

**SECTION 01 33 29  
SUSTAINABLE DESIGN REPORTING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- .1 The Owner is committed to sustainable design and construction practices. New construction will target LEED Gold standards.
- .2 Meet the requirements for low VOC products as specified.
- .3 Provide Sustainable Design Reporting forms as the basis of the monthly construction reports.

**1.2 LEED REQUIREMENTS**

- .4 Where the term 'LEED' is used within these specifications it refers to LEED (Leadership in Energy and Environmental Design) a program of the Canada Green Building Council (CaGBC).
- .5 This Project is targeting certification under LEED® Canada with a goal of LEED® Gold. [Insert LEED program under which project will apply for certification \_\_\_\_\_].
- .6 To obtain LEED Certification, the Project shall meet certain LEED prerequisites and obtain certain LEED credits. A summary of prerequisites and credits for which the project will be seeking certification can be obtained from the Consultant.
- .7 In order to achieve LEED® Gold Certification for the Project, the Contractor and Subcontractors, suppliers and manufacturers shall comply with requirements specified in Division 1 Environmental Goals and Procedures. Contractor and Subcontractors shall be fully aware of available strategies to achieve maximum credits, including applicable exemplary performance levels for the following:
  - .1 Erosion and Sedimentation Control.
  - .2 Construction Waste Management / Product Waste Recyclability.
  - .3 Recycled Content.
  - .4 Local and Regional Materials.
  - .5 Construction Indoor Air Quality (IAQ) management.
  - .6 VOC/Low-Emitting Materials Compliance.
- .8 Follow special administrative procedures and submit special Submittals to assist the Owner in obtaining LEED certification.

**1.2 SUBMITTALS**

- .1 Product Data:
  - .1 Prior to installation, complete and submit the following form for each material specified. Submit in the CSI MasterFormat 2004 Section Name and Section Number format.
  - .2 Include MSDS sheets and other product literature to ensure information required in the LEED Submittal Checklist has been provided.
  - .3 Highlight relevant information must within supporting documentation.
  - .4 For low-emitting materials, omit products that are applied to the exterior of the building or applied offsite.
  - .5 Where a product is not available and a substitution request has been made, ensure supporting documentation of the proposed substitution meets the VOC limits specified below. These are minimum requirements.

**1.3 SUSTAINABLE DESIGN REPORTING - GENERAL INFORMATION REQUIREMENTS**

- .1 Product Name: \_\_\_\_\_
- .2 Manufacturer Name: \_\_\_\_\_
- .3 Form Completed By: \_\_\_\_\_
- .4 Contact Name: \_\_\_\_\_
- .5 Contact Company: \_\_\_\_\_
- .6 Materials Costs (excluding labour and equipment): \$ \_\_\_\_\_  
Or
- .7 Total construction costs per Divisions detailed under item #1, \$ \_\_\_\_\_

**1.4 VOLATILE ORGANIC COMPOUNDS (VOC) REQUIREMENTS**

- .1 The following tables indicate the limit of VOCs permitted for the products listed.
- .2 Products specified in the Project Manual are intended to meet these limits.

**END OF SECTION**

Low-Emitting Materials – Emission Limits Tables Appended Next Pages

**LOW-EMITTING MATERIALS - EMISSION LIMITS TABLES**

EQc4.1 Low Emitting Materials: Adhesives and Sealants

| Architectural Applications          | VOC Limit<br>(g/L Less Water) | Specialty Applications                 | VOC Limit<br>(g/L Less Water) |
|-------------------------------------|-------------------------------|--|-------------------------------|
| Indoor Carpet Adhesive              | 50                            | PVC Welding                            | 510                           |
| Carpet Pad Adhesive                 | 50                            | CPVC Welding                           | 490                           |
| Wood Flooring Adhesive              | 100                           | ABS Welding                            | 325                           |
| Rubber Floor Adhesives              | 60                            | Plastic Cement Welding                 | 250                           |
| Subfloor Adhesives                  | 50                            | Adhesive Primer for Plastic            | 550                           |
| Ceramic Tile Adhesives              | 65                            | Contact Adhesive                       | 80                            |
| VCT & Asphalt Adhesives             | 50                            | Special Purpose Contact Adhesive       | 250                           |
| Drywall & Panel Adhesives           | 50                            | Structural Wood Member Adhesive        | 140                           |
| Cove Base Adhesives                 | 50                            | Sheet Applied Rubber Lining Operations | 850                           |
| Multipurpose Construction Adhesives | 70                            | Top & Trim Adhesives                   | 250                           |
| Structural Glazing Adhesives        | 100                           |  |                               |

| Substrate Specific Applications | VOC Limit<br>(g/L Less Water) | Sealants                 | VOC Limit<br>(g/L Less Water) |
|---------------------------------|-------------------------------|--------------------------|-------------------------------|
| Metal to Metal                  | 30                            | Architectural            | 250                           |
| Plastic Foams                   | 50                            | Nonmembrane Roof         | 300                           |
| Porous Material (except wood)   | 50                            | Roadway                  | 250                           |
| Wood                            | 30                            | Single-Ply Roof Membrane | 450                           |
| Fibreglass                      | 80                            | Other                    | 420                           |

| Sealant Primers          | VOC Limit<br>(g/L Less Water) |
|--------------------------|-------------------------------|
| Architectural, Nonporous | 250                           |
| Architectural, Porous    | 775                           |
| Other                    | 750                           |

| Aerosol Adhesives:                            | VOC Weight (g/L Minus water) |
|---|------------------------------|
| General Purpose Mist Spray                    | 65% VOCs by weight           |
| General Purpose Web Spray                     | 55% VOCs by weight           |
| Special Purpose Aerosol Adhesives (All Types) | 70% VOCs by weight           |

EQc4.2 Low Emitting Materials: Paints and Coatings

| Product Type                                | Referenced Standard                             | VOC Limit<br>(g/L Minus Water) |
|---|---|--------------------------------|
| Interior Flat Coating or Primer             | Green Seal GS-11, 1993                          | 50                             |
| Interior Non-Flat Coating or Primer         | Green Seal GS-11, 1993                          | 150                            |
| Anti-Corrosive / Anti-Rust Paint            | Green Seal GC-03, 2 <sup>nd</sup> Edition, 1997 | 250                            |
| Bond Breakers                               | SCAQMD Rule 1113, 2004                          | 350                            |
| Clear Wood Finishes: Lacquer                | SCAQMD Rule 1113, 2004                          | 550                            |
| Clear Wood Finishes: Sander Sealers         | SCAQMD Rule 1113, 2004                          | 350                            |
| Clear Wood Finishes: Varnish                | SCAQMD Rule 1113, 2004                          | 350                            |
| Clear Brushing Lacquer                      | SCAQMD Rule 1113, 2004                          | 680                            |
| Concrete-Curing Compounds                   | SCAQMD Rule 1113, 2004                          | 350                            |
| Dry-Fog Coatings                            | SCAQMD Rule 1113, 2004                          | 400                            |
| Fire-Proofing Exterior Coatings             | SCAQMD Rule 1113, 2004                          | 350                            |
| Floor Coatings                              | SCAQMD Rule 1113, 2004                          | 100                            |
| Graphic Arts (sign) Coatings                | SCAQMD Rule 1113, 2004                          | 500                            |
| Industrial Maintenance Coatings             | SCAQMD Rule 1113, 2004                          | 250                            |
| High Temperature IM Coatings                | SCAQMD Rule 1113, 2004                          | 420                            |
| Zinc-Rich IM Primers                        | SCAQMD Rule 1113, 2004                          | 340                            |
| Japans/Faux Finishing Coatings              | SCAQMD Rule 1113, 2004                          | 350                            |
| Magnesite Cement Coatings                   | SCAQMD Rule 1113, 2004                          | 450                            |
| Mastic Coatings                             | SCAQMD Rule 1113, 2004                          | 300                            |
| Metallic Pigmented Coatings                 | SCAQMD Rule 1113, 2004                          | 500                            |
| Multi-Color Coatings                        | SCAQMD Rule 1113, 2004                          | 250                            |
| Pigmented Lacquer                           | SCAQMD Rule 1113, 2004                          | 550                            |
| Pre-Treatment Wash Primers                  | SCAQMD Rule 1113, 2004                          | 420                            |
| Sealers and Undercoaters                    | SCAQMD Rule 1113, 2004                          | 200                            |
| Quick-Dry Enamels                           | SCAQMD Rule 1113, 2004                          | 250                            |
| Quick-Dry Primers, Sealers and Undercoaters | SCAQMD Rule 1113, 2004                          | 200                            |
| Recycled Coatings                           | SCAQMD Rule 1113, 2004                          | 250                            |
| Roof Coatings                               | SCAQMD Rule 1113, 2004                          | 250                            |
| Roof Coatings, Aluminium                    | SCAQMD Rule 1113, 2004                          | 500                            |
| Roof Primers, Bituminous                    | SCAQMD Rule 1113, 2004                          | 350                            |
| Rust Preventative Coatings                  | SCAQMD Rule 1113, 2004                          | 400                            |
| Shellac: Clear                              | SCAQMD Rule 1113, 2004                          | 730                            |
| Shellac: Pigmented                          | SCAQMD Rule 1113, 2004                          | 550                            |
| Specialty Primers                           | SCAQMD Rule 1113, 2004                          | 350                            |
| Stains, Interior                            | SCAQMD Rule 1113, 2004                          | 250                            |
| Swimming Pool Coatings, Repair              | SCAQMD Rule 1113, 2004                          | 340                            |
| Swimming Pool Coatings, Other               | SCAQMD Rule 1113, 2004                          | 340                            |
| Waterproofing Sealers                       | SCAQMD Rule 1113, 2004                          | 250                            |
| Waterproofing Concrete / Masonry Sealers    | SCAQMD Rule 1113, 2004                          | 400                            |
| Wood Preservatives                          | SCAQMD Rule 1113, 2004                          | 350                            |
| Low-Solids Coatings                         | SCAQMD Rule 1113, 2004                          | 120*                           |

\*Note: VOC levels for Low-Solids Coatings are measured in grams of VOC per liter of material, including water

**END OF TABLES**

**SECTION 01 78 39  
PROJECT RECORD DOCUMENTS**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- .1 This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - .1 Record Drawings.
  - .2 Record Specifications.
  - .3 Record Product Data.
  - .4 Operations and Maintenance Manuals.
  - .5 Spare Parts and Maintenance Materials.
  - .6 Miscellaneous Submittals.
- .2 Furnish the Consultant and the sub-consultant team with red-line drawings.
- .3 Obtain and pay for the services of the Consultant and the sub-consultant team for the production of Record Drawings.
- .4 Provide the Consultant and sub-consultant team with red-lines two weeks prior to the application for Substantial Performance.
- .5 Final submittals shall include the following:
  - .1 Record Drawings: One (1) full size set and two (2) half size (11 x 17 inch) hard copies and one electronic version.
  - .2 Record Specifications: Two (2) hard copies and one (1) electronic version.
  - .3 Product Data: Two (2) hard copies and one (1) electronic version.
  - .4 Operations and Maintenance Manuals and other Record Documents: Two (2) hard copies and one (1) electronic version.
- .6 Sustainability Goals - Mandatory Compliance: comply with allowable VOC levels for all adhesives, sealants, paints and other coatings as outlined in Division 1.

**1.2 SUBMITTALS**

- .1 Record Drawings: Provide the following:
  - .1 Initial Submittal: Submit one set of marked-up Record Prints to Consultant.
  - .2 Consultant will initial and date each print and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Should information submitted require clarification or reorganization, Consultant will return to Contractor for additional information and additional organization.
  - .3 Consultant team will produce record drawings for Contractor and return electronic copies of record drawings and record specifications to Contractor so Contractor can submit to Owner.
  - .4 Number of Copies: Final Submittal: Submit two (2) sets of marked-up Record Prints, and 2 sets of Record CAD Drawing files.
  - .5 Electronic Media: CD or DVD.

- .2 Record Specifications:
  - .1 Initial Submittal: Submit one set of marked-up Record Specifications to Consultant. Include addenda and changes made through contract modifications via Site Instructions and Change Orders.
  - .2 Consultant team will produce record specifications for Contractor and return electronic copies of same to Contractor so Contractor can submit to Owner.
- .3 Record Project Data:
  - .1 Submit two (2) copies of each Product Data submittal.
  - .2 Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.
- .4 Operations and Maintenance Manuals:
  - .1 Submit two (2) hard copies and one

## **PART 2 - PRODUCTS**

### **2.1 RECORD DRAWINGS**

- .1 Record Prints: Maintain one set of blue or black-line prints of the Contract Drawings and Shop Drawings.
- .2 Preparation: Mark 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.
- .3 Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
- .4 Accurately record information in an understandable drawing technique.
- .5 Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
- .6 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.

- .7 Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on Contract Drawings.
- .8 Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- .9 Mark important additional information that was either shown schematically or omitted from original Drawings.
- .10 Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- .11 Submitting Record Prints: Immediately before application for Substantial Performance, 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.
- .12 Owner will furnish Contractor with one set of Contract Drawings printed on bond paper for use in recording information.
- .13 Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
- .14 New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
- .15 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.
- .16 For instances of uncertainty, refer to Consultant for resolution.

## 2.2 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. Bind each set with durable paper cover sheets. Include identification on cover sheets.
- .3 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. Include identification in each CAD file.
- .4 Identification: As follows:
  - .1 Project name.
  - .2 Date.
  - .3 Designation "PROJECT RECORD DRAWINGS."
  - .4 Name of Owner and Consultant.
  - .5 Name of Contractor.

## 2.3 RECORD SPECIFICATIONS

- .1 Preparation: 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.

- .4 Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
- .5 For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
- .6 Note related Change Orders, Record Product Data, and Record Drawings where applicable.

**2.4 RECORD PRODUCT DATA**

- .1 Preparation: 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.

**2.5 OPERATION AND MAINTENANCE MANUALS**

.1 General

- .1 On completion of the Work provide Maintenance Manuals giving full information on paint finishes used and maintenance instructions for each system.
- .2 Submit Maintenance Manuals to the Consultant prior to Substantial Performance. A holdback in the amount of \$2,000 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.

.2 Execution

.1 Subject Manuals

- .1 Separately bound manuals are to be prepared for the following trade work:

| Trades        | Subject  | # Manuals |
|---------------|----------|-----------|
| Architectural | Painting | 2         |

.2 Text

- .1 Instructions are to be written clearly in a language easily understood by the Owner's operating and maintenance personnel.
- .2 Instructions shall be complete for installation, operation, and maintenance and shall include the names and addresses of material suppliers.
- .3 The title sheet in each manual shall identify the project name, the Owners project number, the date, and the Owners Name and shall state the names, addresses, and telephone numbers of the following firms: Consultant; Applicable Sub Consultants; Contractor and Sub Contractors.

.3 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.

- .4 Guarantees
  - .1 Insert Guarantees, Warranties, and Bonds in each applicable manual and provide the following information:
  - .2 Name and Location of Project;
  - .3 Guarantee Commencement Date;
  - .4 Duration of Guarantee;
  - .5 Clear indication of what is being Guaranteed and what remedial action will be taken under Guarantee; and
  - .6 Signature and Seal of Contractor.
- .5 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:
    - .1 Equipment Name, Manufacturer, product number, serial number, warranty and guarantee expiration dates, room location.

## **2.6 OPERATION AND MAINTENANCE DATA – BASE BUILDING**

- .1 Provide Owner with 2 copies of operation and maintenance data, as called for in the Contract Documents, as follows:
  - .1 Enclose title sheet, labelled "Operating and Maintenance Data Manual", project 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 and phone numbers of subcontractors and suppliers.
  - .3 Guarantees, warranties and bonds indicating:
    - .1 Name and address of project.
    - .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.

## **2.7 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., etc. for which each item is intended.
- .5 Stored items shall remain in Trade Contractor's care, custody, and control until Substantial Performance of the Work. Protect stored items against theft or damage.
- .6 Prior to requesting Owner's inspection for Substantial Performance, do the following:
  - .1 Review Contract Documents and compare with inventory list to verify that all required items have been delivered.
  - .2 Verify that items listed on inventory list are in their designated storage locations.
  - .3 Inspect items to verify that they meet specified requirements and are in serviceable condition.
  - .4 Arrange for delivery of any missing items.
  - .5 Arrange for replacement of items not meeting specified requirements or not in serviceable condition.
  - .6 Provide Owner with copy of inventory list indicating status of all required items.
- .7 Review inventory list with Owner during Owner's inspection for Substantial Performance.
- .8 For items not delivered prior to Substantial Performance of the Work, provide a duplicate copy delivery slip and obtain Owner's signature upon delivery. Owner will only accept responsibility for care, custody, and control of items properly received and signed for.

## **2.8 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.

## **PART 3 - EXECUTION**

### **3.1 RECORDING AND MAINTENANCE**

- .1 Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- .2 Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Consultant's and Owner's reference during normal working hours.

**END OF SECTION**

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PROJECT RECORD DOCUMENTS**

**PART 1 - GENERAL**

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- .15 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.
- .16 For instances of uncertainty, refer to Consultant for resolution.

## 2.2 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. Bind each set with durable paper cover sheets. Include identification on cover sheets.
- .3 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. Include identification in each CAD file.
- .4 Identification: As follows:
  - .1 Project name.
  - .2 Date.
  - .3 Designation "PROJECT RECORD DRAWINGS."
  - .4 Name of Owner and Consultant.
  - .5 Name of Contractor.

## 2.3 RECORD SPECIFICATIONS

- .1 Preparation: 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.

- .4 Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
- .5 For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
- .6 Note related Change Orders, Record Product Data, and Record Drawings where applicable.

**2.4 RECORD PRODUCT DATA**

- .1 Preparation: 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.

**2.5 OPERATION AND MAINTENANCE MANUALS**

.1 General

- .1 On completion of the Work provide Maintenance Manuals giving full information on paint finishes used and maintenance instructions for each system.
- .2 Submit Maintenance Manuals to the Consultant prior to Substantial Performance. A holdback in the amount of \$2,000 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.

.2 Execution

.1 Subject Manuals

- .1 Separately bound manuals are to be prepared for the following trade work:

| Trades        | Subject  | # Manuals |
|---------------|----------|-----------|
| Architectural | Painting | 2         |

.2 Text

- .1 Instructions are to be written clearly in a language easily understood by the Owner's operating and maintenance personnel.
- .2 Instructions shall be complete for installation, operation, and maintenance and shall include the names and addresses of material suppliers.
- .3 The title sheet in each manual shall identify the project name, the Owners project number, the date, and the Owners Name and shall state the names, addresses, and telephone numbers of the following firms: Consultant; Applicable Sub Consultants; Contractor and Sub Contractors.

.3 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.

- .4 Guarantees
  - .1 Insert Guarantees, Warranties, and Bonds in each applicable manual and provide the following information:
  - .2 Name and Location of Project;
  - .3 Guarantee Commencement Date;
  - .4 Duration of Guarantee;
  - .5 Clear indication of what is being Guaranteed and what remedial action will be taken under Guarantee; and
  - .6 Signature and Seal of Contractor.
- .5 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:
    - .1 Equipment Name, Manufacturer, product number, serial number, warranty and guarantee expiration dates, room location.

## **2.6 OPERATION AND MAINTENANCE DATA – BASE BUILDING**

- .1 Provide Owner with 2 copies of operation and maintenance data, as called for in the Contract Documents, as follows:
  - .1 Enclose title sheet, labelled "Operating and Maintenance Data Manual", project 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 and phone numbers of subcontractors and suppliers.
  - .3 Guarantees, warranties and bonds indicating:
    - .1 Name and address of project.
    - .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.

## **2.7 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., etc. for which each item is intended.
- .5 Stored items shall remain in Trade Contractor's care, custody, and control until Substantial Performance of the Work. Protect stored items against theft or damage.
- .6 Prior to requesting Owner's inspection for Substantial Performance, do the following:
  - .1 Review Contract Documents and compare with inventory list to verify that all required items have been delivered.
  - .2 Verify that items listed on inventory list are in their designated storage locations.
  - .3 Inspect items to verify that they meet specified requirements and are in serviceable condition.
  - .4 Arrange for delivery of any missing items.
  - .5 Arrange for replacement of items not meeting specified requirements or not in serviceable condition.
  - .6 Provide Owner with copy of inventory list indicating status of all required items.
- .7 Review inventory list with Owner during Owner's inspection for Substantial Performance.
- .8 For items not delivered prior to Substantial Performance of the Work, provide a duplicate copy delivery slip and obtain Owner's signature upon delivery. Owner will only accept responsibility for care, custody, and control of items properly received and signed for.

## **2.8 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.

## **PART 3 - EXECUTION**

### **3.1 RECORDING AND MAINTENANCE**

- .1 Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- .2 Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Consultant's and Owner's reference during normal working hours.

**END OF SECTION**