the project.

This Guide was prepared because members of the construction industry recognize that the closing out of construction projects has been getting more and more difficult. It is in the interests of the whole construction industry and owner to make the takeover of construction projects by owners more time effective and less stressful for all participants. In our discussions, certain themes came to the surface time after time of what could help ameliorate the situation:

- **Timeliness** – Takeover issues need to be addressed before the tendering of the project, for example by the owner / consultant communicating expectations in the bid documents, and then addressing them from the first site meeting onward and at every subsequent site meeting. Deficiencies need to be addressed as they are observed. The value of repairing deficiencies must be included as deductions in regular

Progress Draw calculations and applications for each trade. Don't wait until the crooked wall is painted before it needs to be fixed and repainted. The team (consultant / contractor / subcontractor) should identify the problem and have the crooked wall fixed immediately by its installer before it gets painted. Proceeding in this fashion will ensure that trades do not leave the construction site until their deficiencies are addressed and that deficiency lists are minimal.

- **Communication** – The owner / consultant needs to communicate not only the quality standards which are expected to be delivered on a particular project within the specifications at the time of the bidding process, but also the specific requirements in regard to deliverables and the level of commissioning activities to be completed prior to owner's occupancy. The need for this communication is to be continued throughout the project by all the players (there should be no surprises toward the end of the project slowing the closeout process).

- **Teamwork** – Something as complex and expensive as a construction project is best built with a sense of teamwork. If everyone in the process approaches the project with the sense that they are there to provide a quality job on time and on budget in a spirit of cooperation, a project can and will go very well.

  To be part of a team, every member must take responsibility for their part of the Work and take an interest in facilitating every other team member's efforts. The subcontractors and suppliers should be expected to be active participants in the project and take responsibility for the quality and scheduling of their Work, work cooperatively with the contractor, consultants and other subcontractors, be mindful of the construction schedule and attend to deficiencies as soon as they come to their attention.

The recommendations in this Guide reflect these ideas. By following these principles, every member of the construction team will find the project more enjoyable and the stress of closing on the job will be reduced, if not eliminated.

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1. INTRODUCTION

This Guide addresses the practices and processes involved to successfully manage and implement the takeover of the Work by the owner from the contractor. The Guide contains prescriptive requirements and recommended guidelines and forms that can be used to make for a more efficient and successful procedure. Most of the comments relate specifically to a design / bid / build procurement contract. However, most of the concepts apply to any form of construction procurement.

The Guide touches on the primary aspects of a project which are required for the transfer of documentation and information required for the closeout of the project.

The Guide does not interpret the Construction Lien Act and therefore readers are strongly urged to review the Act and obtain legal advice accordingly.

2. DEFINITIONS

2.1 Contract

The contract is the undertaking by the parties to perform their respective duties, responsibilities and obligations as prescribed in the contract documents and represents the entire agreement between the parties.

2.2 Contract Document

The contract documents consist of those documents listed in the Agreement – contract documents and amendments agreed upon between the parties.

2.3 Contract Price

The contract price is the amount stipulated in the contract documents expressed in Canadian Funds excluding Value Added Taxes which the owner has agreed to pay the contractor for the completion of the contract work and services.

2.4 Substantial Performance of the Work

A contract is substantially performed when:

(a) the improvement to be made under that contract or a substantial part thereof is ready for use or is being used for the purposes intended; and

(b) the improvement to be made under that contract is capable of completion or, where there is a known defect, correction, at a cost of not more than:

(i) 3 percent of the first $500,000 of the contract price,
(ii) 2 percent of the next $500,000 of the contract price, and
(iii) 1 percent of the balance of the contract price

[from s. 2(1) Construction Lien Act]

2.5 Deemed Completion

A contract shall be deemed to be complete and services or materials shall be deemed to be last supplied to the improvement when the price of completion, correction of a known defect or last supply is not more than the lesser of:

(a) 1 percent of the contract price;
(b) $1,000.00

[from s. 2(3) Construction Lien Act]

Section 2(3) of the Construction Lien Act defines “completion” of the contract for lien purposes. The Final Payment Certificate of the Payment Certifier showing the balance to complete of $0.00 often serves to recognize that the contract is completed.

2.6 Owner

The owner is the person or entity identified as such in the Agreement. The term owner means the owner or the owner’s authorized agent or representative as designated to the contractor in writing, but does not include the consultant.

2.7 Consultant

The consultant is the person or entity engaged by the owner and identified as such in the Agreement. The consultant is the Architect, the Engineer or entity licensed to practice in the province or territory of the Place of the Work. The term consultant means the consultant or the consultant’s authorized representative.

2.8 Contractor

The contractor is the person or entity identified as such in the Agreement. The term contractor means the contractor or the contractor’s authorized representative as designated to the owner in writing.

2.9 Subcontractor

A subcontractor is a person or entity having a direct contract with the contractor to perform a part or parts of the Work at the Place of the Work.

2.10 Supplier

A supplier is a person or entity having a direct contract with the contractor to supply products.

2.11 Shop Drawings

Shop drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures, product data, and other data which the contractor provides to illustrate details of portions of the Work.

2.12 Work

Work means the total construction and related services required by the contract documents.

2.13 Incomplete Work

Incomplete work means Work specified in the contract documents that has not been performed or completed.

2.14 Deficiency Work

Deficiency work means Work that has been performed, but performed incorrectly or to an inadequate standard, not performed as specified, or damaged prior to turnover to the owner.

2.15 Warranty Work

Warranty work means completed work that requires completion after the date of substantial performance and is discovered prior to expiry of the contract warranty period or periods.

2.16 Deferred Work

Deferred work is work which the owner and the contractor agree, or out of necessity, simply cannot be completed in a timely manner, such as landscaping work, and is therefore excluded from the calculation in determining whether substantial performance of a contract has been reached.

2.17 Ready for Use for the purposes intended

Ready for Use is a concept used in determining whether substantial performance has been reached. Its meaning depends on what is being constructed under the contract in question: is it the entire project under a general contract or only one trade's contract work under a construction

management arrangement? Ready for Use intended can be when it is ready for the owner to occupy and fit out.

In the case of a hospital, for instance, it is not when it is ready for patients to move in or clinical procedures to begin, it is when it is ready for the hospital to occupy and make ready for them to initiate their fit out and training, etc. If it's the whole project, then the test is usually met once the new space is ready for occupancy. If it's only a trade contract, then the test is generally whether the trade's work is functional (e.g. mechanical) or ready for the next trade to take over (e.g. Gypsum Board ready for paint).

3. IMPLEMENTING A PROJECT CLOSEOUT PROCESS FOR PROJECTS

The process of project closeout begins with the contract documentation stages by the consultant working with the owner and continues throughout the construction stage involving all players.

3.1 Pre-Construction Phase

3.1.1 Contract Requirements for Closeout

The contracting authority should, in the bid documents, clearly specify in a separate section what is required to meet Substantial Performance and all of the documentation that will be required at the time of closeout for owner occupancy or other intended use. Grouping this information together in a separate section of the specifications is a simple way to clarify for all members of the project team what is required to be done, by whom, to achieve substantial and total performance.

Instructions for Substantial Performance should make reference to the Construction Lien Act and not paraphrase the Sections of the Act.

3.2 Construction Phase

3.2.1 Job Start Up Meeting

Preconstruction Meeting – The following is an example of the members of the construction team who should be invited to such a meeting: architect, engineer, contractor, major subcontractor, and owner. There may be other specialized participants who should be invited depending on the complexity and scope of the project. Milestones for submittals and completeness should be established followed by meetings to review compliance. Review your QA/QC plan - provide quality expectations with mockups, submittals of samples, open manuals prepared for the inserts which will be provided, detail what inspections will be done, independent testing and inspection agencies, Schedule of Values to be used for payment certification – project Schedules.

3.2.2 Contractors' Logs

Closeout Log #1 - The contractor should, early in the process, prepare a list of what is to be included as part of the Turnover documents such as:

- spare parts
- as built drawings
- commissioning reports
- CBO certificate
- Fire Alarm certificate
- Balancing Reports
- testing certificates
- maintenance manuals, etc.

4. QUALITY

Quality Assurance (QA) has implications throughout the life of a project from its beginning to closeout. The consultant is in charge of Quality Assurance, the contractor of Quality Control. The consultant and subconsultants carry out Quality Assurance by means of establishing quality standards in the drawings and specifications; reviewing the job as it progresses; and requiring the necessary testing to be done by third party testing companies. The contractor carries out Quality Control by working with the consultant to meet the specified quality standards, making sure that the standards are communicated to the subcontractors, and making sure that the work undertaken complies with those standards and that deficiencies are brought to light as early as possible and addressed immediately by the responsible trade, without everyone waiting until the deficiency lists are produced near the end of the job. Quality control is the day-to-day, on the job, making certain that the contract is being carried out in accordance with the plans and specifications to the quality standards specified.

A well thought out and executed QA/QC program will make project closeout much easier and make the whole project run more smoothly. In the Project Development Phase, it is important that the documents convey the level of quality expected for the project.

A good idea is for the key consultants (i.e. architectural, structural, mechanical, electrical) to be involved in identifying key quality issues, i.e. what portions of the project are likely to create difficulties and portions of the project where quality standards are of critical importance to the consultant and owner. There may also be certain special items for which the level of quality is above an industry standard. These should be documented for bidders (i.e. workmanship, actual product specifications).

QA/QC Milestone, Meetings & Guidelines (QA/QC may warrant a separate specification section)

4.1 Consultants' and Contractors' Roles

A good QA / QC program is a key element to an effective closeout program.

- QA / QC needs to be part of every site meeting agenda, do not wait for deficiency inspections.
- The consultants and owner need to set and communicate quality expectations to all members of the project team as early in the process as possible. In drawings and specifications.
- One of the most important roles of the consultant is to manage owner's expectations and educate owners on the construction process. One important principle which construction reviewers need to abide by is consistency.
- It is helpful to also have the project designer involved early on, identifying areas of the project likely to create quality problems, due to workmanship or an actual product specification, areas or items for which the level of quality is higher than standard.
- Deficiencies should be addressed as soon as they are discovered.
- The consultant and contractor need to work together to implement the QA / QC program, uncover deficiencies, evaluate what is considered deficient in a consistent manner, set money aside in the monthly draw to cover identified deficiencies.
- Subcontractors are part of the QC team and must take responsibility for the quality of their work
- It is recommended that individual contractors and subcontractors undertake review, the preparation of a deficiency list, the completion of deficiency fix up where necessary, and make arrangements for the general contractor's and subsequent consultant's review of completed work. This process should occur at regular intervals if necessary and prior to the completion of their work to facilitate their full completion of remaining items in a timely manner.

The consultant needs to set out a standard at the beginning of the job. You need the owner, consultant, contractor and subcontractors to get together to make sure quality expectations are understood. This can be done in a variety of ways, including:

- Taking subcontractors to other buildings to see what quality is expected.
- The holding of minuted pre startup meetings which go through the various standards for waterproofing, window installation, etc.
- Start up meeting for important trades such as masonry with tie-ins to waterproofing and windows.
- The use of mock ups are very helpful.
- The sooner the quality expectations for a project can be communicated, understood and agreed by all parties, the better.

4.2 Owner's Role

It is key that the owner provide the same authorized representative throughout the project. Owners have authority to make decisions or at least have decisions made quickly. Owners should have some responsibility to participate throughout the project, allowing themselves to be informed on the construction process and communicate their needs and expectations clearly early in the process via drawings and specifications plus early start-up meetings, then be consistent in how you apply them.

Owners have an important role to allow themselves to be informed by the project team and to commit the time and effort to evaluate whether the quality of what is being specified and later installed meets expectations and not wait for deficiency inspections.

5. FINANCIAL

5.1 Progress Draws

A line item could be included in the monthly draws to cover specified deliverables. At 75% complete, a nominal sum, e.g. $5,000, could appear as a line item that is paid once the closeout items such as 'As Built Drawings', manuals, warranties are submitted then the line item may be paid out. The subcontractors deliver much of the closeout material and must have an incentive to deliver the material in a timely fashion.

Trades should not be certified or signed off as complete when there is work outstanding or deficiencies to correct. The contractor should ensure that the subcontractor complies with their responsibilities before agreeing to ask for the consultant to sign off.

5.2 Deficiency Retainage

Deficiencies need to be completed as soon as possible to avoid delays in the process. The consultant and contractor must work together to judge the value of deficiencies to establish the value of works early. Payment certifiers must accurately value deficiencies to avoid placing undue hardship on subcontractors who have completed their work. Payment Certifiers should be assessing the percentage of work complete – and using deficiency lists to reduce draw payments by an amount equivalent to the cost of repairing deficiencies.

The contractor and subcontractors play an important role in identifying, repairing, and pricing deficiencies. Some contractors require subcontractors to itemize and price deficiencies when submitting monthly invoices to the contractor.

6. OCCUPANCY

An important issue is providing the subcontractor with sufficient time to complete deficiencies between the preparation of the deficiency list and the owner moving in. Once the move in takes place, it can make deficiency completion very difficult. Good planning needs to take place when an owner needs occupancy before the deficiency list is complete.

A good idea is to schedule a pre-occupancy review with the consultants and owner a minimum of one week prior to the planned occupancy date to allow for deficiency completion. The contractor should organize all trades to be prepared to get in and clear out the deficiencies quickly before move-in.

For required inspections, refer to Ontario Building Code (Section 1.3.3 Occupancy of Unfinished Buildings) (Appendix 2)

6.1 Phased or Partial Occupancy

More and more, especially in large complex buildings (both new and renovated), phased or partial occupancy is a requirement of the owner and must be clearly identified in the bid documents.

The bid documents should clearly define the sequencing of any phased occupancy (generally a requirement of the owner's operations); the length of time required for any decanting and move in by the owner where it will impact the ongoing operations of the contractor; and the specific closeout requirements prior to the owner's acceptance for occupancy. The specific closeout requirements will generally mirror those for final occupancy but will not generally include substantial performance requirements (held off until final occupancy). Decisions regarding the start date of warranties for the phased or partially occupied areas and for any equipment or systems related to its use should be predetermined and agreed to as the owner has beneficial use.

It is important for consultants to describe planned phasing requirements in the bid documents as it needs to be considered for pricing. It will take extra time and money; all parties should be aware of any known plans as early as possible. For greater clarity for pricing, this should be noted in the bid documents.

The owner will be responsible for operating, maintaining, and insuring the occupied areas and related equipment and / or systems.

6.2 Occupancy prior to Deemed Completion

This refers to the period between substantial performance of the project and Deemed Completion when the owner has occupancy where there remains incomplete work and/or deficiencies to complete. As has been noted above,

this requires careful planning and coordination by the contractor and owner and a clear communication by the owner to the occupants of what and what not to expect during this period.

7. INSURANCE AND BONDING

7.1 Bonding

Performance Bonds cover the standard one year comprehensive warranty required by CCDC 2 - GC 12.3. Surety companies, for an extra charge, may also provide a second year of comprehensive warranty coverage if required to by the contract specifications. If a contractor is not completing the work or carrying out warranty work during the one (or two) year comprehensive warranty period, the owner should notify the surety company of such a breach. The owner has paid for this coverage and has every right to call on the surety to address the failure of the contractor to complete the work. Contractors are very conscious of the importance of their relationship with their surety company. Surety companies constantly monitor their clients; any complaints to the surety company from an owner that a contractor is not complying with their contractual responsibilities are taken very seriously. Construction bonds provide a means of protecting the owner's rights under a construction contract.

7.2 Insurance

It is a general principle that the party who has the care and control of a facility is in the best position to provide project insurance. When a project, such as an addition / renovation, involves multiple occupants (e.g. tenants) of a building, it is usually better for the owner to carry the property and liability insurance policies. It is also good practice to have one insurance company providing as much of the insurance coverage as possible to reduce the likelihood that a dispute will arise as to which policy should cover any claim that might arise.

If the contractor is providing either Property or General Liability coverage for a project, Insurance coverage must change from the contractor's to the owner's policy when the owner's employees begin to use the facility for the purpose for which it was built. Prior to the owner's employees starting this use, the contractor must make it clear to the owner that his insurance policies must take over coverage before his employees can begin to use the building. A good method of insuring that this change of coverage takes place is for the contractor to send the owner a letter setting out the date on which insurance coverage will move from the contractor's policy to the owner's policy and include a place for the owner to sign an acknowledgement that they agree with the change in coverage. The letter is then signed by the owner and faxed back to the contractor who in turn faxes a copy of the acknowledged letter to your broker. N.B. For the owner - Now that your insurance policies are covering the project, the contractor should be added as an additional insured to the owner's

policies and be provided with a Certificate of the policy until the deficiencies are complete.

8. UTILITIES

Utility charges transfer to the owner on the date of substantial performance and, if applicable, any accepted date of phased or partial occupancy. This process should be documented in the specifications. If not, an agreement as to sharing of costs should be reached as early as possible, where continuing contractor operations are carried out beyond these dates.

9. COMMISSIONING

9.1 Commissioning is a term often misused to refer to those activities that occur when a project is taken over by the client. In actual fact, commissioning is a separate and distinct service, which may commence at the beginning of a project and may continue until, and in some instances, after, occupancy by the owner. Commissioning is an additional service often provided by an independent third party – a commissioning agent. Large or complex projects may require the participation of a commissioning agent to manage and verify the design performance of all the components and systems of the building's operation or as a minimum, those identified by the consultant and owner and specified to be critical or necessary.

In some smaller & simpler projects, typical start up demonstration and review by the Prime consultant and subconsultant is usually sufficient.

Commissioning includes a range of activities undertaken to transform the design of a facility into a fully integrated and operating system. It is a process of quality assurance which:

- Begins with the definition of the 'design intent' and ends with the delivery of a building;
- Confirms the contractor's implementation of the consultant's design as defined in the contract documents;
- Confirms the ability of the consultant's design to satisfy the owner's defined requirements;
- Addresses any shortcomings.

One product of the commissioning process is an accurate project database.

For large and/or complex projects, the owner may engage a commissioning agent as an independent third party to verify that both the facility design and the resulting construction satisfy the owner's objectives and requirements. In

addition, the commissioning agent verifies the contractor's performance of the contract.

Early involvement of a commissioning agent as a project team member can assist in clear communication of the design intent to both the consultant and the contractor.

Because the contractor is usually a late arrival to the project team, an explanation of the verification and testing procedures by the commissioning agent should appear in the bid documents. This will assist bidders in evaluating the time and cost implications of a commissioning agent's participation and the agent's impact upon acceptance of the work.

Bid documents prepared with input from the commissioning agent should include:

- The commissioning plan, including the scope and sequence of the commissioning program;
- The commissioning specifications, including a manual with examples of verification forms and testing procedures, noting probable duration;
- Any specialized documentation related to testing, such as CSA Standards, which may describe options for testing methods;
- Standards for submission and acceptance of:
    - Shop drawings;
    - Contractor's tests;
    - Product, systems, operations, and maintenance manuals;
    - Training programs;
    - Post-occupancy or seasonal testing;
    - Detailed list of commissioning activities to be completed prior to owner's takeover and occupancy of the building or part thereof.

9.2 Systems Verification

The process of systems verification begins after all components within the system are accepted and deficiencies are corrected. The contractor's schedule for the timing, sequencing, and proving of systems will require regular commissioning meetings to ensure that all parties are available to:

- Verify that all prerequisites to testing are in place;
- Review test procedures and acceptable results;
- Witness tests.

Failure to verify can seriously affect the construction schedule and can result in delays and claims. To avoid delays:

- Have the subcontractors responsible prove or test systems prior to witnessing by the commissioning agent;

- Provide for subcontractor and sub-subcontractor acceptance on verification forms prior to Contractor acceptance.

After sign-off by the contractor, the consultant should then certify their recommendation of acceptance. Variances from the design identified during systems testing will require investigation and reporting by the consultant.

Because many integrated systems tests require that certain post-occupancy conditions be in place (for example, all equipment, furnishings, and building users in operation), the consultant and the commissioning agent should consider preliminary or conditional testing and recommended acceptance of certain sub-systems.

9.3 Equipment Start Up

As the project nears completion, completion dates should be set for the startup of equipment and the review by the appropriate consultant. Reports from the startup process should be submitted as part of the final submittals.

9.4 System Demonstration

Demonstration should take place just prior to turnover, allowing enough time for the occupants to have a thorough understanding of the operations. At the outset of the project, the owner, consultant, contractor, subcontractor, and suppliers should prepare a plan to carry out the demonstration. The plan should include number of attendees, the duration for instruction, any special requirements from any party and should include the commissioning agent. (Note the premises may still require that the owner's personnel have protective equipment.) In order to help the owners train others or refresh the personnel, it is recommended that on more complex projects, the owner or contractor record the training sessions. This should be clearly defined in the bid documents.

All access to the site for owner's staff must be arranged through the contractor.

10. DEFICIENCIES

10.1 Deficiency Inspections

As part of establishing substantial performance, it is necessary to place a value on project deficiencies. The contractor and subcontractors will prepare lists of deficiencies; address as many of the deficiencies as possible, and then hold a formal deficiency review. This review requires the participation of the owner, consultants, contractor, and subcontractors. It is pointless to hold the deficiency review until the finished lighting is operational as the quality and

direction of the lighting may reveal defects which would not otherwise be noticeable.

Subcontractors should be involved early in the deficiency process, preparing their own deficiency lists. This will make the final review much easier for all parties. The subcontractors must take responsibility for the quality of their work.

A distinction should be made between cosmetic deficiencies and operational deficiencies so as to ensure that the proper individuals are involved in their correction. For example, an operational deficiency may need to have the input of maintenance staff.

The goal is to have all deficiencies corrected prior to the consultant's review.

11. TURNOVER DOCUMENTS

11.1 Documents

The owner will be relying on the 'as built' drawings and manuals for as long as the structure is in use. A monetary value may be assessed to the value of these documents up front so they are part of the Schedule of Values in the monthly Progress Draw system (in the bid specification). Make them a line item from the beginning and they are either submitted or approved or not, no partial draws should be allowed. A value should be assigned that reflects the cost of creating the drawings and assembling the manuals and acts as an incentive to submit them as soon as they are available.

On a larger project, the owner may place a monetary value on the Operation & Maintenance Manual materials. If a value is assigned to the documents, it should be a specific dollar amount, not a percentage of the project value.

Another suggestion is to break down the monetary value of submittals against the mechanical manuals / electrical manuals and release money as each are submitted.

11.2 Shop Drawings

All finally reviewed shop drawings, if required, are to be submitted to the owner by the contractor. The submittal of shop drawings is to be completed once they have been reviewed for general conformance.

11.3 Operation & Maintenance Manuals

Operation manuals differ significantly from the compilation of shop drawings. This documentation provides information with regards to the regular

maintenance and cleaning instruction of materials, necessary instructions in order to operate systems and equipment. The owner will be required to operate and maintain the systems and equipment. This documentation is considered essential at the turnover of phased, partial and final occupancy and should coincide with the demonstrations.

Maintenance Manuals are instructions regarding the upkeep required for finishes and various components of equipment and systems. These can specify, for example, cleaning methods and materials or regularly scheduled maintenance of equipment. Again, this is essential at turnover as the owner will be responsible for complying with maintenance requirements in order not to void any warranties.

There is a growing trend of contractors to provide the consultant or owner with Binders already made up with divisions for the owner to insert the manuals as they are submitted by the contractor.

11.4 Spare Materials, Parts and Tools

Provide all specified spare materials and tools and obtain a signed receipt of inventory from the owner's representative.

11.5 As Built Drawings

It should be clearly defined in the specifications as to what the requirements for 'As built' drawings vs. 'Record' drawings will be.

Ontario Association of Architects

WE BUILD ONTARIO
ONTARIO GENERAL CONTRACTORS ASSOCIATION

Joint Best Practice Statement
Shop Drawing Schedule

Issued September 27, 2010

This document is issued jointly by the Ontario Association of Architects and the Ontario General Contractors Association and provides information relative to best practices in regard to schedule for shop drawings.

At the commencement of the work, the Contractor and the Consultant shall prepare, for the joint review and acceptance by the Consultant and the Contractor, a schedule of the dates for the submission and return of shop drawings and other submittals where called for in the Specifications (which in no event will be more than 10 working days following submission and 10 working days following any resubmission or such other period as may mutually agreed upon by the Contractor and Consultant) in order that there is no impact on the construction schedule.

The shop drawing and other submittals schedule shall provide for the submission of shop drawings and other submittals in an orderly sequence and sufficiently in advance to allow for the Consultant's proper review and so as to cause no delay to the Work. If at any time the Contractor submits an unusually large number of shop drawings and other submittals not contemplated by the schedule, such that the Consultant cannot process these within the time permitted in the schedule, the Consultant will, within 5 working days of receipt of such drawings and other submittals, provide the Contractor with an estimate of time necessary for processing such shop drawings and other submittals.

The Contractor shall periodically resubmit the schedule to correspond to any changes in the construction schedule for the joint review and acceptance by the Consultant and the Contractor.

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Ontario Association of Architects

ONTARIO GENERAL CONTRACTORS ASSOCIATION

Joint Best Practice Statement
As-Built and Record Drawings

Issued October 21, 2010

This document is issued jointly by the Ontario Association of Architects and the Ontario General Contractors Association and provides information relative to best practices in regard to dealing with and preparing as-built drawings and record drawings and conveys standard industry practice in regards to both.

The terms record drawings, as-built drawings and sometimes measured drawings are often confused and/or misused. Record drawings should not be mistaken for as-built drawings nor for measured drawings.

As-built drawings are those prepared by the contractor as it constructs the project and upon which it documents the actual locations of the building components and changes to the original contract documents. These, or a copy of same, are typically turned over to the architect or client at the completion of the project.

Record drawings are those drawings prepared by the architect when contracted to do so. These are usually a compendium of the original drawings, site changes known to the architect and information taken from the contractor's as-built drawings.

Measured drawings is the term recognized in the industry to describe the drawings prepared from on-site measurements of an existing building or space. It can be for a building to which additions or alterations will be made; or for spaces which are intended for lease and from which drawings the areas for lease purposes will be calculated.

PROCEDURE for Preparation of As-Built Drawings

General Contractors are responsible for creating "As Builts" from field data collected during the course of the project. Field data is defined as information collected on site while constructing the project that is not available from the contract documents, addenda, change orders, or site instructions. It is of importance that the Contractor record on the "As Builts" all field information relating to concealed conditions.

Contractors may be required by the contract documents to provide a greater degree of accuracy in some areas of the as-builts. The contractor should include adequate monies for this work in their tender price.

…/2

General Contractors are not responsible for the creation of record drawings and should advise any client or architect who requests something other than the standard industry practice that the contractor cannot accept this responsibility. The record drawings contain the intellectual property of the architect and should be respected.

Contractors who have the capacity to use auto cad may offer to do so voluntarily, but shall also be compensated appropriately for converting as-builts to this format. Contractors should raise this issue prior to tender closing with the tender authority and ensure that any additional costs that may be required are included in their bid.

PROCEDURE for Preparation of Record Drawings

Architects should arrange with their clients prior to executing contracts as to requirements for record drawings at the close of the project. Architects should be advising their clients that providing "record drawings" is an additional services and the appropriate cost should be included in their fees to the client. A per diem rate is one equitable arrangement which recognizes that the extent of this service is indeterminate at the outset of the project.

An architect, who is not engaged to provide general review services for both code and non-code related work, should advise their client that they are not in a position to prepare record drawings since they will not be aware of all changes during construction.

It is not unusual for clients to expect record drawings in electronic format and therefore it is prudent to determine whether the client requires the architect to generate the record set of drawings, how many copies will be required as well as the medium, prior to finalizing the Client/ Architect Contract rather than leaving it for discussion at the end of the project.

An Architect who is engaged for general review, should discuss with his/her client at the outset of the project whether or not the client will require record drawings, the format required, the extent of detail and degree of accuracy in specific areas if required and whether these will include:

- transference of information from the contractor's as-built drawings
- incorporation of known site variants not shown on as-built drawings
- incorporation of addenda into the originals
- incorporation of change orders into the originals
- incorporation of site instructions into the original

Some clients may need a greater degree of accuracy in some parts of the drawings than in others. As well, verification of specific portions of the work that was changed from the original drawings may be critical to some clients.

Ensure that appropriate statements are added to the drawings to avoid misunderstanding of the purpose and intent of the record drawings.

…/3

Establish whether as-builts to be prepared by contractor will be in hard copy or electronic format prior to bidding phases. If an electronic copy is requested it is important to define clearly what format that entails (e.g. PDF vs. AutoCad). Include the required as–built format, including required software, in the bid documents to avoid disputes in this regard at a later date.

It is recommended that architects remove their seal to help avoid the possibility that the drawings may be used as part of an application for a building permit without the architects knowledge and involvement.

It is important that the architect not represent that the record drawings are claiming to be the way that the building was in fact constructed. The following sample statement placed on the record drawing illustrates this principle:

> *"The issuance of this record drawing is a representation by the architect that the construction, enlargement or alteration of the building is in general, as opposed to precise, conformity with the design prepared and provided by the architect, but is not a representation that the construction, enlargement or alteration of the building is in conformity with a design that has been prepared or provided by others."*

It is recommended that a clear statement be made prominently on the record drawing disclaiming accuracy and completeness of information transferred from the contractor's as-built drawings. The following statement is recommended for this use:

> *"The revisions to these contract documents, reflecting the significant changes in the Work made during construction, are based on data furnished by the contractor to the architect. The architect shall not be held responsible for the accuracy or completeness of the information provided by the contractor."*

In some instances, the client may require the record drawings to incorporate all changes made via addenda and change orders. This can be extensive and prudence dictates that the client and architect should discuss and agree prior to execution of the contract whether or not this service will be required. Fees should be adjusted relative to the extent of service required.

Architects should explain to clients, and ensure that their contracts include, provisions in regard to client's use of record drawings, the copyright of the architect and the waiver in regard to the reliance on the contractor's as-built drawings.

Enquiries should be directed to:

Ontario Association of Architects
111 Moatfield Drive
Don Mills, Ontario
M3B 3L6
Phone: (416) 449-6898
Fax: (416) 449-5756
www.oaa.on.ca

Ontario General Contractors Association
703 – 6299 Airport Road
Mississauga, Ontario
L4V 1N3
Phone: (905) 671-3969
Fax: (905) 671-8212
www.ogca.ca

11.6 Source List – Subtrades, Suppliers

It is a good idea, whether specified or not, for the contractor to provide the owner with a source list identifying subcontractors and suppliers of materials and equipment for their ongoing use.

12. WARRANTY PERIOD

12.1 Warranty Administration Process

Meet to discuss Warranty Administration Process – the consultant's role generally continues throughout the Warranty period – owner – consultant – contractor – subcontractor, often the owner goes directly to the subcontractor, which is okay in an emergency. However, the warranty chain is ideal - it lets all know what is happening.

12.2 Warranties

Warranties for the project typically start at substantial performance of the work or on the date of occupancy of a phased or partial occupancy. Any extended warranties typically start at the expiration of the contractor's one year warranty. As part of the final submittals, the contractor will typically provide a letter of warranty for the entire work. Letters from suppliers and subcontractors are not required as part of the submission unless they are for extended warranties. In these cases, the contractor is required to obtain these warranties for the owner and a direct contractual relationship between the owner and the respective subcontractor or supplier will occur after the initial one year warranty.

GC 12.3 of CCDC 2 provides for a one year comprehensive warranty for the work from substantial performance of the project. Contract specifications may provide for a two year comprehensive warranty that covers all the work. As part of the final submittals, a letter of warranty for the entire work may be required from the contractor. Under GC 12.3, it is the contractor who is responsible to administer warranty work, which is generally carried out by the subcontractor who installed the work, which is giving the problem. It is not always easy to pinpoint what the source of a problem is (i.e. roofing leaks), and therefore who is responsible to resolve it. This is where the expertise of the contractor is useful. It is frequently true that problems arise where the work of several subcontractors intersect.

Specifications often call for extended warranties of varying durations. These are provided by manufacturers of products such as windows, roofing materials, mechanical systems, etc. As part of the final submittals, the contractor will typically provide letters from suppliers and subcontractors setting out the terms of the extended warranties. In these cases, the subcontractor is required to obtain these warranties for the owner and a direct contractual (warranty)

relationship between the owner and the respective subcontractor or supplier will occur after the initial one year warranty.

12.3 Warranty Period

During the comprehensive warranty period, the owner should be contacting the consultant, who contacts the contractor who contacts the subcontractor to have a problem fixed. Refer to the 'Warranty Notice' form [Appendix 5]. The form should be filled out so that everyone in the chain knows what is happening. Of course, if there is an emergency, the owner can call the relevant subcontractor directly to have emergency action taken.

It is good practice to hold an eleventh month warranty review with the consultants, contractor, and owner in attendance.

APPENDICES:

Appendix ‘1’ Chronological flow chart of Legal / Contract and construction events

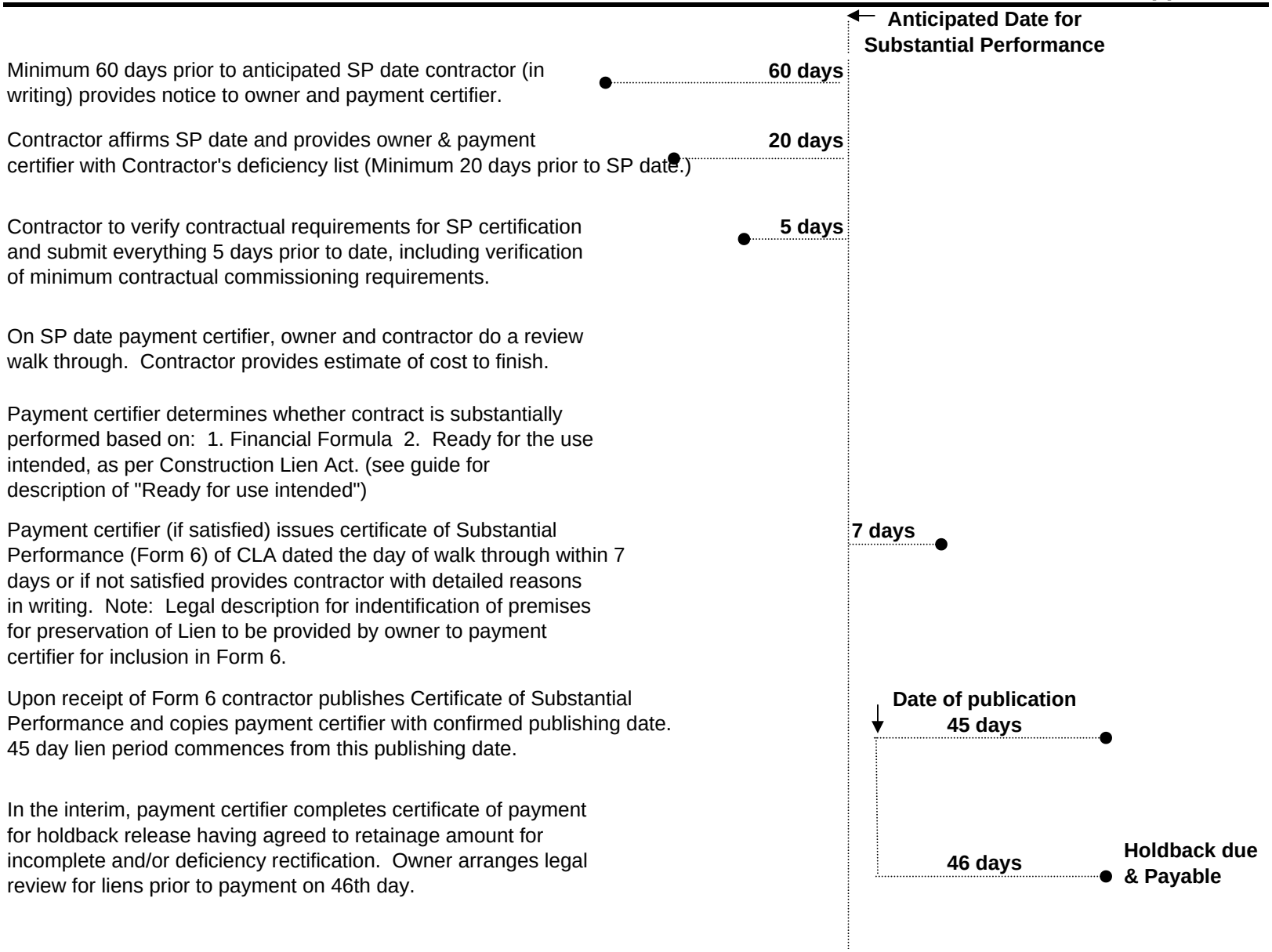
Appendix ‘2’ Occupancy Requirements

Appendix ‘3’ Sample Turnover Document Check List

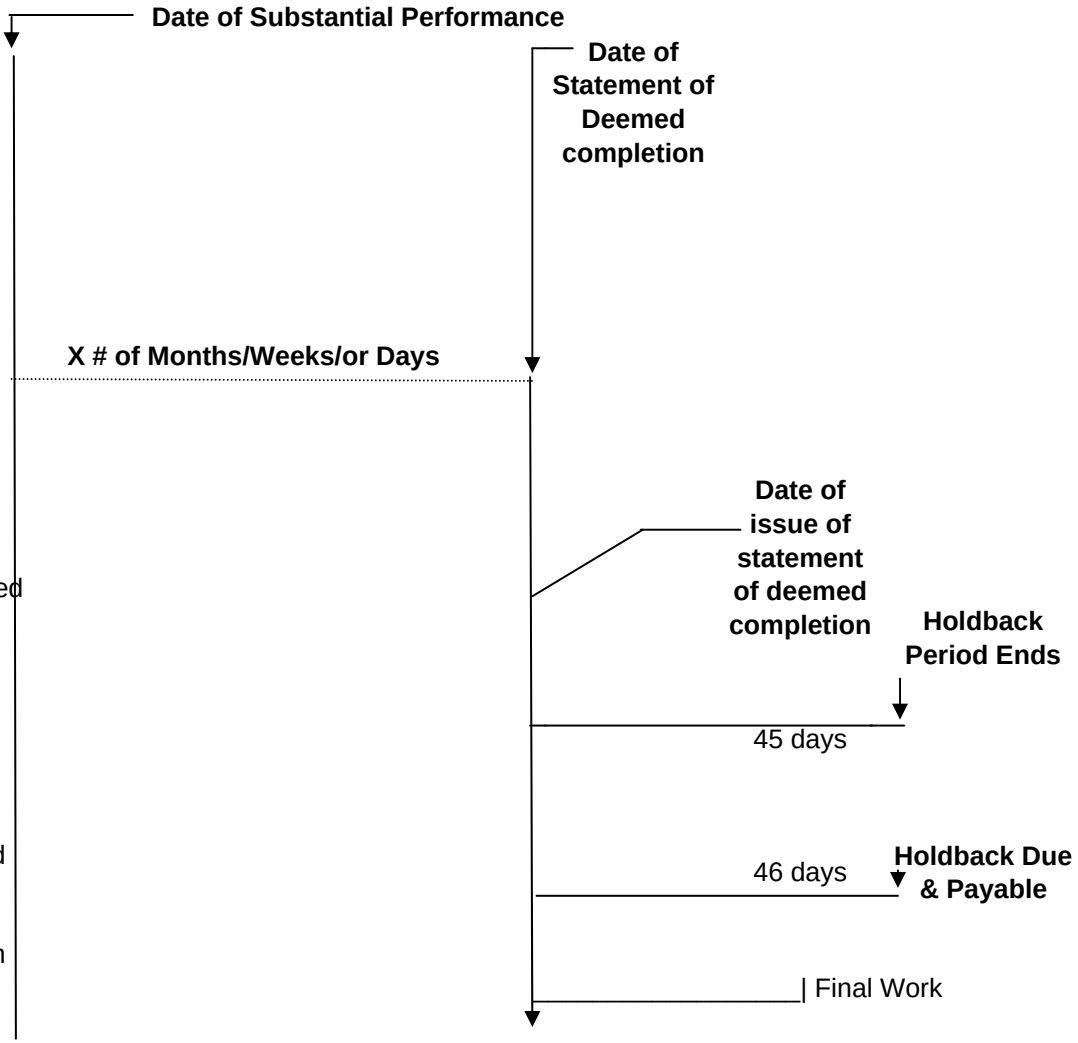
Appendix ‘4’ Warranty Notice Form

Time Chart for Date of Substantial Performance of the Contract

Appendix 1



Time Chart for Date of Deemed Completion of the Contract (post Substantial Performance) Appendix 2



All certificate of payments from the date of SP to statement of deemed completion will have mandatory 10% holdback retained as the "finishing holdback".

When payment certifier determines the contract is deemed complete in accordance with the requirements of the CLA, a statement of deemed completion will be issued. The date of the statement is the start of the 45 day lien period.(No publishing required) In the case when no payment certifier is available, the contractor provides a declaration of last supply date.

Holdback is due and payable upon Owner being satisfied no liens exist

Work continues beyond statement of deemed completion to final completion (no holdback retained)

OCCUPANCY REQUIREMENTS

The Ontario Building Code 2006 governs the requirements for occupancy of all types of buildings.

Inspections are required prior to an occupancy permit being issued.

The requirements for such occupancies are taken from the “unofficial version of Government of Ontario legal materials”.

For any updates, please check with your local building department.

1.3.3 Occupancy of Unfinished Building

1.3.3.1. Occupancy Permit

(1) Except as permitted in Sentence 1.3.3.2.(1), a person may occupy or permit to be occupied any *building* or part of it that has not been fully completed at the date of occupation where the *chief building official* or a person designated by the *chief building official* has issued a permit authorizing occupation of the *building* or part of it prior to its completion in accordance with Sentence (2).

(2) The *chief building official* or a person designated by the *chief building official* shall issue a permit authorizing occupation of a *building*, where,

(a) the structure of the *building* or part of it is completed to the roof,
(b) the enclosing walls of the *building* or part of them are completed to the roof,
(c) the walls enclosing the space to be occupied are completed, including balcony *guards*,
(d) all required *fire separations* and *closures* are completed on all *storeys* to be occupied,
(e) all required *exits* are completed and fire separated including all doors, door hardware, self-closing devices, balustrades and handrails from the uppermost floor to be occupied down to *grade* level and below if an *exit* connects with lower *storeys*,
(f) all shafts including *closures* are completed to the floor-ceiling assembly above the *storey* to be occupied and have a temporary *fire separation* at such assembly,
(g) measures have been taken to prevent access to parts of the *building* and site that are incomplete or still under *construction*,
(h) floors, halls, lobbies and required *means of egress* are kept free of loose materials and other hazards,
(i) if service rooms should be in operation, required *fire separations* are completed and all *closures* installed,
(j) all *building drains, building sewers, water systems, drainage systems* and *venting systems* are complete and tested as operational for the *storeys* to be occupied,
(k) required lighting, heating and electrical supply are provided for the *suites*, rooms and common areas to be occupied,
(l) required lighting in corridors, stairways and *exits* is completed and operational up to and including all *storeys* to be occupied,
(m) required standpipe, sprinkler and fire alarm systems are complete and operational up to and including all *storeys* to be occupied, together with required pumper connections for such standpipes and sprinklers,
(n) required fire extinguishers have been installed on all *storeys* to be occupied,
(o) main garbage rooms, chutes and ancillary services thereto are completed to *storeys* to be occupied,
(p) required fire fighting access routes have been provided and are accessible, and

(q) the *sewage system* has been completed and is operational.

(3) Where a *registered code agency* has been appointed to perform the functions described in clause 4.1 (4) (b) or (c) of the Act in respect of the *construction* of the *building*, the *chief building official* or a person designated by the *chief building official* shall issue the permit referred to in Sentence (2) after receipt of a *certificate for the occupancy of a building not fully completed* issued by the *registered code agency* in respect of the *building*.

1.3.3.2. Conditions for Residential Occupancy

(1) A person may occupy or permit to be occupied a *building* intended for *residential occupancy* that has not been fully completed at the date of occupation provided that,

(a) the *building*,

(i) is of three or fewer *storeys* in *building height* and has a *building area* not exceeding 600 m2,
(ii) has not more than 1 *dwelling unit* above another *dwelling unit*,
(iii) has not more than 2 *dwelling units* sharing a common *means of egress*, and
(iv) has no accommodation for tourists,

(b) the following *building* components and systems are complete, operational and inspected,

(i) required *exits*, handrails and *guards*, fire alarm and detection systems, and *fire separations*,
(ii) required exhaust fume barriers and self-closing devices on doors between an attached or built-in garage and a *dwelling unit*, and
(iii) water supply, sewage disposal, lighting and heating systems,

(c) the following *building* components and systems are complete, operational, inspected and tested:

(i) *water systems*,
(ii) *building drains* and *building sewers*, and
(iii) *drainage systems* and *venting systems*, and

(d) where applicable, the *building* conforms to Article 3.1.1.3. or 9.1.1.7. of Division B.

1.3.3.3. Notification

(1) Where a person has occupied or permitted the occupancy of a *building* under this Subsection, such person shall notify the *chief building official* forthwith upon completion of the *building*.

ABC Company Ltd.
123 Main Street
Anytown, Ontario
L0L 0L0

Project Closeout Control Form

Project: _____ Project No.: _____

ARCHITECTURAL

DESCRIPTION	RESPONSIBILITY	DATE RECEIVED	DATE TO CLIENT
Fire & Smoke Separation and Closures Completed			
All required exits and hardware are complete and operational including mag locks and signage if applicable			
Hold Open at rated doors have appropriate ceiling F.A. detectors			
All shaft enclosures are completed			
Elevator final acceptance notice			
Operating Manuals, As Built Prints and			
AutoCAD files			
Consultant General Review Commitment signoff letter			
Structural			
Mechanical			
Electrical			
Other (i.e. landscape, elevating device consultant)(Structural Studs)			
Independent Inspection Soils, Concrete Masonry, etc.			
Independent Inspection Report for spray fireproofing conformance			
Independent Inspection / Roof			
Independent Inspection / Air Barrier			
Independent Inspection / Asphalt			
Deficiency Reports			
Spare Material Turn Over to Client			
Cubicle Curtains have 450 mm mesh top to corrdinate with sprinkler operation			
Material flame spreads smoke generation info for Building and Fire Dept.			
Turn over shop drawings and list to owner			

ABC Company Ltd.
123 Main Street
Anytown, Ontario
L0L 0L0

Project Closeout Control Form

Project: _____ Project No.: _____

MECHANICAL

DESCRIPTION	RESPONSIBILITY	DATE RECEIVED	DATE TO CLIENT
Sprinkler test report and materials certificate			
Standpipe test and materials certificate			
Underground piping test reports and material certificate			
Fire Department witness to sprinkler and standpipe system			
TSSA certificate for medical gas			
Hospital medical gas Inspector report			
Fire and smoke stopping completed			
Fire hoses and extinguishers in place and operational			
Plumbing inspection by Authority			
Demonstration sign off forms			
HVAC inspection by Authority			
Air and water balancing reports			
Verification of building automatic controls			
Smoke evacuation verification / pressurization			
Operating manuals, as builts, prints and CAD files and hand over spare parts and materials			
Mechanical engineer final review			

ABC Company Ltd.
123 Main Street
Anytown, Ontario
L0L 0L0

Project Closeout Control Form

Project: _____ Project No.: _____

ELECTRICAL

DESCRIPTION	RESPONSIBILITY	DATE RECEIVED	DATE TO CLIENT
Verification of fire alarm			
Security system verification			
Nurse call system verification			
Verification of diesel generator and transfer switching			
Independent inspection of electrical distribution system and infra-red test on distribution centre, power drop, ground and isolated power			
Verification of emergency lighting			
Verification of UPS system			
Certificate of Inspection by Electrical Safety Authority			
Operating manuals and as builts and CAD files and hand over of spare parts and materials			
Mag lock verification and certificates			
Electrical engineer final review			

SHOP DRAWINGS AND SAMPLES

Section 2	Title/Description	Manufacturer	Contact & No.	Remarks
2480	Landscaping 1 Year Warranty			
2500	Paving and Surfacing 1 Year Warranty			
2600	Sewers and Watermains 1 Year Warranty			

Section 5	Title/Description	Manufacturer	Contact & No.	Remarks
5100	Structural Metal Framing 1 Year Warranty, As-Builts, Touch Up Work			
5300	Metal Decking 1 Year Warranty			
5500	Metal Fabrication 1 Year Warranty, Touch Up Work			

Section 6	Title/Description	Manufacturer	Contact & No.	Remarks
6100	Rough and Finished Carpentry 1 Year Warranty			
6400	Architectural Woodwork 1 Year Warranty			

Section 7	Title/Description	Manufacturer	Contact & No.	Remarks
7270	Firestopping and Smoke Seals 1 Year Warranty, Manufacture's Certificates			*Indicate batch number, manufacturing date (s) and be addressed to sub-contractor*
7420	Aluminum Composite Panels 1 Year Warranty, Maintenance Data			
7510	Built Up Bituminous Roofing 5 Year and 10 Year Warranty			
7900	Joint Sealers 10 Year Manufacturer Warranty, 2 Year Written Warranty			

Section 8	Title/Description	Manufacturer	Contact & No.	Remarks
8100	Metal Doors and Frames CSDFMA Warranty			
8200	Wood and Plastic Doors 3 Year Warranty (Institutional Doors), 1 Year Warranty (Residential Doors), Life of Installation Warranty (Interior Fire Doors)			
8400	Entrances, Storefronts, Metal Windows 1 Year Warranty			
8700	Hardware 1 Year Warranty, Maintenance Material			*2 sets wrenches for door closure and locksets; 2 sets of manufacturers instructions for door closers, locksets, door holders and panic hardware*
8710	Overhead Concealed Automatic Aluminum Slide Door System 1 Year Warranty, Maintenance Material, Safety Data, O & M Materials			
8800	Glass & Glazing 1 Year Warranty			
8900	Aluminum Curtain Wall 1 to 5 Year Warranty			

Section 9	Title/Description	Manufacturer	Contact & No.	Remarks
9250	Gypsum Wallboard & Acoustic Ceiling 1 Year Warranty, Maintenance Material, Extra Stock Extra Stock: 2 % extra stock for each type of ceiling tile used			
9400	Terrazo Tile 1 Year Warranty, Maintenance Data			
9650	Resilient Flooring 1 Year Warranty, Maintenance Material, Extra Stock Extra Stock: 2 % extra stock for each type of floor tile used			
9680	Carpeting 1 Year Warranty, Maintenance Data, Extra Stock			

	Extra Stock: over and above usable cuttings, provide 5% extra stock			
9900	Painting 1 Year Warranty, Extra Stock Extra Stock: 1 litre of each finish material in each colour used on jobsite			

Section 10	Title/Description	Manufacturer	Contact & No.	Remarks
10250	Specialties 1 Year Warranty			

Section 11	Title/Description	Manufacturer	Contact & No.	Remarks
11730	Headwall Units 1 Year Warranty			
11760	Operating Room Ceiling Columns O & M Data			

Section 15	Title/Description	Manufacturer	Contact & No.	Remarks
15000	Mechanical- General Requirements As- Builts, 1 Year Warranty, Extended Warranties, O& M Data			
15300	Sprinklers As-Builts, Extra Stock, O & M Materials, Warrranties Extra Stock: Furnish one approved metal cabinet containing eight spare upright type sprinkler heads and two spare pendant type sptinkler heads with the necessary tools for replacing the same.			*O & M Data for: Pumps and controllers, backflow preventions*
Section 16	**Title/Description**	**Manufacturer**	**Contact & No.**	**Remarks**
16010	Electrical- General Requirements 1 Year Warranty, As-Builts, O & M Datal (as per Specifications), Certificates (as per Specifications)			

WARRANTY NOTICE

From: _____ Notice Number: _____
*Owner / Consultant **

To: _____ Address: _____
Contractor

_____

Work: _____
title and location

_____

Pursuant to paragraph 12.3.4 of GC 12.3 – WARRANTY of the *Contract* dated _____ between _____
and _____
notice is hereby given of an observed defect or deficiency in the *Work* as outlined below. Commence correction of the said defect or deficiency within _____ days, and notify the *Owner* and *Consultant* upon completion.

Description:

Issued by the Owner / Consultant *

_____ _____ _____
name and title of person signing *signature* *date*

distributed to:

**strike out as appropriate*