1. **GENERAL**
   1. **Summary**
      1. This Section includes administrative and procedural requirements for Project Record Documents which include Record Drawings, Record Specifications, Record Project Data, and Operations and Maintenance Manuals.
      2. Consultant Professional Fees will include the services of the Consultant and the sub-consultant team for the review of Contractor as-built drawings.
      3. All project deviations (addenda, revisions, clarifications, and change orders) shall be transferred by the Consultant to CAD format at the Contractor’s expense.
      4. Record Documents are to be submitted to BCIT by the Consultant, based on records produced and reviewed by the Consultant team.
      5. All drawings to be in Metric.
      6. Acceptable electronic delivery formats include: USB, and being sent digitally (emails, downloads). CDs are not acceptable.
2. **PRODUCTS**
   1. **Record Documents**
      1. Refer to BCIT Project Close-out Form for Consultants, provided by BCIT project liaison.
      2. Contractor to sign-off that the Record Documents provided are as built.
      3. A drawing schedule is to be provided at the beginning of the documentation.
      4. Final submittals as follows:
         1. Record Drawings:
            1. Hard Copies: None
            2. Electronic Copies:

One (1) large format size (typically, Arch D).

One (1) Tabloid (11 x 17”).

One (1) set of CAD drawings – Revit.

One (1) set approved Shop Drawings.

* + - 1. Record Specifications:
         1. One (1) electronic version in navigable pdf.
      2. Record Project Data:
         1. One (1) copy of each Product Data submittal is required.
         2. Where Record Product Data is required as part of Operation and Maintenance Manuals, include marked-up Product Data as an insert in the Manual instead of as a submittal as Record Product Data:

One (1) electronic version in navigable pdf.

* + - 1. Operations and Maintenance Manuals:
         1. One (1) electronic version in navigable pdf.
  1. **Record Drawings**
     1. Record Prints in red ink to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
     2. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
     3. Accurately record information in an understandable drawing technique.
     4. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
     5. Content - types of items requiring marking include, but are not limited to, the following:
        1. Dimensional changes to Drawings.
        2. Revisions to details shown on Drawings.
        3. Depths of foundations below first floor.
        4. Locations and depths of underground utilities.
        5. Revisions to routing of piping and conduits.
        6. Revisions to electrical circuitry.
        7. Actual equipment locations.
        8. Duct size and routing.
        9. Locations of concealed internal utilities.
        10. Changes made by Change Order or Change Directive.
        11. Changes made following Consultant's written orders.
        12. Details not on the original Contract Drawings.
        13. Field records for variable and concealed conditions.
        14. Record information on the Work that is shown only schematically.
     6. Mark important additional information that was either shown schematically or omitted from original Drawings.
     7. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
     8. Immediately before application for Substantial Performance, the Contractor is to review marked-up Record Prints with Owner and Consultant. When authorized, prepare a full set of corrected record prints of the Contract Drawings and Shop Drawings.
     9. Consultant will furnish Contractor with one set of Contract Drawings printed on bond paper for use in recording information.
     10. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
     11. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
     12. The Contractor is to consult Consultant for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
     13. For instances of uncertainty, refer to Consultant for resolution.
  2. **Format**
     1. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
     2. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Include identification on cover sheets.
     3. Record PDFs:
        1. The project is to have the pdf record drawings as a combined navigable pdf but separated according to the discipline (architectural, mechanical, electrical, etc.).
        2. All PDF’s are to be the right way up, so they can be viewed without having to rotate the pages.

* + - 1. Naming conventions for pdf Record Drawings:
         1. Building Code (SE12).
         2. Date of Project (2018‐04).

* + - * 1. Full Room Code (202E).

* + - * 1. BCIT Project Name (BSE12/FlexSpace19).

* + - * 1. Project Type (TI/DEMO/NEW).

* + - * 1. Drawing Type (A ‐ Architectural / E – Electrical / M – Mechanical).

* + - * 1. Full set with # of sheets (1‐10)

*Example: SE12\_2018‐04\_202E\_BSE12/FlexSpace19\_TI\_A1‐10*

* + - 1. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification and BCIT Project Number (BCIT-xxxx) and Project Name. Include identification in each CAD file.
      2. Identification as follows:
         1. BCIT Project Number and Name.
         2. Consultant Project Number and Name.
         3. Date produced.
         4. Designation "PROJECT RECORD DRAWINGS."
         5. Name of Owner (BCIT) and Consultant.
         6. Name of Contractor.
  1. **Record Specifications**
     1. Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
     2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
     3. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected. Include the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
     4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
     5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
  2. **Record Product Data**
     1. Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
     2. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
     3. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
     4. If possible, a Change Order proposal should include resubmitting updated Product Data. This eliminates the need to mark up the previous submittal.
     5. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
  3. **Operation and Maintenance Manuals**
     1. General:
        1. Refer to 01 77 00 Close-Out Procedures and the accompanying Project Close Out Form for Consultants (checklist).
        2. Refer to 01 78 23 Operations and Maintenance Data.
        3. On completion of the Work, provide Maintenance Manuals giving full information on paint finishes used and maintenance instructions for each system.
        4. Submit Maintenance Manuals to the Consultant prior to Substantial Performance. A holdback in the amount of $2,250 from the monies due to the Contractor will be maintained until Operating and Maintenance Manuals are certified as correct and delivered to the Consultant. The Consultant will withhold double the value of the cost of preparing the manuals until they are submitted.
        5. Operation and Maintenance data must be reviewed by Consultants, Commissioning Authority (where applicable) and then BCIT Project Services.
     2. Execution:
        1. Subject Manuals:
           1. Instructions are to be written in clear Canadian English so as to be easily understood by BCIT Facilities operating and maintenance personnel.
           2. Instructions shall be complete for installation, operation, and maintenance and shall include the names, addresses, and website addresses of material suppliers.
           3. Identify the contents of each Manual on the cover.
           4. Include a title sheet in each manual:

BCIT project number and name;

*Example: BCIT-0022-BSE12/FlexSpace19*

Building Code\_Date of Project\_Full Room Code\_Project Type (TI, Demo, New);

*Example: SE12\_2018‐04\_202E\_TI*

Owners Name as: British Columbia Institute of Technology.

The names, addresses, telephone numbers, and website addresses of the following: Consultant; Applicable Sub Consultants; Contractor and Sub Contractors.

* + - * 1. Include index for each binder in the set.

Use tab sheets to divide sections.

* + - 1. Building Trades Manual:
         1. Information included in this manual should relate to architectural elements, fixtures, finishes, and shall generally consist of the description of the item; manufacturer's name, local representative, distributor or service firm; and the recommended practice of maintenance, repair, or replacement.
         2. Include information where applicable on items such as: Waterproof Deck Coating, Folding Partitions, Finish Hardware, Finish Painting, Colour, Schedules, Acoustic Tile, Sealed Windows, Resilient Flooring, Skylights, Carpeting, Doors, Locks, and Closers.
         3. Guarantees:

Insert Guarantees, Warranties, and Bonds in each applicable manual and provide the following information:

BCIT Project Number and Name and Location of Project;

Guarantee Commencement Date;

Duration of Guarantee;

Clear indication of what is being Guaranteed and what remedial action will be taken under Guarantee; and

Signature and Seal of Contractor.

* + - 1. Equipment Schedule:
         1. Append an equipment schedule to the Operations and Maintenance Manual. Make the schedule available to the Owner in MS Excel format. The equipment schedule shall include:

Equipment Name, Manufacturer, product number, serial number, warranty and guarantee expiration dates, building name and room location. E.g. SW01-1020.

Include a BCIT Fillable Equipment Form for each piece of equipment or item requiring to be placed on a regular maintenance program, or requiring regular checking, or where the initial unit purchase cost is greater than $5,000 CAD (exclusive of GST). Each form is to be cross-referenced to a Barcode sticker.

BCIT Project Manager to confirm which pieces of equipment and items require a barcode sticker and a completed Equipment Form.

The Barcode sticker is to be installed by the Contractor on the equipment and/or items as determined by the Project Manager.

* 1. **Operation and Maintenance Data – Base Building**
     1. Provide Owner with operation and maintenance data:
        1. Enclose title sheet, labelled "Operating and Maintenance Data Manual", BCIT project number and name, date and list of contents.
        2. Organize contents into applicable sub-sections of work to parallel project specifications section break-down.
     2. Include the following information plus data specified:
        1. Maintenance instructions for finished surfaces and materials.
        2. Names, addresses, phone numbers, and web addresses of subcontractors and suppliers.
        3. Guarantees, warranties and bonds indicating:
           1. Name and address of project. Include the BCIT Building identification and floor number(s).
           2. Warranty/Guarantee/Bond commencement date and duration.
           3. Clear indication of what is being guaranteed and what remedial action will be taken under guarantee.
           4. Signature and seal of Trade Contractor.
        4. Additional material/equipment used in project listed under various sections showing name of manufacturer and source of supply.
     3. Neatly type lists and notes. Use clear drawings, diagrams or manufacturers' literature.
     4. Include one complete set of reviewed Shop Drawings (bound separately) indicating corrections and changes made during fabrication and installation.
     5. Submit Operation and Maintenance Manuals before or with request for inspection for Substantial Performance.
  2. **Spare Parts and Maintenance Materials**
     1. Deliver specified spare parts, extra material and maintenance materials before request for inspection for Substantial Performance, as identified in each relevant Specification Section.
     2. Provide spare parts manufactured by original equipment manufacturer.
     3. Provide maintenance materials identical to those installed.
     4. Use unbroken cartons, or if not supplied in cartons, they shall be securely packaged. Identify, on carton or package, name of item, colour or part number, as applicable. Identify equipment, system, area, room no., date of project, etc. for which each item is intended.
     5. Provide Owner with copy of inventory list indicating status of all required items.
     6. Review inventory list with Owner during Owner's inspection for Substantial Performance.
     7. For items not delivered prior to Substantial Performance of the Work, the contractor is to provide a duplicate copy delivery slip and obtain Owner's signature upon delivery.
  3. **Miscellaneous Record Submittals**
     1. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

\*\*\* END OF **PROJECT RECORD DOCUMENTS** SECTION \*\*\*