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TECHNICAL BULLETIN NO. 4-2025

SUBJECT:

Owner's Division 1 - General Requirements

Revisions and additions to Division 1 - General Requirements under Section 4 Construction Standards of the BC Housing Design Guidelines and Construction Standards 2019

PURPOSE

Technical Bulletin No. 4-2025 (TB4) is adopted to revise Owner's Division 1 - General Requirements (Div 1) that are listed under the Section 4 of the Design Guidelines and Construction Standards 2019 of BC Housing (BCH). The Div 1 is revised:

- To align with the updates to BCH's Supplementary General Conditions (SGC) for the CCDC Construction Contract, either due to transition from CCDC2 2008 to the CCDC2 2020 version, or to address the feedback received from the British Columbia Construction Association (BCCA) on the former version of SGC.
- To incorporate emerging project needs and industry best practices.

The Div 1 identifies typical Owner's requirements for all BCH funded housing projects to ensure consistent quality and diligence standards. It follows specification writing standards for its potential seamless integration into project specifications. However, design professionals are required to develop project-specific *Contract Documents*, including *Specifications*, by incorporating these Owner's Div 1 requirements in addition to other unique project needs.

DESCRIPTION

The Technical Bulletin No. 4 revisions are within **Section 4 - Construction Standards** and are under **Division 1 - General Requirements**.

- **The following Sub-Divisions are revised under Div 1:**

- 01 23 00 - Alternatives (Deleted and replaced with the new Sub-division 01 25 00 - Substitutions and Alternative Procedures)
- 01 31 00 - Project Meetings
- 01 45 00 - Quality Control
- 01 74 19 - Construction Waste Management and Disposal
- 01 78 00 - Closeout Submittals (Renamed to 01 78 00 - Closeout Activities and Submittals)
- 01 91 00 - Commissioning (Renamed to 01 91 00 - Building Commissioning)
- To align with the SGC updates related to CCDC2 2008 to CCDC2 2020 transition, some corresponding terminologies are either revised or added under the Sub-divisions listed above. For instance, *Ready-for-Takeover* terminology is added, and Substantial Completion terminology is revised to *Substantial Performance*.
- To respond to BCCA's feedback for concise SGC, a few non-contract and project-specification type essential requirements are relocated from SGC to relevant Sub-divisions under Div 1. For instance, Construction Waste Management targets are relocated from SGC to the revised Sub-Division 01 74 19 - Construction Waste Management and Disposal.

- **The following new Sub-Divisions are added under Div 1:**

- 01 11 00 - Summary of Work
- 01 25 00 - Substitutions and Alternative Procedures
- 01 32 00 - Construction Progress Documentation
- 01 33 00 - Submittal Procedures
- 01 35 30 - Health and Safety
- 01 35 43 - Environmental Procedures
- 01 41 00 - Regulatory Requirements
- 01 42 00 - References
- 01 51 00 - Temporary Utilities
- 01 52 00 - Construction Facilities
- 01 57 00 - Temporary Controls
- 01 61 00 - Product Requirements
- 01 71 00 - Examination and Preparation
- 01 71 23 - Field Engineering
- 01 73 00 - Execution
- 01 73 29 - Cutting and Patching
- 01 74 00 - Cleaning

- The new Sub-divisions incorporate emerging project needs as identified through stakeholder feedback received. Also, it reflects industry best practices through alignment with Canadian Construction Documents Committee (CCDC) and Construction Specifications of Canada/ Construction Specifications Institute (CSC /CSI) standards.

LEGEND:

ADD followed by **Green font text** or **Green background** (for table headers): Added provision to BC Housing Design Guidelines and Construction Standards 2019 through Technical Bulletin No. 4-2025.

DELETE followed by ~~Striked text~~: Deleted provision from BC Housing Design Guidelines and Construction Standards 2019 through Technical Bulletin No. 4-2025.

RENUMBER (& RELOCATE) "X" to "Y": indicates the numerical notation and relative location within the BC Housing Design Guidelines and Construction Standards 2019 for this item has been changed from X to Y.

NOTE: For DELETE AND RENUMBER, only those clauses that are revised, are documented under this Technical Bulletin No. 4-2025.

SECTION 4 CONSTRUCTION STANDARDS

ADD

DIVISION 1 - GENERAL REQUIREMENTS

01 11 00 - SUMMARY OF WORK

.1 Documents:

This Sub-division of the *Specifications* forms part of the *Contract Documents* and is to be read, interpreted, and coordinated with all other parts.

.2 Work of this Contract:

- .1 *Work* of this *Contract* comprises the following:
 - .1 Identify the Project through name and location, including municipal address and *Owner*-provided legal description if required.
 - .2 Scope of *Work* comprises all *Contract Documents*.

.3 Division of the Work:

- .1 Division of the *Work* among *Subcontractors* and *Suppliers* is solely *Contractor's* responsibility. *Consultant* and *Owner* assume no responsibility to act as an arbiter to establish subcontract limits between Sub-divisions or Divisions of the *Work*. For construction by *Owner* or by *Other Contractors*, refer to relevant "General Conditions of *Contract*" under CCDC.

.4 Specifications Language and Style:

- .1 The project *Specifications* shall be written in the imperative mood and in streamlined form. The imperative language is directed to *Contractor*, unless stated otherwise.
- .2 Complete sentences by reading "shall", "*Contractor* shall", "shall be", and similar phrases by inference. Where a colon (:) is used within sentences and phrases, read the words "shall be" by inference.
- .3 When used in the context of a *Product*, read the word "provide" to mean "supply and install to result in a complete installation ready for its intended use."
- .4 *Contractor* is directly responsible for *Work* specified under Division 1 of the *Specifications*, including administrative procedures and general requirements applying to *Subcontractors*. Division 1 is not intended to define and limit division of labour between the *Contractor* and its *Subcontractors*.

.5 Documents at the Site:

Keep the following documents at *Place of the Work*, stored securely and in good order and available to *Owner* and *Consultant* in hard copy or electronic form.

- .1 Current *Contract Documents*, including *Drawings*, *Specifications*, Requests for Information (RFI), and Addenda.
- .2 *Change Orders*, *Change Directives*, and *Supplemental Instructions*.

- .3 Reviewed *Shop Drawings*, *Product* data, and samples.
- .4 Field test reports and records.
- .5 Construction Progress Schedule.
- .6 Meeting minutes.
- .7 Building Permit Drawings.
- .8 *Contractor's* Safety Program.
- .9 *Contractor's* Traffic Management Plan (TMP).
- .10 *Contractor's* Erosion and Sedimentation Control (ESC) Plan.
- .11 *Contractor's* Construction Waste Management Plan (CWMP).
- .12 *Contractor's* Construction Indoor Air Quality (IAQ) Management Plan.
- .13 Manufacturer's certifications.
- .14 Permits, inspection certificates, and other documents required by Authorities Having Jurisdiction (AHJ).
- .15 Current As-Built Drawings.
- .16 Fire Safety Program.
- .17 Site Reports.
- .18 Material Safety Data Sheets (MSDS) for all controlled *Products*.

.6 Owner's Representative:

- .1 The *Owner* will appoint a construction representative. The work site must be accessible for inspections by providing a notice reasonably in advance of the visit.

.7 Hours of Work:

- .1 Carry out all *Work* in accordance with Local Noise Control By-laws.
- .2 *Contractor* will be responsible to obtain and pay for Local Noise Control By-laws variances, if necessary to meet the Project Schedule.

.8 Labour Force:

- .1 The *Owner* supports the provision of opportunities for work experience and training in the construction industry for entry-level workers to trade apprentices. This includes recruitment from programs intended to grow skilled trades such as the Skilled Trades Employment Program (STEP) and registration in programs committing employers to supply a safe and productive work environment such as the Builders Code.

Where programs exist within a reasonable distance from the *Place of the Work*, the *Contractor* shall use reasonable commercial efforts to staff its labour force with individuals who have been placed through agencies such as BladeRunners, Embers, or similar organizations that provide ongoing training and support to persons with barriers to employment. Individuals placed

through these programs shall not be considered to be employees of the *Owner*. If no applicable program(s) exist within the geographic area of the *Work*, the *Contractor* may seek a waiver from the *Owner*.

The *Owner*, at its discretion, may require the *Contractor* or any *Subcontractor* to provide sufficient evidence of the involvement of such employees in the *Work*.

.9 Contractor's Use of Premises:

- .1 Confine *Construction Equipment*, *Temporary Work*, storage of *Products*, waste materials and debris, and all other construction operations to limits required by laws, ordinances, permits, and *Contract Documents*, whichever are most restrictive. Do not unreasonably encumber *Place of the Work*.

.10 Owner-Supplied Products:

- .1 *Owner-Supplied Contractor-Installed (OSCI)* items, such as appliances, shall be coordinated with *Owner/operating society*.
- .2 *Owner/operating society* responsibilities:
 1. Order and pay for *Owner-supplied Products* not already in *Owner's* possession.
 2. Arrange and pay for delivery of *Owner-supplied Products* Free On Board (FOB) to the site, within time frames required by Construction Progress Schedule.
 3. Advise *Contractor* in writing of the value of *Owner-supplied Products* for *Contractor's* insurance purposes.
 4. Inspect deliveries jointly with *Contractor*.
 5. Submit claims for transportation damage.
 6. Arrange for replacement of damaged, defective, or missing items identified at time of delivery.
 7. Arrange for manufacturer's field services.
 8. Arrange for delivery of manufacturer's warranties to *Contractor* for inclusion in operation and maintenance manual.
- .3 *Contractor* Responsibilities:
 1. Designate in Construction Progress Schedule, timeframes for delivery of *Owner-supplied Products* to the site and for receipt of related submittals. If the site is not ready to receive delivery of *Owner-supplied Products* within the timeframe indicated in the latest Construction Progress Schedule submitted to *Owner*, arrange and pay for delivery to a temporary storage location and subsequent delivery to the site.
 2. Review all required submittals and notify *Consultant* of any observed discrepancies or anticipated issues.
 3. Ensure that Course of Construction (COC) insurance is adequate to cover *Owner-supplied Products*.
 4. Receive and unload *Owner-supplied Products* at the site.
 5. Inspect deliveries jointly with *Owner*. Record and notify *Owner* and *Consultant* of shortages and visibly damaged or defective items.

6. Handle *Owner-supplied Products* at site, including uncrating and storage. Dispose of waste materials and debris.
7. Take appropriate precautions to protect *Owner-supplied Products* from loss or damage.
8. Repair or replace items damaged on site.
9. Assemble, install, connect, adjust, and finish *Owner-supplied Products* as specified.
10. Arrange for inspections required by Authority Having Jurisdiction (AHJ) as specified.
11. Arrange for or perform testing as specified.
12. Provide workmanship warranty for installation as specified.

End of Sub-division

DELETE**01 23 00 - ALTERNATIVES**

(01 23 00 - ALTERNATIVES Sub-division's former content is deleted in its entirety, and replaced with the new Sub-division 01 25 00 - SUBSTITUTIONS AND ALTERNATIVES PROCEDURES)

ADD**01 25 00 - SUBSTITUTIONS AND ALTERNATIVES PROCEDURES****.1 Definitions:**

- .1 In this Sub-division, "Substitution of Products" and "Alternatives" mean products, systems, assemblies, or manufactures that *Contractor* is proposing to use in the project in lieu of those specified in *Contract Documents* or *BC Housing Design Guidelines and Construction Standards (DGCS)*.

- .2 As per the *Instructions to Bidders* and *Supplementary General Conditions* documents, any Substitution of Products and Alternatives specified under *Contract Documents* or *BC Housing Design Guidelines and Construction Standards* must be approved by *Consultant*, *Owner*, and BC Housing in writing and prior to implementing variance on the *Project*. Refer to applicable BC Housing *General Terms and Conditions* and BC Housing *Supplementary General Conditions*.

- .3 BC Housing will consider Substitution of Products and Alternatives provided:

- .1 Substitution of Products and Alternatives shall be of similar type, perform same functions, and meet or exceed the quality and performance standards of those specified in *Contract Documents* and/or *BC Housing Design Guidelines and Construction Standards*, and
- .2 the estimated overall Lifecycle Cost remains consistent or is decreased.

- .4 Acceptance of any Substitution of Products and Alternatives will be based on the value of the estimated cost savings and relevance of the performance benefits to the *Project*.

.5 Substitution Procedures:

- .1 *Contractor* may propose a Substitution of Products and Alternatives wherever a *Product* or manufacturer is specified by proprietary name(s), unless there is accompanying language indicating that Substitution of Products and Alternatives will not be considered.
- .2 *Contractor* may propose a Substitution of Products and Alternatives wherever a *Product* or manufacturer is specified by proprietary name(s) and accompanied by language such as "or equal", "or approved equal", or other similar words.
- .3 Provided a proposed Substitution of Products and Alternatives submission includes all the information specified in this Sub-division under "Submission Requirements for Proposed Substitution of Products and Alternatives", *Consultant* will promptly review and accept or reject the proposed Substitutions of Products.

.6 Submission Requirements for Proposed Substitutions of Products and Alternatives:

- .1 Submit electronic (PDF) request for Substitution of Products and Alternatives for consideration. Limit each request to one (1) proposed Substitution of Products and Alternatives. If sample

must be submitted, then two (2) physical samples to be provided within five (5) *Working Days* of receiving electronic request.

.2 Include with each proposed Substitution of Products and Alternatives the following information:

1. Identification of the Substitution of Products and Alternatives, including *Product* name and manufacturer's name, address, telephone numbers, and website.
2. Reason(s) for proposing the Substitution of Products and Alternatives. For Substitution of Products and Alternatives requests due to supply issues, *Contractors* are to provide supporting information with request, such as email correspondence or a written statement from manufacturer and/or *Supplier*.
3. A statement verifying that the Substitution of Products and Alternatives will not affect the *Contract Price* and *Contract Time* or, if applicable, the amount and extent of a proposed increase or decrease in *Contract Price* and *Contract Time* on account of the Substitution of Products and Alternatives. If cost savings are cited as reason for request, credit via *Change Order* must be provided.
4. A statement verifying that the Substitution of Products and Alternatives will not affect the performance or warranty of other parts of the *Work*. For Substitution of Products and Alternatives requests involving appliances, *Contractors* are to provide confirmation that proposed appliances meet energy efficiency requirements.
5. Manufacturer's *Product* literature for the Substitution of Products and Alternatives, including material descriptions, compliance with applicable codes and reference standards, performance and test data, compatibility with contiguous materials and systems, and environmental considerations.
6. A summarized comparison of the physical properties and performance characteristics of the specified *Product* and the Substitution of Products and Alternatives, with any significant variations clearly highlighted.
7. Availability of maintenance services and sources of replacement materials and parts for the Substitution of Products, as applicable, including associated costs and time frames as of time of proposed Substitution of Products and Alternatives. For Substitution of Products and Alternatives requests, *Contractor* to confirm with manufacturer that proposed Substitution of Products and Alternatives are not currently planned to be discontinued within foreseeable time frames.
8. Estimated Lifecycle Cost savings resulting from the Substitution of Products and Alternatives. The minimum criteria and information have been developed to assist in preparing a "Lifecycle Cost" study for evaluation of Substitution of Products and Alternatives. "Lifecycle Cost" is defined in "[Introduction to Construction Standards](#)" under Section 4 of the BC Housing DGCS.
9. Design *Consultants* must submit the cost and performance data for review by BC Housing. Include the estimated increase or decrease to capital cost, "annual ownership costs", estimated service life, and quality and performance benefits as compared to the one that is specified.

10. The *Consultant* and the *Contractor* must coordinate the changes of the *Work* in conjunction with other parts of the *Work* that may be affected. Upon agreement by BC Housing to the changes, the *Contractor* shall be responsible for cost of changes resulting from their proposed Substitution of Products and Alternatives that affect other parts of the *Work*. A later claim for an increase to the *Contract Price* or *Contract Time* for other changes in the *Work* attributable to the Substitution of Products will not be considered.

End of Sub-division

01 31 00 – PROJECT MEETINGS

DELETE The Consultant shall use the following criteria as a guide in preparing this section.

- .2 Schedule a pre-construction meeting within fifteen (15) **ADD Working Days** of issuance of “Notice to Proceed (NOP)” letter **DELETE (design-tender) ADD (Design-Bid-Build)** or within fifteen (15) **ADD Working Days** of commencement of construction **DELETE (design-build) ADD (Design-Build)**.
- .3 Schedule and hold regular construction progress meetings, as required to expedite the Work **ADD and to discuss site safety-related aspects such as incidents, resolutions, reporting, etc.**, not less than once monthly.
- .5 Agenda for pre-construction meeting – the following agenda items (but not limited to) should be reviewed:
 - .4 Pre-construction documents – see construction *Contract* requirements, e.g., schedule of values, **DELETE/ADD eConstruction sSchedule**, insurance, insurance warranty requirements, bonds, Workers’ Compensation Board (WCB) **ADD standing and Notice of Project (NOP)** status, **DELETE/ADD bBuilding pPermit** status, and all other project-specific requirements.
 - .5 Use of the site – hours of operation, site contact information, tree protection, site accessed by the *Contractor*, **ADD health and safety ADD risk assessment and** orientation, and all other requirements.
 - .6 *Contract Documents* **ADD for construction purposes** – construction **DELETE/ADD eContract**, construction *Drawings*, and As-Built *Drawings* (at **DELETE substantial completion ADD Substantial Performance of the Work or Ready-for-Takeover** – whichever is applicable to the *Contract*).
 - .7 Contract Administration procedures – recording and distribution of minutes, progress claims, changes, **DELETE alternatives ADD Substitution of Products and Alternatives**, submittals, *Shop Drawing* reviews, reports, meetings, As-Built *Drawings*, Requests for Information (RFI), and release of lien holdback.
 - .10 Project Closeout/*Substantial Performance of the Work/Ready-for-Takeover* documents and procedures, **DELETE building handover guide**, and commissioning requirements as per *Contract* and Owner’s hired CxP.
 - .12 Temporary and permanent power – **ADD temporary and existing** utilities, site mobilization, and review of *Owner* and *Contractor* responsibilities and administrative procedures.
 - .14 Site security – **ADD temporary barriers and enclosures**, fencing and video surveillance requirements as per insurance, and safety signage.
 - .18 Site photographic documentation **ADD during construction progress and Closeout phases**.
 - .19 Third-party inspection or testing for quality assurance – e.g. energy modelling, **ADD Roofing Contractors Association of BC (RCABC)**, **ADD Master Painters Institute (MPI)**, Owner-hired Commissioning Provider **ADD (CxP)**, and Project Technical Consultant **ADD (PTC)**.
 - .21 *BC Housing Hazardous Material Inventory Spreadsheet* **DELETE or inventory spreadsheet** – for renovation project.

ADD

- .22 Existing conditions on site - refer to Appendix A - Hazardous Material General Information of *BC Housing Design Guidelines and Construction Standards* for WorkSafeBC regulations under the Workers Compensation Act, HazMat, and Site Walkthrough requirements.
- .23 *Owner-supplied Products.*
- .24 Cleaning and Construction Waste Management requirements.
- .25 Layout of *Work.*

.6 Construction Progress Meetings:

- .1 *Contractor* shall prepare meeting agendas, chair the meetings, and record and distribute the minutes.
- .2 Arrange for and provide physical space for meetings.
- .3 *Contractor* shall distribute copies of minutes, within three (3) *Working Days* after each meeting, to meeting attendees and any affected parties who may not be in attendance.

RENUMBER .6 to .7

- .7** Agenda for construction progress meeting should follow (but is not limited to) the items mentioned:
 - .2 **ADD** *Work progress since previous meeting.* Review of items of significance that could affect progress and/or project costs, **ADD** *including proposed resolutions to maintain Contract requirements.*
 - .4 Status of proposed changes **ADD** *in the Work.*

ADD

- .12 Status of RFI.

RENUMBER .7 to .8

- .8** Building Handover Meeting: to be undertaken prior to actual Building Occupancy. This meeting will focus on final commissioning activities, occupancy and handover, staff training, move-in, closeout submittals, and final and warranty inspections. **DELETE** ~~Refer to *BC Housing Guide to Building Handover.*~~

RENUMBER .8 to .9

- .9** Post-Occupancy Meetings: the following meetings should be held to discuss the procedures and requirements for overall completion of the *Project*.
 - .1 Post-completion review meeting: to be undertaken within three (3) months of **ADD** *building occupancy.* The meeting will include analysis of the **DELETE** ~~budget~~ **ADD** *Contract Price, Contract Time, DELETE schedule, ADD scope of Work, Change Orders* variances, communication among the stakeholders, risk management and operational issues, along with identifying the successes of the project and the areas for improvement. The commissioning activities and any seasonal testing shall be completed for full operation.

- .2 Six-month review meeting: to be undertaken within six (6) months after *Substantial* ~~DELETE completion~~ **ADD** *Performance of the Work or Ready-for-Takeover (whichever is applicable to the Contract)*, if required for the project. The purpose is to review the operational log for any deficiencies that are to be corrected by the *Contractor* and *Owner's* training requirements after initial handover.
- .3 Warranty review meeting: within two (2) months prior to expiry of warranty.

End of ~~DELETE Section~~ **ADD** *Sub-division*

ADD**01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION**

- .1** This Sub-division specifies *Contractor's* responsibilities for preparation and submission of schedules and other documentation related to tracking construction progress.
 - .1 *Contractor* shall provide *Consultant*, *Owner*, and BC Housing with construction progress updates monthly through the Course of Construction (COC) phase to demonstrate that actual progress aligns with planned schedule and *Contract Time*.
 - .2 *Contractor* shall proactively identify and manage schedule issues and risks to ensure planned progress is maintained or revised to meet the *Contract Time*.
- .2 Construction Progress Schedule:**
 - .1 Construction Schedule shall be developed around critical path and long-delivery lead-time items to meet *Contract Time*.
 - .2 Provide a work breakdown structure identifying key activities, work packages, and major milestones, including long-delivery *Products*, inspection and testing activities, preparation and review of mock-ups, *Owner* decisions for cash allowances, shutdown or closure activities, delivery of *Owner*-supplied *Products*, demonstration and training activities, and similar items, at a sufficient level of detail to effectively manage construction progress.
 - .3 Indicate milestone dates for Substantial Performance of the Work or Ready-for-Takeover (whichever is applicable to the contract) and Building Handover.
 - .4 Submit initial schedule to *Owner* and *Consultant* within ten (10) *Working Days* after *Contract* is awarded.
- .3 Submittals Schedule:**
 - .1 Prepare Submittal Schedule identifying all required *Shop Drawings*, *Product* data, and sample submissions, including samples required for testing and those for *Owner*-supplied *Products*, with planned submittal dates, review time, response deadlines, and resubmission contingencies.
 - .2 Submit initial schedule to *Consultant* within twenty (20) *Working Days* after *Contract* award.
- .4 Schedule Management:**
 - .1 A schedule submitted as specified and accepted by *Consultant* shall become the baseline schedule and shall be used as the baseline for updates.
 - .2 At each regular progress meeting, review and discuss current construction progress and submittals schedules with *Consultant* and *Owner*, including activities that are behind schedule and planned measures to regain schedule slippage in key areas on or near the critical path.
- .5 Progress Documentation:**
 - .1 Arrange for periodic digital photography to document and provide a photographic record of the progress of the *Work*.

- .1 All documentation services shall track progress at regular intervals (typically monthly) throughout the construction in chronological order, and, in addition, special dates like milestones, mock-ups, testing, inspection, commencement, completion, miscellaneous events such as materials arriving on site, waste handling/recycling as determined by *Owner/Consultant*, and, at handover, training on building systems. The documentation shall include date, electronic indexing, navigation through architectural plans, storage, and online access.
 - .2 Exterior progress documentations: include all elevations and major site features like underground utilities, soil and sediment control, adjacent buildings, blindside property line excavation, reinforcing drainage, concrete wall construction, outside progression of building envelope, roof construction, and more.
 - .3 Interior progress documentations: include interior improvements by areas like interior wall framing, insulation, air/vapour barrier and finishes, envelope and suite-level air-tightness details, flooring installation, interior finishes, millwork, and more.
 - .4 Overlapping images of all in-slab utilities within the building and all finished systems located in the walls and ceilings for mechanical, electrical, plumbing, and all other systems.
- .2 Do not use progress or any other *Project* photographs for promotional purposes or share it with others/third parties without *Owner's* written consent.

.6 Inspection Reports:

- .1 The *Contractor* shall provide to the *Consultant* copies of all inspection reports from third-party inspection agencies and the Authorities Having Jurisdiction (AHJ) as they are received.

End of Sub-division

ADD**01 33 00 - SUBMITTAL PROCEDURES**

- .1** Submit specified submittals to *Consultant* for review. Submit with reasonable promptness and in orderly sequence to not cause delay in the *Work*.
- .2** Where required by Authorities Having Jurisdiction (AHJ), provide submittals to such authorities for review and approval.
- .3** Do not proceed with *Work* affected by a submittal until review is complete.
- .4** Review submittals, provide verified field measurements as required to coordinate work and affected adjacent areas, and affix *Contractor's* review stamp prior to submission to *Consultant*.
- .5** All existing site-specific conditions must be included on *Shop Drawings*, including dimensions of existing and/or completed construction.
- .6** Accompany submittals with a transmittal page including date, project title and number, *Contractor's* name and address, identification of each submittal item, and quantity.
- .7** Submit electronic copy of *Shop Drawings* in PDF. Submit electronic copy of Product Data Sheets or brochures in PDF where not specified in the technical *Specifications*.
- .8** Allow for *Consultant's* review of each submittal in accordance with the agreed-upon schedule and incorporate in Submittals Schedule specified in Sub-division 01 32 00 - Construction Progress Documentation. *Contractor's* failure to submit to allow reasonable review time is not considered sufficient cause for an extension of *Contract Time*, Product Substitution, or other deviations from *Contract Documents*.
- .9** Adjustments made by the *Consultant* to *Shop Drawings* are not intended to change the *Contract Price*. Any adjustments to the *Work* that affect price must be first approved by the *Owner* in writing and in accordance with the *Change Order* provisions of the *Contract*.
- .10** Do not propose Product Substitutions and Alternatives or deviations from *Contract Documents* via *Shop Drawing*, *Product* data, and sample submittals. See Sub-division 01 25 00 - Substitutions and Alternatives Procedures.
- .11** Submit samples for *Consultant's* review in duplicate where specified in the technical *Specifications*. Label samples as to origin, *Project* name, and intended use with reference to *Contract Documents*.
- .12** Notify *Consultant* in writing of any deviations in samples from requirements of *Contract Documents*.
- .13** *Consultant* selection from samples is not intended to change the *Contract Price* or *Contract Time*. If a selection would affect the *Contract Price* or *Contract Time*, notify *Consultant* in writing prior to proceeding with the *Work*.
- .14** Resubmit samples as required by *Consultant* to comply with *Contract Documents*.

.15 Engineered *Shop Drawings* (For secondary structural items only):

- .1 The *Consultant* may, as part of the *Work*, require that a *Shop Drawing* be stamped by a registered Professional Engineer licensed to practice in the Province of British Columbia, with appropriate skill and knowledge indicating that the *Shop Drawing* has been prepared in compliance with applicable codes and design standards and good engineering practice.
- .2 The *Contractor* is responsible to have all aspects of the *Work* as described in *Shop Drawings*, including, for example, building elements such as connections of building elements to the building designed and fabricated or constructed in full compliance with all applicable laws and codes.
- .3 For that purpose, the *Contractor* is responsible, where required, to have a *Shop Drawing* prepared and sealed by a registered Professional Engineer licensed to practice in the Province of British Columbia.

End of Sub-division

ADD**01 35 30 - HEALTH AND SAFETY****.1 Reference Standards and Regulations:**

- .1 **British Columbia Building Code (BCBC) or City of Vancouver Building By-law (VBBL), current edition:**
 - .1 BCBC or VBBL Part 8 - Safety Measures at Construction and Demolition Sites.
- .2 **Canada Labour Code:**
 - .1 Part II - Occupational Health and Safety.
 - .2 Canada Occupational Health and Safety Regulations.
- .3 **Health Canada/Workplace Hazardous Materials Information System (WHMIS):**
 - .1 Material Safety Data Sheets (MSDS).
- .4 **B.C. Environmental Management Act:**
 - .1 Contaminated Sites Regulation.
 - .2 Hazardous Waste Regulation.
- .5 **BC Housing:**
 - .1 *BC Housing Design Guidelines and Construction Standards Appendix A - Hazardous Material General Information*, current edition.
- .6 **WorkSafeBC Occupational Health and Safety Regulation:**
 - .1 All *Contractors* and *Sub-contractors* must be registered and in good standing with WorkSafeBC.
 - .2 Where a *Contractor* is a sole-individual, they must have Personal Optional Protection with WorkSafeBC.
- .7 This Sub-division describes requirements applicable to all Sub-division within all Divisions.

.2 Construction Safety:

- .1 The *Contractor* shall appoint a safety representative ("Construction Safety Officer (CSO)") to be responsible for communication with the *Owner, Consultant*, workers, and WorkSafeBC with respect to health and safety issues.
- .2 Where working on BC Housing's owned and operated properties, the CSO shall liaise with the Property Manager to coordinate health and safety on the site. This shall include but not be limited to site safety, coordination of activities, and incident reporting.

.3 BC Housing General Requirements:

- .1 Smoking is only permitted outdoors in designated smoking areas and not in the construction *Work* areas.
- .2 All workers shall wear personal identification when working on site for tenant safety and security.

- .3 Workers shall not conduct themselves or communicate with any individual in a way that the worker knows, or reasonably ought to know, would cause the individual to be humiliated or intimidated.

End of Sub-division

ADD**01 35 43 - ENVIRONMENTAL PROCEDURES**

- .1** BC Housing has developed and adopted Appendix A - Hazardous Material General Information under BC Housing *Design Guidelines and Construction Standards*, with respect to environmental procedures. It references and incorporates prevailing industry standards and regulatory requirements that are followed in the construction industry in BC. *Contractor* shall follow these requirements, protect natural resources during construction activities, and minimize and divert construction waste.
- .2 Construction Ventilation and Preconditioning:**
 - .1 Construction ventilation: Materials that emit Volatile Organic Compounds (VOC) are to be avoided; however, maintain sufficient temporary ventilation of areas where materials are being used that emit VOCs. Maintain ventilation continuously during installation and until emissions dissipate after installation. If continuous ventilation is not possible via building's heating, ventilation, and air conditioning (HVAC) system(s), then ventilation shall be supplied via open windows and temporary fans, sufficient to provide no less than three (3) air changes per hour.
 - .2 The period after installation shall be sufficient to dissipate odours and elevated concentrations of VOCs. Where no specific periods are stated in these *Specifications*, a period of seventy-two (72) hours shall be used. This period is not considered part of the "building flushing-out" period.
 - .3 Ventilate areas directly to outside; ventilation to other enclosed areas is not acceptable.
 - .4 During dust-producing activities (e.g., drywall installation and finishing), turn ventilation system off, and openings in supply and return HVAC system shall be protected from dust infiltration. Provide temporary ventilation as required.
 - .5 Preconditioning: Store *Products* that have odours (and that have significant VOC emissions to off-gas) in dry, well-ventilated space for a sufficient period to allow for reasonable dissipation of odours and emissions prior to delivery to *Project*.
 - .6 Condition *Products* without containers and packaging to maximize off-gassing of VOCs. Condition *Products* in a ventilated warehouse or other building. Comply with substitution requirements for consideration of other locations. See Sub-division 01 25 00 - Substitutions and Alternatives Procedures.
- .3 Sequencing:**
 - .1 On-site application: Where odorous and/or high-VOC-emitting *Products* are applied on site, apply prior to installation of porous and fibrous materials. Where this is not possible, protect porous materials with polyethylene vapour retarders.
 - .2 Complete the installation of interior finishes to allow adequate time prior to date of *Substantial Performance of the Work* or *Ready-for-Takeover* (whichever is applicable to the *Contract*) to permit the complete cleanup of the building.
 - .3 When *Contractor* is required to perform touch-up work, provide temporary construction ventilation during installation, and extend building flushing-out accordingly.

.4 Hazmat Disposal:

- .1 Refer to *BC Housing Design Guidelines and Construction Standards Appendix A - Hazardous Material General Information*. This appendix provides a quick overview when disturbing hazardous materials to establish safe working conditions and provide additional information on applicable codes and regulations and removal and disposal of common and hazardous waste in accordance with B.C. Environmental Management Act and regional and municipal regulations.

End of Sub-division

ADD**01 41 00 - REGULATORY REQUIREMENTS**

- .1** Execute the *Work* in accordance with applicable by-laws, regulations, and building codes; conform to latest published revisions, addenda, supplementary, and/or appropriate current standards presently recognized and enforced by Authorities Having Jurisdiction (AHJ).
- .2** Submit to the *Consultant* during construction and upon completion of the *Work* all certificates of inspection provided by AHJ. At completion, obtain Occupancy Permit, and all certificates of approval as may be issued by building, plumbing, electrical, health, fire, safety, engineering, zoning/planning, and other departments, or by other inspection by AHJs over site and *Project*.

End of Sub-division

ADD**01 42 00 - REFERENCES**

.1 *Consultant* to reference current edition of the reference standards in the *Contract Documents*.

.2 Conflicting Requirements:

- .1 Where compliance with two (2) or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the *Consultant* for a decision before proceeding.

.3 Reference Standards:

- .1 Conform with the provisions or standards referenced in the sub-divisions of the *Specifications* with the same force and effect as if the standards referenced were bound or copied directly into the Sub-division, except:
 - .1 Conform with more stringent provisions when contained elsewhere in the *Contract Documents*; and
 - .2 Where a reference standard is specifically dated in the *Specifications*, references to standards will be taken to mean the latest edition in effect at the date of award of this *Contract*. In the case of standards (dated or not) that appear in the *Specifications*, and that are referenced in the applicable building code, the specific edition of the standard referenced in the code shall govern; and
- .3 In case of a conflict between referenced version of standards in the *Contract Documents* and new edition of standards that is in effect at the date of award of the *Contract*, the new edition shall govern.

End of Sub-division

01 45 00 – QUALITY CONTROL

RENUMBER & RELOCATE

.1 Inspection and Testing of Materials to **.3 Independent Inspection and Testing of Materials**

ADD

.1 General:

- .1 Depending on size and complexity of the Project, adopt an effective quality control program for the *Project*.

.2 Mock-ups:

1. Construct full-size mock-ups on site of the following conditions **ADD** as specified in the *Contract Documents* and in locations directed by the ~~DESIGN~~ **design Consultant**. Make changes to the mock-ups as directed by the ~~DESIGN~~ **design Consultant and Building Envelope** **ADD Consultant**. Mock-ups, once accepted, may be used in the finished work, and will serve as a standard against which other work will be judged. **ADD** The following mock-ups should be constructed and reviewed for acceptance, as applicable:
 - .1 Typical exterior wall construction: include exterior wall finish, backup walls, wall cavities, flashings, air seal membranes, insulation, sealants, sheathing, and sheathing membranes, as applicable.
 - .2 Windows: include installed window frame, window anchors, glazing, flashing, air seal membrane connection, sealants, and finished trim, as applicable. Refer to [Sub-division 08 50 00 - Windows, Side Hinged & Sliding Glass Doors](#).
 - .3 Masonry mock-ups.
 - .4 Complete suite mock-up for modular construction and typical construction.
 - .5 Exterior cladding mock-ups.
 - .6 Painting: see [Sub-division 09 91 00 - Painting](#).
 - .7 Flooring: see [Sub-division 09 65 00 - Resilient Flooring](#).

ADD

- .2 Prepare mock-ups for the *Consultant's* review with reasonable promptness and in an orderly sequence, so as not to cause any delay in the *Work*. Preparing mockups and concluding reviews are considered as part of the *Project* scope, and it shall not result in requests for extension of *Contract Time* and *Contract Price*.

RENUMBER .2 to .3

- .3 Indicate mock-up inspections on the Construction Schedule. Coordinate with regular site meetings, if possible. Inform the BC Housing Inspector and the *Consultant* at least two (2) **ADD Working Days** in advance of mock-up inspections.

RENUMBER .3 to .4

- .4 Provide photographic documentation for mock-ups as specified in [Sub-division 01 78 00 - Closeout Submittals](#). Notify the service provider twenty-four (24) hours before commencing mock-up area, and do not cover area until after photographs have been taken.

.3 ADD Independent Inspections & Testing of Materials (BC Housing):

- .2 If any defects are revealed during inspection and testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. The ~~DELETE Contractor~~ **ADD Contractor** must correct defects and irregularities as advised by the ~~DELETE design Consultant~~ **ADD Consultant** at no additional cost to the ~~DELETE Owner~~ **ADD Owner**. The ~~DELETE Contractor~~ **ADD Contractor** must pay all costs of re-testing and re-inspection.
- .3 Within fifteen (15) ~~DELETE days~~ **ADD Working Days** of award of the **ADD Contract**, the **ADD Contractor** must submit to the ~~DELETE design~~ **ADD Consultant** a list of the proposed independent inspection agencies for review and approval by the ~~DELETE Owner~~ **ADD Owner**, the ~~DELETE design Consultant~~ **ADD Consultant**, and BC Housing, ~~DELETE if not the Owner~~.
- .4 Notify the ~~DELETE design Consultant, Owner,~~ and testing agency two (2) ~~DELETE days~~ **ADD Working Days** prior to expected time for operations requiring inspection and testing. When tests or inspections cannot be performed through the fault of the *Contractor*, the *Contractor* is responsible for reimbursing the *Owner* for additional costs incurred.
- .5 Submit PDF ~~DELETE electronic copy~~ of inspections and test reports to each of: the *Owner*, **ADD the DELETE Design Consultant**, and BC Housing.
- .6 ~~DELETE Provide~~ **ADD Keep** a hard copy of inspections and test reports on site for all time. **ADD The Contractor** shall provide to the *Consultant* copies of all inspection reports from the various Authorities Having Jurisdiction (AHJ) forthwith as they are received from time to time.

ADD

- .7 Employment of inspection and testing agencies by *Contractor* or *Owner* does not relieve *Contractor* from responsibility to perform the *Work* in accordance with *Contract Documents*.
- .8 *Contractor* to allow and arrange for inspection and testing agencies to have access to the *Work*, including access to off-site manufacturing and fabrication plants.
- .9 For inspection and testing required by *Contract Documents* or by AHJ, provide *Consultant* and inspection and testing agencies with timely notification in advance of required inspection and testing.
- .10 Inspection and Testing Agency Reports:
- .1 For inspection and testing required by *Contract Documents* or by regulatory requirements, and performed by *Contractor* retained inspection and testing agencies, submit to *Consultant* and *Owner* copies of reports. Submit within five (5) *Working Days* after completion of inspection and testing.
- .2 For inspection and testing performed by *Owner*-retained inspection and testing agencies, copies of inspection and testing agency reports will be provided to *Contractor*.

- .11 For remedial work required to repair or replace defective or unacceptable work, refer to Sub-division 01 73 00 - Execution Requirements.

End of Sub-division

ADD**01 51 00 – TEMPORARY UTILITIES****.1 Temporary Water Supply:**

- .1 Arrange and pay for a temporary supply of water required during construction.
- .2 The use of fire protection piping for supply of temporary water for construction is not permitted.

.2 Temporary Heating and Ventilation:

- .1 Arrange and pay for temporary heating and ventilation required during construction.
- .2 Vent construction heaters in enclosed spaces to the outside, or use flameless type of construction heaters.
- .3 Provide temporary ventilation for the *Work* as required to maintain a safe work environment meeting applicable regulatory requirements.
- .4 Do not use the new permanent building heating and ventilation systems during construction.

.3 Temporary Electrical Power and Lighting:

- .1 Arrange and pay for temporary power and lighting required during construction.
- .2 Arrange and pay for necessary connections and disconnections of temporary power and lighting in accordance with regulatory requirements.
- .3 Do not use the new permanent building power and lighting systems during construction. If the new permanent building power and lighting systems are used during construction, *Contractor* shall pay for utility costs resulting from the use.
- .4 Provide and maintain temporary lighting throughout the project. The level of illumination on all floors and stairs shall be not less than that required by the WorkSafeBC Occupational Health and Safety Regulation.

.4 Removal of Utilities:

- .1 Remove temporary utilities, equipment, and materials, and repair any damage caused by their installation, prior to final application for payment.

End of Sub-division

ADD**01 52 00 - CONSTRUCTION FACILITIES****.1 Construction Facilities - General:**

- .1 Provide temporary construction facilities as necessary for performance of the *Work* and in compliance with applicable regulatory requirements.

.2 First Aid Facilities:

- .1 To conform to WorkSafeBC regulations.

.3 Traffic Control:

- .1 Provide and maintain flag persons, traffic signals, barricades, and detours as required by local authorities for the control of existing traffic patterns.

.4 Site Offices:

- .1 Provide a temperature-controlled and ventilated office, with suitable lighting, of sufficient size to accommodate site meetings and furnished with drawing laydown table. Provide a computer in the office connected to an internet service provider for sending and receiving email.

- .5 Provide heated storage areas as required for materials supplied by *Owner* to the *Contractor* for installation.

.6 Project Identification Signs and Public Statements:

- .1 The *Contractor* shall not erect or permit the erection of any sign or advertising at the *Place of the Work* without the prior written approval of the *Owner*.
- .2 The *Contractor* shall not make any public statement with respect to the *Project* without the prior written consent of the *Owner*.

End of Sub-division

ADD**01 57 00 - TEMPORARY CONTROLS****.1 Plant Protection:**

- .1 Protect trees and other plant material designated to remain on site and on adjacent properties where indicated on *Drawings*, on arborist report, and as per Authorities Having Jurisdiction (AHJ) requirements.
- .2 Protect trees and shrubs susceptible to damage during construction by encasing with protective wood framework from grade to an effective height.
- .3 For trees designated to remain, protect roots inside dripline from disturbance or damage during excavation and grading. Avoid traffic, dumping, and storage of materials over root zones.

.2 Dust and Particulate Control:

- .1 Implement and maintain dust and particulate control measures in accordance with applicable regulatory requirements to minimize spreading of dust on site or to adjacent properties.

.3 Dewatering:

- .1 Do not pump water containing suspended materials or other harmful substances into waterways, sewers, or surface drainage systems. Treat or dispose of such water in accordance with applicable regulatory requirements.

.4 Erosion and Sediment Control (ESC):

- .1 To civil specifications and in accordance with applicable regulatory requirements.

.5 Pollution Control:

- .1 Take measures to prevent contamination of soil, water, and atmosphere through uncontrolled discharge of noxious or toxic substances and other pollutants, potentially causing environmental damage.
- .2 Take immediate action to contain and mitigate harmful effects of the spill or release.

.6 Noise abatement:

- .1 To requirements of AHJ and local by-laws.

End of Sub-division

ADD**01 61 00 – PRODUCT REQUIREMENTS****.1 General:**

- .1 Provide *Products* that are new and not damaged or defective, and suitable for purpose intended, and in compliance with *Contract Documents*. If requested by *Consultant*, furnish evidence as to type, source, and quality of *Products* provided.
- .2 Unless otherwise specified, maintain uniformity of manufacture for like items throughout.
- .3 Permanent manufacturer's markings, labels, trademarks, and nameplates on *Products* are not acceptable in prominent locations, except where required by regulatory requirements or for operating instructions, or when located in mechanical or electrical rooms.

.2 Material and Product Quality:

- .1 Conform to all CGSB, CSA, CAN, ASTM, ULC, and FM standards as noted in the project *Specifications*, and provide the *Consultant* with evidence of material conformity if requested.

.3 Material and Product Availability and Delivery Times:

- .1 During construction, review and confirm *Product* availability and delivery times at regular intervals, while considering supply chain, manufacturing, and transportation lead times. Order *Products* in sufficient time to meet the Construction Schedule and the *Contract Time*.
- .2 If a specified *Product* is no longer available, promptly notify *Consultant*. *Consultant* shall take action as required.
- .3 If delivery delays are foreseeable, for any reason, promptly notify *Consultant*.
 - .1 If a delivery delay is beyond *Contractor's* control, *Consultant* will provide direction.
 - .2 If a delivery delay is caused by something that was, or is within *Contractor's* control, *Contractor* shall propose actions to maintain the Construction Schedule for *Consultant's* review and acceptance.

.4 Storage, Handling, and Protection:

- .1 Store, handle, and protect *Products* during delivery to *Place of the Work*, and before, during, and after installation in a manner to prevent damage, adulteration, deterioration, and soiling.
- .2 Comply with manufacturer's instructions for storage, handling, and protection. Promptly inspect shipments to ensure that *Products* comply with requirements, quantities are correct, and *Products* are undamaged.
- .3 Provide secure off-site storage, to the satisfaction of BC Housing requirements, when on-site storage is logistically impossible due to site size or access restrictions.
- .4 Remove and replace damaged *Products*.

End of Sub-division

ADD**01 71 00 – EXAMINATION AND PREPARATION****.1 Surveyor Qualifications, Submittals, Survey Reference Points, Survey Requirements and Records:**

- .1 Refer to [Sub-division 01 71 23 – Field Engineering](#).

.2 Examination:

- .1 Verification of Existing Conditions:
 - .1 Riparian areas regulation assessment, preliminary site investigations, and sensitive ecosystem development permit, as applicable.
 - .2 Site walkthrough, safety inspections, and safety measures in compliance with WorkSafeBC regulations and other regulatory requirements.
 - .3 Arborist report and impacts related to bird-nesting seasons to coordinate construction activities to meet *Contract Time* and schedule.
- .2 Although the design/*Consultant* team has done a detailed study of the existing structures, the existence and location of site improvements, utilities, and other construction indicated as existing shall be confirmed by the *Contractor* using the BC 1 Call service. Before beginning *Work*, investigate and verify existence and location of mechanical and electrical systems and other construction affecting the *Work*.

.3 Preparation:

- .1 Existing Utilities and Structures:
 - .1 Promptly notify *Consultant* if underground utilities, structures, or their locations differ from those indicated in *Contract Documents* or in available project information. *Consultant* will provide appropriate direction.
 - .2 Record locations of maintained, re-routed, and abandoned utility lines.

End of Sub-division

ADD**01 71 23 - FIELD ENGINEERING****.1 Submittals:**

- .1 Submit to *Owner* and *Consultant* the survey of the *Work* prepared and issued by a registered Land Surveyor on completion of the building footings and foundations, as required by Authorities Having Jurisdiction (AHJ), and on completion of the *Work*.

.2 Records:

- .1 Certified Surveys: On completion of foundations and major site improvements, prepare a certified survey showing all pertinent data, information, dimensions, locations, angles, and elevations of the *Work*, and submit two (2) copies signed and sealed by registered Land Surveyor to the *Consultant*.
- .2 Final Property Survey: Submit five (5) hard copies and a digital copy showing the *Work* performed and record survey data.

End of Sub-division

ADD**01 73 00 - EXECUTION**

- .1** Notify *Consultant*, in writing, of conflicts between *Contract Documents* and manufacturer's instructions where, in *Contractor's* opinion, conformance with *Contract Documents* instead of the manufacturer's instructions may be detrimental to the *Work* or may jeopardize the manufacturer's warranty.
- .2 Conceal pipes, ducts, and wiring in floors, walls, and ceilings in finished areas:**
 - .1 After review by *Consultant* and Authority Having Jurisdiction (AHJ), and
 - .2 Where locations differ from those shown on *Drawings*, after recording actual locations on As-Built Drawings.
- .3** Use non-corrosive fasteners and anchors for securing exterior work and in spaces where high humidity levels are anticipated.
- .4 Mounting Heights:**
 - .1 Where mounting heights are not indicated, mount components at heights directed by *Consultant*, and in compliance with requirements of *BC Housing Design Guidelines and Construction Standards (DGCS)*.
- .5** Promptly remove, replace, clean, or repair, as directed by *Consultant*, work damaged as a result of inadequate protection. Work damaged or defaced due to failure in providing such protection is to be removed and replaced or repaired, as directed by the *Consultant*, at no increase in *Contract Price*.
- .6 Remedial work:**

Notify *Consultant* of and perform remedial work required to repair or replace defective or unacceptable work.

 - .1 BC Housing has developed and adopted the following reference document with respect to remedial work required for deficiency- and/or quality-related issues, while referencing and incorporating prevailing industry standards and regulatory requirements, such as those set out in the Homeowner Protection Act, that are followed in the construction industry in B.C.
 - .1 BC Housing [Residential Construction Performance Guide](#) (current edition)

End of Sub-division

ADD**01 73 29 - CUTTING AND PATCHING****.1 Regulatory Requirements:**

- .1 Asbestos-containing materials (ACM) being disturbed, handled, removed, or disposed of shall be performed in compliance with requirements identified in [Appendix A \(Hazardous Material General Information\)](#) of *BC Housing Design Guidelines and Construction Standards (DGCS)*.
- .2 Comply with BC Housing asbestos abatement requirements, identified in [Appendix A \(Hazardous Material General Information\)](#) of *BC Housing DGCS*.
- .3 Hazardous Material Inventories:**
 - .1 Prior to commencing *Work* activities, *Contractors, Consultants, and Suppliers* are required to view the online [Hazardous Materials Inventory Site](#) to check for known hazardous materials (such as asbestos or lead-based paint) and other potential hazards to ensure safe working conditions.
 - .2 If the project site is not listed at the online *Hazardous Materials Inventory Site*, check with BC Housing to find out if it is available elsewhere. If available, it will be provided.
 - .3 If *Contractor* is required to conduct a hazardous building material survey for the *Project*, obtain, use, and fill in [BC Housing Hazardous Material Inventory Spreadsheet](#) for the *Project*. The template has been designed to allow for flexibility of the data to be input and provide consistency to staff and vendors. Submit one (1) digital copy of the completed hazardous building material survey report with photographs and floor plans and hazardous material inventory for each project.

.2 Request for Cutting, Patching and Remedial work:

- .1 Submit written request in advance of cutting, coring, or alteration that affects or is likely to affect structural integrity, weather exposure, leaks, safety, or work by *Owner* or other trade *Contractor*.
- .2 Do not commence cutting, patching, or remedial work until request has been reviewed by *Consultants*.
- .3 Do not use pneumatic or impact tools without *Consultant's* prior approval.
- .4 Maintain fire ratings of fire-rated assemblies where cutting, patching, or remedial work is performed. Completely seal voids or penetrations of assembly with firestopping material to full depth, or with suitably rated devices.

.3 Substitutions and Alternatives:

- .1 If an existing or previously installed *Product*, material, assembly, or system must be replaced with a different *Product*, material, assembly, or system, submit request for substitution for review and approval by *Consultant*.

.4 Existing Utilities:

- .1 Give *Owner* a minimum of forty-eight (48) hours' notice of necessary interruption of mechanical or electrical services.
- .2 Keep duration of interruptions to a minimum.
- .3 Carry out interruptions during days and at times that are approved by *Owner* to minimize operational impacts.
- .4 Record location of services, including depth, on As-Built *Drawings*.

End of Sub-division

ADD**01 74 00 - CLEANING**

- .1 Obtain permits from Authorities Having Jurisdiction (AHJ), and pay disposal fees where required for disposal of waste materials and recyclables.
- .2 General Cleaning Requirements:**
 - .1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .3 Progressive and Final Cleaning:**
 - .1 Maintain the *Place of the Work* in a tidy and safe condition, meeting regulatory and AHJ requirements, free from accumulation of waste materials and construction debris.
 - .2 Provide appropriate, clearly marked containers for collection of waste materials and recyclables.
 - .3 Ensure that volatile fluid wastes are not disposed of in storm or sanitary sewers, in open drain courses, or anywhere on site.
 - .4 Final cleaning: arrange a meeting at *Place of the Work* to determine the acceptable standard of cleaning. Ensure that *Owner, Contractor*, and cleaning company are in attendance.
 - .5 Remove stains, spots, marks, and dirt from finished surfaces, electrical and mechanical fixtures and equipment, furniture fitments, walls, floors, decorative work, electrical fixtures, posts, floor slab and roof, roof drain, exterior and interior windows, and exterior façade.
 - .6 Clean glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and all other finished surfaces, including mechanical and electrical fixtures. Replace broken, scratched, or otherwise damaged glass.
 - .7 Replace filters for mechanical equipment if equipment is used during construction.
 - .8 Remove waste materials and debris from crawlspaces and other accessible, concealed spaces.
 - .9 Maintain cleaning until *Owner* has taken possession of building or portions thereof.

End of Sub-division

01 74 19 - CONSTRUCTION WASTE MANAGEMENT & DISPOSAL

.1 GENERAL

.1 Construction Debris and Waste Management Goals for All Projects

DELETE

~~Ensure a waste management plan implemented for all construction, renovation, and demolition (C&D) projects across the Province. A waste management process shall be employed by the Contractor to ensure the generation of as little construction waste as possible and report all waste generated. Refer to BC Housing livegreen Sustainability Plan and sustainable waste management. Projects must achieve a C&D waste diversion target of 80% of the total waste generated (by weight) in the Lower Mainland and on Vancouver Island, and 60% for projects elsewhere in the Province. The total waste generated excludes any hazardous or excavated materials, such as asbestos, lead, and earthwork. All materials banned and prohibited from landfills according to the regional regulations shall be recycled.~~

ADD

The *Owner* is committed to reducing waste in all aspects of its business. The *Owner* has set construction waste management targets in the BC Housing "*Sustainability and Resilience Strategy*" and in this document.

Ensure a Construction Waste Management Plan (CWMP) implemented for all construction, renovation, and demolition (C&D) projects across the Province of BC. A waste management process shall be employed by the *Contractor* to ensure the generation of as little construction waste as possible and report all waste generated. Refer to BC Housing "*Sustainability and Resilience Strategy*" and [Sustainable Waste Management](#).

For projects located:

- .1 In the Lower Mainland and on Vancouver Island, the *Contractor* shall achieve minimum waste diversion target of seventy-five percent (75%) of the total waste generated on site by weight away from landfill, and
- .2 In other parts of British Columbia, the *Contractor* shall achieve minimum waste diversion target of fifty percent (50%) of the total waste generated on site by weight away from landfill.

The total waste generated excludes any hazardous or excavated materials, such as asbestos, lead, and earthwork. All materials banned and prohibited from landfills according to the regional and municipal regulations shall be recycled.

.2 Regulatory Requirements **ADD and Management of Hazardous Materials**

- .1 Conform to applicable codes and regulations for disposal and removal of common (non-hazardous) and hazardous waste. Handle and dispose of all waste materials in accordance with the B.C. Environmental Management Act and Hazardous Waste Regulation and regional and municipal regulations.
- .2 The hazardous and banned materials should be handled separately from common (non-hazardous) materials and follow provincial Workers Compensation Act and related WorkSafeBC regulations. Hazardous materials include but are not limited to asbestos, drywall (banned

from disposal), underground storage tanks, polychlorinated biphenyls (PCBs), abandoned chemicals (gasoline, pesticides, flammable and combustible substances), freon from cooling equipment, lead-based paints, smoke detectors, and mercury-containing switches. Refer to [Appendix A \(Hazardous Material General Information\)](#) **ADD** of *BC Housing Design Guidelines and Construction Standards* (DGCS) for further information.

ADD

- .3 The *Owner* will provide, upon the *Contractor's* request, a Hazardous Material Inventory Spreadsheet for use with hazardous materials. The *Contractor* shall use this form to record all hazardous waste encountered during the *Work*. Where hazardous waste exists at the *Place of the Work*, the *Contractor* shall submit a Hazardous Material Inventory Spreadsheet with each application for payment until all hazardous waste has been removed, as determined by the *Owner*.
- .4 If the *Contractor* fails to submit a Construction Waste Management Tracking Form or Hazardous Material Inventory Spreadsheet or submits incomplete forms, until the failure is rectified the *Owner* will retain a Deficiency Holdback for each failure in the applicable amount from among the following:
 - .1 \$15,000 for new construction projects with demolition components (\$5,000 demo prior to construction + \$10,000 for construction phase),
 - .2 \$10,000 for new construction projects with no demo, and
 - .3 \$5,000 for demolition or renovation projects.

The above Deficiency Holdback right is in addition to any other Deficiency Holdback right the *Owner* has under the *Contract*.

.3 Document Submittal

- .1 Construction Waste Management Plan (CWMP), and
- .2 Construction Waste Management Tracking Form. **ADD** The *Contractor* shall use this form to record all waste products by weight but excluding hazardous waste.

.4 Contractor's Responsibilities

- .4 The ~~DELETED~~ ~~Proponent~~ **ADD** *Contractor* is required to maintain waybills, invoices and other documentation confirming that all materials have been transported to the required locations, and to submit this documentation at the completion of the ~~DELETED~~ ~~project~~ **ADD** *Project* if requested.

ADD

- .5 Refer to [Sub-division 01 74 00 \(Cleaning\)](#), for "Progressive and Final Cleaning".

.5 Construction Waste Management Plan Implementation

- .6 The Construction [Waste Management Tracking Form](#) is to be filled out, signed, and submitted, by the *Contractor*, at the following stages:
 - .1 Completion of demolition (if applicable),
 - .2 Fifty percent (50%) construction progress claim, and

.3 Substantial ~~DELETE~~ ~~Completion~~ **ADD** *Performance of the Work or Ready-for-Takeover*
(whichever is applicable to the Contract).

End of ~~DELETE~~ ~~Section~~ **ADD** Sub-division

01 78 00 - CLOSEOUT ~~ADD~~ ACTIVITIES AND SUBMITTALS

.1 GENERAL

- .1 Typically, BC Housing utilizes CCDC *Contracts*, which cover Closeout requirements for *Contractors*. ~~DELETE~~ However, if any forms of contracts are used, The following requirements, in addition to what is stated in those particular *Contracts*, will apply.
- .2 The closeout documents shall be prepared by the *Contractor* and submitted to the *Consultant*, *Owner*, and BC Housing for an initial review prior to the completion of the *Work*. Following this review and responding to the comments, the ~~DELETE Contractor~~ **ADD Contractor** must submit the completed documents to the *Owner* no later than thirty (30) ~~DELETE business days~~ **ADD Working Days** after the ~~DELETE~~ certificate of completion. **ADD date of Substantial Performance of the Work** or the issue of the Certificate of Completion (whichever is earlier), or, when applicable under varying contract types, *Ready-for-Takeover* is achieved.

~~DELETE~~

- ~~.3 A deficiency holdback amount shall be stated in the contract documents for items not submitted on time and deficiencies in the as-built drawings and operating and maintenance manuals~~

RENUMBER .4 to .3

- .3 The ~~DELETE Contractor~~ **ADD Contractor** shall prepare a ~~DELETE fire safety plan~~ **ADD Fire Safety Plan** and documentations in accordance with the current BC Fire Code and the Local Fire By-law, unless otherwise specified by the *Owner/Operator*.

~~DELETE~~

- ~~.5 Consideration should be given to the size and complexity of the project as well as location and costs to determine if comprehensive third party photo documentation of construction progress and as-built conditions by the contractor is required or applicable.~~

RENUMBER .6 to .4

- .4 If ~~DELETE~~ the **ADD As-Built** photographic documentation is required for the *Project*, the following requirements must be incorporated:

~~DELETE~~

- ~~.1 All documentation services shall track at regular intervals (typically monthly) throughout the construction in chronological order, in addition, special dates like milestones, mockups, testing, inspection, commencement, completion, miscellaneous events such as materials arriving on-site, waste handling/recycling as determined by Owner/Consultant, and at handover training on building systems. The documentation shall include date, electronic indexing, navigation through architectural plans, storage, and online access.~~

- ~~.2 Exterior progress documentations: include all elevations and major site features like underground utilities, soil and sediment control, adjacent buildings, blindside property line excavation, reinforcing drainage, concrete wall construction, outside progression of building envelope, roof construction and more.~~
- ~~.3 Interior progress documentations: include interior improvements by areas like interior wall framing, insulation, air/vapour barrier, and finishes, envelope and suite level air tightness details, flooring installation, interior finishes, millwork and more.~~
- ~~.4 Overlapping images of all in-slab utilities within the building and all finished systems located in the walls and ceilings for mechanical, electrical, plumbing and all other systems.~~

RENUMBER .5 to .1

- .1 Upon completion of the *Work*, final copies of the documentation for As-Built conditions (the "**DELETE Permanent Record ADD Documents**") with the indexing and navigation system embedded (and active) are to be provided in an electronic **DELETE media** format, such flash hard-drive or equivalent. Submit a total of 2 copies - 1 each to the **DELETE Owner ADD Owner** and to BC Housing. Make sure As-Built condition shows actual physical conditions, completely and accurately including all changes during construction.

RENUMBER .6 to .2

- .2 Provide online site access **DELETE available for any ADD** to clear, focused, high-resolution photographs (organized by date, time, and location) that can be enlarged and individually printed. The system should be compatible with standard internet connection **DELETE for ADD** and should be accessible by multiple users (such as *Owner*, *BC Housing*, *Contractor*, *Architect*, **DELETE design Consultants**, or anyone requested by the *Owner*) **DELETE simultaneous use and access to clear, focused, high-resolution photographs (organized by date, time and location) that can be enlarged and individually printed as required.** Technical support related to using the system should be provided during the construction and 2 years after the **DELETE substantial completion ADD date of Substantial Performance of the Work** or the issue of the Certificate of Completion (whichever is earlier), or, when applicable under varying contract types, *Ready-for-Takeover* is achieved.

ADD

- .5 For Construction Progress photographic documentation, refer to [Sub-division 01 32 00 – Construction Progress Documentation](#).

.2 CLOSEOUT REQUIREMENTS

.1 As-Built Drawings and ADD *Specifications*

ADD

- .1 Definition: *As-Built Drawings* means drawings prepared by the *Contractor* by marking the changes that occur during construction on a copy of *Drawings*, including, but not limited to, the exact dimensions, geometry and location of the major building components that were shown generally on the *Drawings*.

RENUMBER .1 to .2

- .2 The ~~DESIGN~~ *Design Consultant* will provide one (1) set of ~~DELETE white prints~~ **ADD printed copy** of all **ADD Contract Drawings** for the sole purpose of recording all As-Built conditions. The *Contractor* must clearly identify them as *As-Built Drawings* and have them available at all times and at each regular *project* progress site meeting for inspection by the ~~DESIGN~~ *Design Consultant*, ~~DELETE Consultant-Inspector~~ **ADD Project Technical Consultant** (if applicable), and BC Housing.

RENUMBER .2 to .3

- .3 As work progresses, the *Contractor* must record clearly and indelibly in red pencil all “as- built” deviations from the ~~DELETE Contract Documents~~ **ADD Contract Documents** as a result of changed site conditions, various directives by Addenda, correspondences, site clarifications, Site Instructions, ~~DELETE Change Orders~~ **ADD Change Orders**, *Shop Drawings*, and changes required by Authorities Having Jurisdiction **ADD (AHJ)**. All documentation that is referenced must be included and cross referenced in the *As-Built Drawings*. Present As-Built prints for scrutiny at each *Project* meeting and as may be required by the *Consultant*.

RENUMBER .3 to .4

- .4 Mark the *Contract Documents* or *Shop Drawings*, whichever is most capable of showing actual physical conditions, completely and accurately. If *Shop Drawings* are marked, show cross reference on the *Contract Documents*.

RENUMBER .4 to .5

- .5 Upon completion of the *Work*, the *Contractor* ~~DELETE shall~~ **ADD should** employ the ~~DESIGN~~ *design Consultants* to produce one (1) copy of ~~DELETE signed and certified white print~~, **ADD signed and certified by the Contractor per sample Certificate of Record below**, and two (2) sets in high-quality indexed electronic format (e.g., CD, USB) for both PDFs and CAD drawings that include all As-Built conditions noted on the *Contractor's As-Built Drawings* and PDF *Specifications*.

RENUMBER .5 to .6

- .6 The recorded deviations include, in general but are not necessarily limited to, items that are hidden from view, items of major importance to future operations, maintenance, alterations, and additions.

RENUMBER .6 to .7

- .7 The title sheet shall include a complete list of all drawings. Each drawing shall include a graphic symbol that identifies all As-Built revisions, cross-referenced to a date in the drawing issue portion of the title block.

DELETE

- ~~.8 The Contractor must sign each drawing and provide one (1) Certificate of Record (below in Article 2.2) for the drawing set as illustrated in the following paragraphs, signed by persons authorized to sign on behalf of the Contractor.~~
- ~~.9 Acceptance of the as-built drawings and specifications shall be subject to the review and approval of the Consultant(s) and BC Housing. The Consultant(s) shall provide all the comments to the Contractor within 15 business days after receipt of these documents.~~
- ~~.10 Include two (2) copies of specifications with contract modifications, addenda, change orders and site instructions in PDF on high quality indexed electronic format.~~
- ~~.11 Following this review and responding to the comments, the Contractor must submit the completed documents to the Owner no later than thirty (30) business days after the certificate of completion.~~

.2 ADD Contractor's Certificate Of Record DELETE—As-Built Drawings**ADD**

- .1 The *Contractor* must sign each drawing and provide one (1) Certificate of Record for the drawing set as illustrated in the following paragraphs, signed by persons authorized to sign on behalf of the *Contractor*.
- .2 Acceptance of the *As-Built Drawings* and *Specifications* shall be subject to the review and approval of the *Consultant(s)* and BC Housing. The *Consultant(s)* shall provide all the comments to the *Contractor* within fifteen (15) *Working Days* after receipt of these documents.
- .3 Include two (2) copies of *Specifications* with *Contract* modifications, *Addenda*, *Change Orders*, and *Site Instructions* in PDF on high-quality indexed electronic format.
- .4 Following this review and responding to the comments, the *Contractor* must submit the completed documents to the *Owner* no later than thirty (30) *Working Days* after the date of *Substantial Performance of the Work* or the issue of the Certificate of Completion (whichever is earlier), or, when applicable under varying contract types, *Ready-for-Takeover* is achieved.

ADD SAMPLE CONTRACTOR'S CERTIFICATE OF RECORD

I/We (name of Contractor) hereby certify that the set of As-Built *Drawings* attached hereto, comprising (-) sheets, is a complete and total record of the building(s) as constructed.

We further certify that the drawings show accurately all structural details, all mechanical and electrical services, exposed or hidden and that the *Owner* may fully rely on their accuracy in any future contemplated repairs, modifications, or additions to this ~~DELETE work~~ **ADD Work**.

Signed by

Contractor: _____

Name of Contractor: _____

Per: _____

Date: _____

Witnessed by: _____

Date: _____

.3 Construction Waste Management Tracking Form

The *Contractor* must complete the "Construction Waste Management Tracking Form" as part of the closeout requirements. The form is to be completed by the *Contractor*, signed, and submitted to BC Housing at the following stages(s): completion of demolition (if applicable), 50% construction progress claim, and *Substantial* ~~DELETE completion~~ **ADD Performance of the Work** or the issue of the Certificate of Completion (whichever is earlier), or, when applicable under varying contract types, *Ready-for-Takeover* is achieved. Refer to [Section 2 – Energy and Environmental Design](#) for additional information.

ADD**.4 Gas And Electricity**

- .1 The occupancy date shall be the date of turnover of all gas and electricity billings to the *Owner*. The *Contractor* shall notify the gas and electricity suppliers and the *Owner* in writing as to the date of billing turnover at least forty-five (45) *Working Days* prior to such date.
- .2 The *Owner* shall be responsible for notifying the gas and electricity suppliers of start-up billing failing which the *Owner* shall reimburse the *Contractor* for all charges accruing thereafter.

RENUMBER .4 to .5

.5 Utility Incentive And Rebate Documentation

The *Contractor* will provide all documentation necessary to apply for all applicable incentives within 30 days of equipment purchase to the BC Housing staff responsible for managing the project. The related documents are, but not limited to, appliance invoices, lighting invoices, exhaust fan invoices, boiler invoices, and any related mechanical equipment invoices. Invoices must state the manufacturer, model, unit price, quantity, and physical installation address. For the appliances, lighting, and exhaust fans, a suite or unit breakdown should be provided outlining corresponding lighting and appliances, including make, model type and confirmation of ENERGY STAR® rating. Refer to [Section 2 – Energy and Environmental Design](#) for additional information.

RENUMBER .5 to .6

.6 Hazardous Material Inventory Spreadsheet

For renovation projects, the *Contractor* will update the existing Hazardous Material Inventory Spreadsheet and submit to the BC Housing staff responsible for managing the *project*.

.3 CONTRACTOR: OPERATING AND MAINTENANCE MANUALS

- .3** Provide information for future operating staff to understand and optimally operate the commissioned systems and how to effectively recommission the systems to prolong the service life, decrease energy consumption, and reduce operational, maintenance and replacement cost.

.1 Requirements

- .1 Submit a draft copy of the tables of contents for the manuals 30 days prior to the date of *Substantial Performance of the Work* **ADD or Ready-for-Takeover (whichever is applicable to the Contract)**, for review by the Consultant.
- .2 Submit completed maintenance manuals with application for *Substantial Performance* **ADD of the Work or Ready-for-Takeover (whichever is applicable to the Contract)**, for review by the Consultant. Include an indexed demonstration video of all mechanical and electrical systems and electrically operated devices, bed-bug room operation and any other systems (requested by the *Consultant*) to the *Owner's* Operations and Maintenance (O&M) staff and any training required by the *Specifications*, to the *Owner's* satisfaction.
- .3 Submit one (1) set of final hardcopy maintenance, operating and instruction manuals and two (2) sets in high quality indexed electronic format (e.g., CD, USB) PDF to the *Owner* no later than thirty (30) ~~business days~~ **ADD Working Days** after the ~~DELETE certificate of completion is issued.~~ **ADD date of Substantial Performance of the Work or the issue of the Certificate of Completion (whichever is earlier), or, when applicable under varying contract types, Ready-for-Takeover is achieved.**
- .8 ~~DELETE Include any equipment supplied by the Owner, separate to the contract.~~ **ADD Include Owner-supplied Contractor-installed (OSCI) equipment.**

.2 Organization of Manuals

.3 Section 3.0 – Architectural (Including Landscaping, Building Envelope, Finishes)

- .6 Provide **ADD** Roofing Contractors Association of BC (RCABC) Guarantee and **ADD** Master Painter Institute (MPI) ~~DELETED~~ Guarantee **ADD** 2 year Maintenance Bond and documentation.

ADD

- .11 Remove all construction key and replace with permanent (*Owner's*) security master keying. Provide a controlled lockable key cabinet for operator usage.
- .12 Confirmation letter of extra replacement materials, and system demonstration to operator.
- .13 Provide completed Integrated system testing report outlined in Sub-division 01 91 00 - Building Commissioning

.5 Section 5.0 – Electrical

DELETE

- ~~.10 Integrated system testing report outlined in Sub-division 01 91 00 – Building Commissioning.~~

RENUMBER .11 to .10

- .10 Any further testing reports outlined in [Sub-division 01 91 00 – Building Commissioning](#).

RENUMBER .12 to .11

- .11 Under each of the above headings, provide the following information, arranged under separate tabs, for each system and major piece of equipment:
- .1 Descriptive and technical data.
 - .2 Maintenance and operating procedures.
 - .3 Wiring diagrams.
 - .4 Spare parts list.
 - .5 Service representatives.
 - .6 Suppliers for replacement parts.
 - .7 Test results and final vitrification reports.
 - .8 Certifications and Warranties.
 - .9 Troubleshooting, operational and performance data.
 - .10 Preventive maintenance program complete with checklists.

.4 FIRE SAFETY PLAN

- .1 Unless otherwise specified by the *Owner/Operator*, the *Contractor* shall engage a qualified person or company to prepare a Fire Safety Plan and documents in accordance with the current requirements of the Local Fire authority, BC Fire Code, and any other applicable legislation at least 45 days before the target ~~DELETED~~ substantial completion **ADD** date of *Substantial Performance of the Work or Ready-for-Takeover* (whichever is applicable to the Contract).

- .2 The Fire Safety Plan shall be kept in a location designated by the BC Fire Code and AHJ. The design team shall review this requirement at the design development stage with the Fire Department to confirm if a secure location in the lobby will be required. Refer to [Sub-division 21 00 00 – Fire Protection](#).

DELETE

- ~~.3 The fire safety plan and related documents required by the local authorities shall be submitted to the Prime Consultant, Owner, and local Fire Department or other authorities having jurisdiction for review and approval, and if needed, make all necessary modifications to the documents to satisfy the requirements of the local authority. It is expected that this plan will go beyond the basic requirements of the Fire Code to include additional sections on Earthquake Preparedness/Response and Major Incident Response.~~

RENUMBER .4 to .3

- .3 Upon completion, the *Contractor* shall submit two (2) hard copies in three-ring binders with printed and laminated tabs for each section, and one (1) copy in electronic format using .doc or .docx (Microsoft Word) for text and .dwg, dxf or .vsd for site/building plans.

RENUMBER .5 to .4

- .4 The *Contractor* is responsible for completing (including costs) all application and registration process, including permits in all jurisdictions where required.

.5 OPERATOR: MAINTENANCE AND RENEWAL PLAN

- .3 The *Owner* shall submit the following:
 - .5 Include an annual inspection checklist and maintenance checklist (routine, annual, or cyclical) outlining items to be inspected, **ADD** and appropriate personnel/teams to conduct it, based on the maintenance schedule.
 - .6 The following completed *Project* documents shall be included:
 - .1 ~~Substantial~~ **DELETE** completion **ADD** *Performance of the Work* Certificate and *Completion* Certificate, **ADD** or, the consultant's written notice of achievement of *Ready-for-Takeover* (whichever is applicable to the *Contract*)
 - .2 AIBC Document Six - Canadian Standard Form of Agreement for Architectural Services
 - .3 CCDC *Contract* - *Contract* between *Owner* and *Contractor*
 - .4 Municipal Building Permit, Occupancy Permit, and Letters of Assurance
 - .5 Copy of Performance Bond
 - .6 *As-Built Drawings* and *Specifications*
 - .7 Building commissioning information

01 91 00 – BUILDING COMMISSIONING

Reference Note: Integrated Systems Testing (IST) related revisions described under this Sub-Division will also be adopted through updates to the BCH Building Commissioning Guidelines in a 2025 version. These updates in the 2025 version of the BCH Commissioning Guidelines will be highlighted in light blue text.

ADD (Standard green font text represents updates to content through Technical Bulletin No.2-2022. **Bold green font text represents updates to content through Technical Bulletin No.4-2025**)

.1 GENERAL

- .1 All BC Housing-funded and -financed projects, including both new development and renovation/ capital Projects, shall require full building commissioning. The *Consultant* and the ~~DELETE General Contractor~~ ~~DELETE/Design-Build/Construction Manager~~ shall refer to [BC Housing Building Commissioning Guidelines](#) for details.
- .2 The level and depth of commissioning required for the project will be determined by its size and complexity and by its needs that are defined in the *Owner's Project Requirements (OPR)* and [BC Housing Building Commissioning Guidelines](#).
- .3 The *Architect/Consultant* team shall be responsible for ensuring that the ~~DELETE/ADD eContract dDocuments~~ are in accordance with the OPR, ~~DELETE and~~ Basis of Design (BOD), ~~DELETE and meet~~ BC Housing *Design Guidelines* **ADD and Construction Standards**, ~~DELETE Building Code requirements, by-law requirements, and~~ **ADD applicable building code, and bylaws of Authorities Having Jurisdiction (AHJ).** ~~DELETE and outlining~~ **ADD The Architect/Consultant shall also include** the commissioning requirements and ~~DELETE process~~ **ADD processes** for all building systems and integration of ~~DELETE systems~~ **ADD fire protection and life safety systems according to CAN/ ULC-S1001 in the Contract Documents as per the** [BC Housing Building Commissioning Guidelines](#).
- .4 The ~~DELETE General Contractor~~ ~~DELETE /Design-Build/Construction Manager~~ is ultimately responsible for ensuring that all building systems and integration of the systems are operating and functioning as intended in the *Contract Documents*, regardless of whether a third-party independent Commissioning Provider (CxP) is initiated by the *Owner* or BC Housing.

.2 PROJECT COMMISSIONING ACTIVITIES

- .1 Regardless **ADD of whether** a third-party CxP is hired by the *Owner* or BC Housing, the *Consultant* team shall oversee the commissioning activities confirming that all building systems (e.g., architectural, electrical, mechanical, building envelope, elevator) and integration of systems are functioning; and that all testing and ~~DELETE General the Contractor's~~ ~~DELETE /Design-Build/ Construction Manager's~~ commissioning documentations are submitted **ADD in compliance with** [BC Housing Building Commissioning Guidelines](#) at *Substantial Performance of the Work* **ADD or Ready-for-Takeover** (whichever is applicable within the *Contract*) and Closeout phase.

- .2 DELETE** Under **ADD** For each building system, **DELETE** there are a list of minimum testing requirements **DELETE** in BC Housing Building Commissioning Guidelines. The Consultant and General Contractor/Design-BUILDER/Construction Manager shall refer to Section of 5.1.1 Consultant and Contractor Commissioning Responsibilities of the Commissioning Guidelines for the list of minimum testing and consultant/contractor responsibilities. **ADD** and related *Consultant's and Contractor's responsibilities* are defined under Section 5.1.1 – *Consultant and Contractor Commissioning Responsibilities* that is found under [BC Housing Building Commissioning Guidelines](#). The **DELETE** Architect/Consultants **ADD** *Architect/Consultants* shall ensure that at a minimum, these minimum testing requirements are clearly outlined in project **ADD** *Specifications* for the **DELETE** General Contractor **DELETE** /Design-BUILDER/Construction Manager to complete and submit.
- .3** For mechanical and electrical systems, depending on project classification and size/complexity, BC Housing requires an independent third-party CxP in the project. There are four options of implementing the third-party commissioning process in BC Housing projects and requirement of retaining a CxP, **ADD** as identified in .4 below.
- .4** The project team is responsible to choose one of the four options based upon the project complexity. The options are as follows:
- .1 **Option 1** - Independent Enhanced Commissioning, if required by rezoning or funding partners (hired by Owner).
 - .2 **Option 2** - Independent Commissioning, **ADD** *seven-storey* (7-storey) or higher or high-complexity project (hired by Owner).
 - .3 **Option 3** - Independent Mechanical Commissioning, **ADD** *three to six-storey* (3-6-storey) or medium-complexity project (hired by Owner).
 - .4 **Option 4** - Independent Mechanical Commissioning, **ADD** *one to two-storey* (1-2-storey) or low-complexity project (hired by Mechanical Contractor).
- .5** In options 1, 2, and 3, the **DELETE** General Contractor **DELETE** /Design-BUILDER/Construction Manager will **ADD** *shall* complete pre-functional checklists, start-up, **ADD** *Testing, Adjusting, and Balancing* (TAB) (*Contractor-hired, third-party agency*), system controls end-to-end checkouts, **ADD** *integrated systems testing of fire protection and life safety systems as per CAN/ULC S1001*, and submit associated documentation to the Owner-hired CxP. The CxP will complete, at a minimum, the twenty-five percent (25%) sampling methodology of on-site checks of **DELETE** General Contractor's **DELETE** /Design-BUILDER/Construction Manager pre-functional/equipment start-up and perform one hundred percent (100%) functional tests when these sample pre-functional checks are complete. **ADD** *CxP shall participate in and witness the testing for CAN/ULC- S1001: Integrated Systems Testing of Fire Protection and Life Safety Systems*. The construction Contract Documents shall clearly state who will perform these tests.

- .6 In Option 4, the mechanical *Consultant* will decide if an independent Commissioning Agent (CxAg) is deemed necessary for the project. At a minimum, the ~~DELETED General Contractor~~ ~~DELETED / Design-Builder/Construction Manager~~ shall retain an independent TAB agency and submit all test reports, static, start-up, and functional test documentation for the project. The *Consultant* and ~~DELETED General Contractor~~ ~~DELETED / Design-Builder/Construction Manager~~ shall refer to Section 5 – Commissioning Requirements ~~DELETED to BC Housing/Owner~~ under [BC Housing Building Commissioning Guidelines](#).
- .7 The third-party commissioning option for building renewal and retrofit projects will depend on scope of the retrofit, building size/complexity, and how the new and retrofitted systems are integrated. For mechanical retrofit, it is also important to understand whether the scope includes entire system, partial, or major equipment replacement only. Given the vast array of possible renewal project scopes for mechanical systems, some general recommendations are provided on either option 3 or 4, which may be the most applicable for these projects. The *Consultant* and ~~DELETED General Contractor~~ ~~DELETED / Design-Builder/Construction Manager~~ shall refer to [BC Housing Building Commissioning Guidelines](#). **ADD** In all Options, the *Contractor* shall perform the requirements of CAN/ULC-S1001: Integrated Systems Testing of Fire Protection and Life Safety Systems, document and distribute the test results/reports to Architect/Registered Professional of Record (RPR) for review and resolve any outstanding issues.
- .8 The commissioning of a retrofit project for other building systems follows the minimum testing requirements as outlined in Section 5 – Commissioning Requirements ~~DELETED and elsewhere in the commissioning guidelines~~, **ADD** under [BC Housing Building Commissioning Guidelines](#). Also, these building systems should meet the other requirements described in other sections of the Commissioning Guidelines, as applicable.
- .9 ~~DELETED In the Commissioning Guidelines under each option as indicated in clause 2.4. depending on building type, it is outlined required commissioning activities in different phases, systems to be commissioned, and commissioning management for the~~ **ADD** In each option described under clause 2.4 above, BC Housing Building Commissioning Guidelines identify required commissioning activities during different phases, and for each system to be commissioned. Additionally, for each of these four options, the Commissioning Guidelines describe Commissioning management-related requirements such as recommended number and frequency of meetings. The *Consultant* shall ensure there is no gap between ~~DELETED General Contractor~~ ~~DELETED / Design-Builder/Construction Manager~~ and third-party CxP's roles and responsibilities.
- .10 While commissioning activities are ongoing, the CxP shall keep a formal and documented record of issues or concerns that have been raised during the course of the commissioning process and their resolution **ADD** (an "Issues Log"). The CxP shall ensure the team responds to and rectifies all issues in the Issues Log as soon as possible and that no major issues are left behind at the time of project completion.
- .11 Any outstanding issues from the Issues Log should be addressed as deficiencies and included as part of a building deficiency list with associated amounts of holdback. The *Architect/Consultant* team shall ensure these issues are listed in the compiled deficiency list and that the ~~DELETED General Contractor~~ ~~DELETED / Design-Builder/Construction Manager~~ agrees on a target completion date for these items.

- .12** As part of the handover process, the *Architect/Consultant* will ensure that the operation and maintenance requirements of all equipment and systems are demonstrated and explained in detail to the *Owner's* operating personnel and that the *Owner's* sign-off is retained. The project team including *Architect/Consultant*, ~~DELETED General~~ **ADD the Contractor** ~~DELETED /Design-Builder/ Construction Manager~~, the CxP, and the *Owner/Operator* shall complete seasonal testing and one-year **ADD (1-year)** warranty milestones for any operational issues.
- .13** The *Consultant* team and ~~DELETED General~~ ~~the Contractor~~ ~~DELETED /Design-Builder/Construction Manager~~, shall refer to [BC Housing Building Commissioning Guidelines](#) for any sample checklists and templates.

End of ~~DELETED Section~~ **ADD Sub-division**