

BUILDING CONSTRUCTION – PUTTING IT ALL TOGETHER

DETAILED DESCRIPTION

Construction is a team effort with owners, contractors, architects, and subcontractors performing key functions throughout the lifecycle of a project. The “Building Construction – Putting It All Together” workshop delivers a step-by-step review of the project lifecycle, from initiation through close-out, with specific attention to the unique roles and responsibilities of these stakeholders at each phase.

Part 1: Introduction

- Construction sectors
- Stakeholders and their roles in the construction process
- Different stages of construction from development through design.

Part 2: Project Initiation – The Owner’s Perspective

- The project lifecycle from the owner’s perspective:
 - market demands
 - financial planning
 - feasibility studies
 - functional programming
 - design and engineering
 - procurement
 - construction

Part 3: The Design Process – Architect’s Role

- Role of the architect through phases of the design process:
 - Pre-design
 - Functional programming
 - Schematic design
 - Design development including the engagement of specialty consultants
 - Construction documents

Part 4: The Tendering Process – Owner & Contractor Perspectives

- Introduction to construction contracts and Canadian tendering law
- The competitive tendering process and RFPs
 - Definitions
 - Preparing tender documents
 - Drawings and specifications
 - Identifying bidders
 - Invitation to bid
- Contractor’s Perspective: Estimating Process
 - Developing the estimate
 - RFI’s
 - Mandatory site visits
 - Submitting tender
- Owner’s Perspective:
 - Receiving tender
 - Reviewing tender
 - Accepting tender/Contract award

Part 5: Project Delivery Methods

- Understanding project delivery systems and different ways that projects are organized and administered.

BUILDING CONSTRUCTION – PUTTING IT ALL TOGETHER

DETAILED DESCRIPTION

- Relationships between the project owner, consultant, and general contractor and how they are influenced by different project delivery methods
- The seven most common types of project delivery methods in Canada:
 - Design-bid-build (DBB) or stipulated price contracts
 - Cost Plus
 - Construction Management for Services
 - Construction Management for Services and Construction
 - Design Build (DB)
 - Public – Private Partnerships (PPP or P3)
 - Integrated Project Delivery (IPD)
- LEAN Construction
- Subcontracts

Part 6: Contract Law

- Basics of the legal agreement between the owner and the general contractor and the general contractor and the subcontractors:
 - Components required to make a contract
 - What documents are included in a construction contract
 - Canadian contract examples
 - Interesting contract terms and conditions
 - Breach of Contract
 - How contract disputes are resolved

Part 7: Preconstruction – Roles & Responsibilities: GC, Architect, Subcontractor

- General contractor's pre-construction responsibilities:
 - Company organization:
 - Preconstruction submittals
 - Bonds
 - Bid Bonds & Consents of Surety
 - Performance Bonds
 - Labour & Material
 - Construction Lien
 - Holdback Repayment
 - Certificates of Insurance
 - Insurance
 - General Liability Insurance and Wrap-up General Liability Insurance
 - Builder's Risk Broad Form Property Insurance
 - Boiler and Machinery/Equipment Breakdown Insurance
 - Automobile Liability Insurance
 - Installation Floater
 - The Construction Execution Plan (CEP)
 - The CEP is a road map that describes how a project will proceed and be executed and includes:
 - Organizes internal Project Team and assigns responsibilities
 - Receives and reviews estimate with Estimating Team at the Internal Handover meeting
 - Organizes the budget and schedule of values

BUILDING CONSTRUCTION – PUTTING IT ALL TOGETHER

DETAILED DESCRIPTION

- Scope of work review and determine the means and methods of construction
- Procurement: secures subcontractors and suppliers
- Secures permits and pays any fees for Letters of Credit (if required)
- Finalizes construction schedule
- Orders materials and equipment
- Organizes labour for duration of project
- Creates Site Specific Safety Plan
- Organizes and schedules required meetings and reports
- Sets up document control
- Identifies required submittals and develops submittals schedule
- Identifies required inspections and testing
- Develops the Site Layout Plan
- Develops a Risk Management Plan
- Initiates the Quality management plan
- Develops a project closeout submittals plan
- Develops a social responsibility plan addressing:
 - The environment
 - Construction
 - Communication/public relations
 - Health & safety
 - Community engagement
- Architect's pre-construction responsibilities:
 - Review agreements:
 - Finalize the construction contract
 - Manage over-budget tenders
 - Review regulatory requirements
 - Assemble the construction document sets
 - Review the construction schedule
 - Review the submittals schedule
 - Review the schedule of values
 - Organize the Owner's Pre-construction Meeting
 - Review of the construction site prior to start of construction
- Subcontractor's pre-construction responsibilities:
 - Obtains subcontract from the general contractor: reviews, negotiates, signs & returns
 - Obtains bonds and insurance as required by subcontract and company policy
 - Scope of work review
 - Develops the Construction Execution Plan
 - Organizes internal project team and assigns responsibilities
 - Receives and reviews estimate with Estimating Team at the Internal Handover meeting
 - Organizes the budget and schedule of values
 - Procurement: secures sub-subcontractors and suppliers
 - Secures permits
 - Secures engineer to provide engineered stamped shop drawings (if required)
 - Reviews construction schedule
 - Identifies required submittals and develops submittals schedule to submit to the general contractor
 - Orders materials and equipment
 - Organizes labour for duration of project

BUILDING CONSTRUCTION – PUTTING IT ALL TOGETHER

DETAILED DESCRIPTION

- Creates Site Specific Safety Plan
- Organizes internal project management control system – accounting, document control etc
- Organizes and assigns responsibilities for internal safety program
- Identifies required inspections and testing
- Organizes a process for tool and equipment management
- Develops a project closeout submittals plan
- Attends Subcontractor Start-up meeting with general contractor

Part 8: Construction – Roles & Responsibilities: GC, Architect, Owner, Subcontractor

- General contractor’s construction responsibilities:
 - Takes possession of the site and mobilizes
 - Issues “Notice of Project”
 - Organizes and manages own forces, equipment and material
 - Organizes Subcontractors and coordinates their work and performance
 - Monitors and manages project site safety
 - Applies the Construction Execution Plan
 - Monitors and manages the construction schedule
 - Monitors and manages delays and claims
 - Cost Control - Monitors and manages the budget
 - Manages the “Request for Information” (RFI) process
 - Manages the change management process
 - Manages the submittals process
 - Manages quality assurance and quality control (QA/QC) program
 - Manages risk and opportunity
 - Engages with Authorities Having Jurisdiction for required inspections throughout the duration of the construction.
 - Manages all ongoing daily and monthly project deliverables
 - Organizes and conducts meetings
 - Manages LEED requirements (if required)
 - Know all pertinent legislation and regulatory issues – Lien Act and others
 - Maintain as-built drawings
 - Maintains a safe and clean site
 - Ensures that all required testing and inspections are completed
 - Organizes and manages the deficiency review process
 - Manages commissioning of the building
 - Organizes and manages the occupancy process
 - Manages the project closeout submittals process
 - Works with the consultants to achieve substantial performance
 - Manages the building turn over process
- Architect’s construction responsibilities:
 - What is Contract Administration
 - Architect’s Role as Contract Administration
 - Construction contract administration processes and documentation
 - General communication requirements and procedures during contract administration
 - Retain and organize project documentation in a project management information system
 - Minutes or Records of Meetings
 - Requests for Information (RFI’s)
 - Supplemental Instructions (SI’s)

BUILDING CONSTRUCTION – PUTTING IT ALL TOGETHER

DETAILED DESCRIPTION

- Contract Changes Management
- Inspection and testing
- Submittal Review - Shop Drawings: Samples, Hierarchy, Mock-ups
- Proposed Alternate and Substitutions
- Construction Site Meetings
- General Review: Purpose, Architect's Considerations, Frequency & Timing (Progress Claims), Preparation, Procedures on/after Site Visit, Report
- Review Of Mock-Ups: Stand-alone, in-place, and virtual mock-ups, Special Requirements
- Certificates for Payment: Schedule of Values. Percentage of Work Complete, Statutory Holdbacks
- Interpretation of Documents
- Deficiency Reviews
- Final Submissions
- Other Certificates and Letters
 - Certificate of Substantial Performance
 - Letters of Assurance and Commitment to General Review
- Commissioning
- Owner's construction responsibilities:
 - Cooperates with the general contractor to the best of their ability
 - Provides timely payment for architect and general contractor
 - Attends Owner's Construction Progress Meetings
 - Reconciles contingency and cash allowances
 - Pays for all legitimate extras to the contractor
 - Ensures that the cost of the work is remaining within the forecasted budget and available monies
 - Works with the consultants and general contractor to resolve disputes quickly
 - Maintains insurances
 - Preparing for the transition to the new facility
- Subcontractor's construction responsibilities:
 - Mobilizes to site at the direction of the general contractor
 - Provides shop drawings and submittals as required
 - Provides input to the construction schedule
 - Ensures all workers are working in a safe manner
 - Maintains a protocol for equipment inspections
 - Attends and engage in all subcontractor meetings
 - Provides schedules of deliveries to general contractor
 - Organizes work
 - Manage cleanliness and organization of materials
 - Submits Requests for Information
 - Manages change management
 - Supplementary Instructions
 - Contemplated Change Order
 - Change Directives
 - Change Orders (CO's) from general contractor
 - Back charges from general contractor
 - Back charges to sub-subcontractors
 - Manages monthly billing
 - Ensures timely payment is made to sub-subcontractors and suppliers
 - Organizes inspections by Authorities Having Jurisdiction

BUILDING CONSTRUCTION – PUTTING IT ALL TOGETHER

DETAILED DESCRIPTION

- Monitors the construction schedule for delay
- Inspects own work to ensure that quality standards are met or exceeded
- Inspects own work for deficiencies and submit list to general contractor – rectify all deficiencies
- Provides project closeout submittals
- Demobilizes from site
- Submits final billings

Part 9: Post Construction – Roles & Responsibilities: GC, Architect, Owner, Subcontractor

- Contractor’s post-construction responsibilities:
 - Closing out the subcontractors
 - Manage subcontractors’ departure from site
 - Reconcile all change related financial issues
 - Reconcile accounts
 - Closing out the owner
 - Obtain the Certificate of Final Completion
 - Obtain a Letter of recommendation or a completed owner satisfaction survey
 - Prepare and submit the final invoice
 - Submit the invoice for the final release of holdback
 - Follow up on payments
 - Internal project close-out
 - Project Evaluation
 - Identify Outcomes
 - Identify Impacts
 - Project Evaluation Meeting: Attendees & Agenda
 - Lessons Learned
 - Final Commissioning
 - Warranty
- Architect’s post-construction responsibilities:
 - Takeover procedures
 - Ready for Takeover and Substantial Performance
 - Final Certificate for Payment
 - Certification for Release of Holdback
 - Commissioning
 - Warranty
- Owner’s post-construction responsibilities:
 - Furniture, fixtures, and equipment
 - Organizing Employees
 - Making Final Payments
 - Participating In Final Commissioning
 - Warranty
 - Implementing the Operational Readiness Plan
- Subcontractor’s post-construction responsibilities:
 - Reconcile sub-subcontractors financial accounts
 - Make final payments to sub-subcontractors
 - Reconcile financial accounts with general contractor
 - Perform an internal review of the project success
 - Attend meetings as required
 - Respond to warranty issues if required