01 26 00  CONTRACT MODIFICATION PROCEDURES

1. Where the production of shop drawings results in a modification to the contract documents, the Consultant shall provide written notification to the Owner when a change in the work is required.

2. Where a modification does not require a change in the work, but results in a change of appearance, performance, or in a manner otherwise of importance or interest to the Owner, the Consultant shall ensure all changes are approved by the Owner, and documented as necessary prior to approval of the shop drawings.

3. Where the construction of a mock-up suggests a modification to the contract documents or the approved shop drawings is necessary, the Consultant shall provide written notification to the Owner when a change in the work is required. Where a modification does not require a change in the work, but results in a change of appearance, performance, or in a manner otherwise of importance or interest to the Owner, the Consultant shall ensure all changes are approved by the Owner. The Consultant shall direct shop drawing revisions as required and further mock-up requirements.

01 29 00  PAYMENT PROCEDURES

01 29 76  PROGRESS PAYMENT PROCEDURES

Waste Management Plan Update

1. The Contractor shall submit with each application for progress payment an updated WMP with the “Part 2 – Project Update” section completed for the invoicing term. Failure to submit this information shall render the Application for Payment incomplete and shall delay progress payment.

Project Waste Summary:

1. The Contractor shall submit with the final Application for Payment, a summary WMP for the project. The submission shall generally be a summation of the monthly WMP submissions which will provide an overall synopsis of the total project waste management performance. Failure to submit this information will render the application incomplete and will result in holdback of the final payment.
01 33 00  SUBMITTAL PROCEDURES

01 33 23  SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

Shop Drawings

1. The Consultant shall specify shop drawing requirements for each applicable section of work.

2. The Consultant shall provide final shop drawing approvals prior to directing on-site mock-ups or construction.

Drawings

1. Drawings shall include the following information:
   i. BC Building Code analysis
   ii. Identification of all new and/or existing fire separations and make-up of rated assemblies.

Specifications

1. Use long-form specifications in 8 ½” x 11” (letter) size booklet format whenever possible.

2. Specifications on drawings are only acceptable for the smallest projects, and with prior approval from the University representative.

SI Metric Units

1. All University projects shall be designed and annotated (drawings, specifications, shop drawings, manuals, record drawings, etc.) in SI Metric Units.

01 35 00  SPECIAL PROCEDURES

01 35 23  OWNER SAFETY REQUIREMENTS

Refer to Health, Safety and Environmental Handbooks for University Contractors.

http://www.uvic.ca/facilities/about/health-safety/OHSE_03685_ContractorMgmtHandbookOUTWEB.pdf

01 35 43  ENVIRONMENTAL PROCEDURES

01 35 43.13  ENVIRONMENTAL PROCEDURES FOR HAZARDOUS MATERIALS

Regulatory Requirements

1. Where feasible, the University typically removes all hazardous materials prior to the start of a project. However, where removal and disposal of hazardous materials are required as part of a construction
project, such work shall conform to applicable codes and regulations. The handling and disposal of all hazardous and banned materials shall be in accordance with:

i. The BC Environmental Management Act


ii. BC Hazardous Waste Regulation

http://www.bclaws.ca/civix/document/id/complete/statreg/63_88_00/

iii. Regional and municipal regulations.

2. Hazardous and banned materials may include, but are not limited to:

   i. Asbestos.
   ii. Drywall (banned from disposal).
   iii. Underground storage tanks.
   iv. Polychlorinated Biphenyls (PCBs).
   v. Abandoned chemicals (gasoline, pesticides, herbicides, flammable and combustible substances).
   vi. Freon from cooling equipment.
   vii. Lead-based paints.
   viii. Smoke detectors.
   ix. Mercury containing switches.

3. Only licensed brokerage, storage, transfer and disposal facilities which comply with the requirements of local municipal or Capital Regional District (CRD) bylaws, or those licensed or regulated by other jurisdictions shall be used by the Contractor for the recycling and disposal of waste materials.

4. For a list of compulsory materials to be recycled, and a list of materials strictly prohibited for landfill disposal, refer to the CRD website:  https://www.crd.bc.ca/service/waste-recycling
01 43 00 QUALITY ASSURANCE

01 43 39 MOCK-UPS

1. The Consultant shall specify requirements for mock-ups in the construction documents. Mock-up requirements shall clearly outline the frequency, size, scope, and locations of the work to be demonstrated. The Consultant shall specify free-standing mock-ups where more suitable for both construction and review.

2. Mock-ups shall be constructed, reviewed and approved by the Consultant prior to the Contractor commencing general installation of the relevant items of work on the site. The Consultant shall specify a timeframe for scheduling of mock-up reviews.

3. Mock-ups shall generally be specified for, but not limited to the following sections of work:

Building Envelope

1. Exterior Wall Assemblies:
   i. Exterior wall assembly details, including cladding joints/seams, tie-in details to foundations, roofs, doors, glazing and other penetrations, and interfaces with other adjacent wall assemblies.

2. Windows, Doors Skylights, Curtain Walls, Storefronts, etc.:
   i. Mock-up installations of varying assembly types for third party air and water penetration verification testing.

3. Roof Assemblies:
   i. General roof assembly detailing, including parapet and building wall tie-ins, mechanical curbs and penetrations, special equipment anchorages and supports, and scupper and drain details.

Interior Finishes

1. Millwork, trims, and custom cabinetry.

2. Layout and transitions of floor finishes, tile work, wall coverings, panelling, etc.

01 45 00 QUALITY CONTROL

Third Party Inspection and Testing

1. During the design stage, the Consultant shall provide for the Owner’s approval, a comprehensive listing of recommended third party testing and inspection services (beyond those required by the BC Building Code or other authority having jurisdiction) for the project. Provide a detailed description of the test purpose, the relevant performance criteria, reason for testing (i.e. required by warranty) and a
listing of pre-qualified service providers. Upon the Owner’s approval, the specifics shall be outlined in the construction documents.

2. At a minimum, third party testing and inspection services shall include, but not be limited to the following:
   i. Roofing and Waterproofing:
      a. Third party inspection: to suit the Roofing Contractors Association of BC (RCABC) warranty requirements.
      b. Leak detection: flood testing or electric conductance testing (Detec or similar).
   ii. Windows, curtainwall and other fenestration assemblies: water penetration testing.
   iii. Air Barrier:
      a. Assembly air tightness testing.
      b. Whole building air tightness (or zone testing).

3. For large capital projects, consider the following third party inspection services:
   i. Master Painter’s Institute / Master Painter and Decorator’s Association: testing & inspection.
   ii. Architectural Woodwork Manufacturer’s Assoc. of Canada: guarantee and inspection service.

4. Testing phases shall be clearly broken out into the following categories and requirements as applicable:
   i. Manufacturer In-Plant Testing or Laboratory Testing.
      a. General test description: (i.e. window water penetration, air-leakage, structural, etc.).
      b. Quantity and specimen size.
      c. Regulated testing standard and test method: (ASTM, CSA, AAMA, etc.).
      d. Performance criteria.
      e. Requirements for remedial work and additional testing if failure of initial testing to meet the specified performance criteria.
   ii. Mock-up Testing and Inspection (In-situ or separate).
      a. General test description: (i.e. window water penetration, air-leakage, etc.).
      b. Quantity, location and scope of work to be captured by the test(s).
      c. Regulated testing standard and test method (ASTM, CSA, AAMA, etc.).
      d. Performance criteria.
      e. Requirements for remedial work and additional testing if failure of initial testing to meet the specified performance criteria.
   iii. General Field Testing and Inspection (In-situ).
      a. General test description: (i.e. window water penetration, air-leakage, etc.).
      b. Quantity, locations, project milestones and scope of work to be captured by the tests.
      c. Regulated testing standard and test method (ASTM, CAB, AAMA, etc.).
      d. Performance criteria.
      e. Requirements for remedial work and additional testing if there are failures of the general testing to meet the specified performance criteria.
5. The Consultant shall recommend and arrange all third-party testing and inspection agencies on behalf of the Owner. The Consultant shall recommend a budget for testing and inspection costs to be expected for the project.

6. Testing and inspection costs shall be borne by the Owner. Where additional third-party services are required due to specified tests or inspections failing to achieve the requirements of the contract documents as determined by the Consultant, the Consultant shall specify that the Contractor, not the Owner shall bear the additional cost.

7. The Consultant shall specify the requirements of the Contractor when they are required to provide labour, materials, equipment, supervision, facilities or utilities to:
   i. Provide access to areas of the work to be tested or inspected.
   ii. Prepare portions of the work for testing beyond the general scope of the work (i.e. temporary work.).
   iii. Isolate and protect adjacent areas of the work.
   iv. Provide facilities (i.e. pressure chambers) to suit the specified testing methods.

8. The Owner expects the Consultant, on the Owner’s behalf, to observe all third-party testing and/or inspection as necessary to assure the specified performance requirements have been verified, especially where any professional judgement of interpretation is applicable. The Consultant shall provide the Owner with advanced notice of all third-party testing and/or inspection should the Owner wish to attend.

9. The Consultant shall ensure the documents provide the Owner the ability to request additional testing and/or inspection services beyond those specified.

10. The cost of inspections and tests required by laws, ordinances, rules, regulations, etc., shall be included in the contract price, and shall be the sole responsibility of the Contractor.

11. Where applicable, the University generally retains and directs the following third-party agencies in advance, and independent from the process described above:
   i. Hazardous materials testing, abatement and removals.
   ii. Geotechnical services.

Third Party Agency Limitations

1. The services of a third party agency shall in no way relieve the Contractor’s obligations to perform the work of the contract.

2. Agencies shall not be authorized to:
   i. Release, revoke, alter, enlarge or interpret on the requirements of the contract documents.
   ii. Approve or accept any portion of the work.
   iii. Perform any duties of the Contractor.
Performance Specifications

1. Where performance based specifications are utilized for sections of work which require third-party testing, the Consultant shall:
   i. Specify all required performance criteria. References to industry specifications, test methods, manufacturer’s published performance data, or any other external documentation shall not comprise the sole performance standard.
   ii. Specify performance criteria in units of measure that can be referenced in the BC Building Code or applicable standards and regulations referenced within the code.
01 51 00  TEMPORARY UTILITIES

1. On a case by case basis, depending on the type of construction, project size and location, the provisions identified below may only be applicable in part and may be scaled down to suit the project.
   i. For interior renovation projects, the Contractor’s office and storage may be located within an existing facility and most utilities will be provided by the University. Confirm with the Facilities Management (FMGT) representative.
   ii. The Consultant shall review with the FMGT representative the items listed below, confirm which conditions apply, and clearly identify requirements in the contract documents.
      a. Sanitary facilities.
      b. Water supply.
      c. Temporary heating, power, and light.

01 52 00  CONSTRUCTION FACILITIES

01 52 13  FIELD OFFICES AND SHEDS

Temporary Facilities

1. The Contractor and Sub-contractors shall provide Construction Facilities and Temporary Accommodation as they require for the performance of the work.

2. On a case by case basis, depending on the type of construction, project size and location, the provisions identified below may only be applicable in part and may be scaled down to suit the project.
   i. For interior renovation projects, the Contractor’s office and storage may be located within an existing facility and most utilities will be provided by the University. Confirm with the Facilities Management (FMGT) representative.
   ii. The Consultant shall review with the FMGT representative the items listed below, confirm which conditions apply, and clearly identify requirements in the contract documents.
      a. Contractor’s offices.
      b. Equipment, tool and materials storage sheds and/or trailers.
      v. First aid - refer to:
         http://www.uvic.ca/facilities/about/health-safety/OHSE_03685_ContractorMgmtHandbookOUTWEB.pdf

01 54 00  CONSTRUCTION AIDS

01 54 13  TEMPORARY ELEVATORS

Contractor’s Use of Elevators

1. As applicable to both new and existing facilities, the Contractor is responsible to provide adequate protection of all surfaces (use blankets, plywood liner, etc.), and strictly enforce the elevator load limit.

2. The Contractor is responsible for all construction-related damage and necessary remedies to elevators (repairs, replacement, service calls), during the course of construction.
01 56 00 TEMPORARY BARRIERS AND ENCLOSURES

1. Project Site
   i. The Contractor shall be restricted in the use of the premises to inside the project site, which shall be defined by the project’s perimeter hoarding. Site or other specific works outside the perimeter hoarding shall be authorized by the UVic FMGT Representative.
   ii. Only commercial vehicles carrying tools or materials for the work are permitted temporarily on site. Vehicles owned by persons employed on the work shall be parked in the University general parking lots. Parking permits are available for longer term projects. Daily parking permits are also available at coin operated machines at the entrance roads. All persons employed on the work shall obey the Traffic and University Parking Regulations, as indicated. Refer to: http://www.uvic.ca/universitysecretary/assets/docs/policies/BP3205_6800_.pdf

2. Access to Site
   i. The Contractor shall not close or obstruct streets, sidewalks, lanes or other public rights of way without having first obtained required authorization from the Owner and permits from the authorities having jurisdiction.
   ii. The Contractor shall maintain adequate means of egress from the project and shall not diminish, by his operations, adequate access/egress from the adjacent existing premises of the Owner.

3. Construction Site Hoardings
   i. Perimeter hoarding to be minimum 2400mm high.
   ii. Locate vehicular access lockable gates where least disruptive to street traffic. Locations shall be approved by the FMGT representative.

4. Interior Barriers and Enclosures
   i. Coordinate location with the FMGT representative.
   ii. Provide enclosures for separating spaces in which dust-generating activities are executed, to protect workers, the public, sensitive equipment, and areas of surfaces where work has been completed.
   iii. All work adjacent to laboratories, or other clean spaces, shall be isolated during demolition and construction work.
   iv. The Consultant shall specify areas and required type of protections: dust, humidity, fire, smoke, sound, etc.

5. Partitions Enclosures
   i. Partitions shall be rigid (framed) slab to slab, with dust proof sealed perimeter and joints.

6. Containment Barrier
   i. Barriers shall consist of a plastic curtain seamlessly fixed and sealed to perimeter to fully restrict dust and particles infiltration into the clean area.

7. Site Security
   i. The Contractor shall be responsible for construction site security.
ii. Neither the Owner nor the Consultant will be responsible for any loss or damage to materials, property or equipment of the Contractor, Sub-contractors, or Sub-subcontractors.

iii. Co-ordinate with the UVic FMGT Representative who will inform Campus Security Services when authorized overtime work is to take place, and inform them of any theft or damage at the site.

01 56 39 TEMPORARY TREE AND PLANT PROTECTION

1. Existing trees that are to be retained on a construction site shall be protected.

2. During demolition and construction work, the area beneath the drip line shall be enclosed and protected by a fence.

3. The protection fence shall:
   i. Be of minimum 1.2 metres in height, be erected before construction starts and remain until the project’s completion.
   ii. Be constructed of orange snow fencing securely fastened to metal stakes, or 2 x 4 wood, driven into the ground. Other forms of protection must be discussed with the FMGT representative.
   iii. Not be lifted or removed at any time for vehicular and equipment access, to prevent soil compaction in the root zone and air depletion. (see figure: 01 50 00-1)

4. When a fenced area is impractical, wrap tree trunks with burlap protected with 19mm x 50mm planks extending from grade to the lowest limbs. Planks shall be placed close together and secured in place with three bands of stapled wire. (see figure: 01 50 00-1)

5. Activities and storage of materials and equipment within this area are prohibited. Prevent poor drainage and excessive heat.

Figure: 01 50 00-1
6. Any pruning of the branches or roots must be done by a professional Arborist, in consultation with Facilities Management Grounds (FMGR). Storage of building materials, soil or equipment is not permitted inside the protected area.

01 58 00 PROJECT IDENTIFICATION

01 58 13 TEMPORARY PROJECT SIGNAGE

1. Project Site Signage.
   i. The Contractor shall, prior to commencing work on the site, supply and install a project identification sign fabricated from 19mm medium density overlay plywood, trimmed edges, suitably supported and braced.
   ii. The University Representative will provide the final signage layout in digital format for the Consultant and Contractor’s use.
01 74 00  CLEANING AND WASTE MANAGEMENT

01 74 19  CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

Regulatory Requirements

1. Only licensed brokerage, storage, transfer and disposal facilities which comply with the requirements of local municipal or Capital Regional District (CRD) bylaws, or those licensed or regulated by other jurisdictions shall be used by the Contractor for the recycling and disposal of waste materials.

2. For a list of compulsory materials to be recycled, and a list of materials strictly prohibited for landfill disposal, refer to the CRD website: https://www.crd.bc.ca/service/waste-recycling

Typical Construction and Deconstruction Waste Management Practices

1. General Requirements
   i. The University is targeting a minimum overall construction waste diversion rate of 75% by 2019 as outlined in UVic’s Sustainability Action Plan (2014-2019). It is generally expected the provisions of this section will be implemented and administered by the Consultant for all projects, however, it is recognized that the function of this section in its entirety may be excessive for smaller scale projects. As such, pending approval from Facilities Management (FMGT), the Consultant may amend the requirements of this section to suit project specific needs. Notwithstanding any adjustments to the administrative and/or functional process described herewith, all projects shall aim to generate the least amount of waste possible.

2. New Construction
   i. Processes shall be employed to limit construction generated waste, including that caused by damage due to mishandling, improper storage or inadequate protection. Special provisions shall also aim to minimize over-packaging and excessive quantity estimating.

3. Deconstruction or Renovations
   i. Complete deconstruction, or partial in the case of renovation projects, shall be carried out in such a way as to salvage for reuse and recycling the largest amount of materials possible.

Project Waste Management Provisions

The Contractor’s submittals to the Owner and the Consultant shall include a Construction Waste Management Plan (WMP).

1. Part 1: Pre-Construction Material Quantify Estimates

Prior to commencing the work, the Contractor shall provide an estimate of deconstruction and construction job site generated waste materials to be salvaged, recycled, or disposed of. Materials shall be quantified using industry standard units of measurement.
Along with the Pre-Construction Estimates, the Contractor shall provide a written submission, to the satisfaction of the University, describing in detail the following:

i. The intended destinations for the various waste materials identified.

ii. The intended job site separation and collection facilities and procedures.

iii. The proposed deconstruction methodology and sequencing (if applicable).

iv. The schedule for deconstruction (if applicable).

v. The location, security and protection of storage areas (if materials are to be stored on site).

vi. The details on materials handling and removal procedures on project sites with space constraints.

2. Part 2: Project Update

Provide a monthly update of actual deconstruction and construction job site generated waste materials. Indicate whether these materials were salvaged, recycled, or disposed of, and the receiving facility.

Project Waste Management Implementation Meetings

1. The Contractor shall coordinate and conduct Project Waste Management meetings. Meetings shall include sub-contractors and suppliers affected by the WMP. Review of the WMP and each subsequent update of the plan shall be a regular meeting agenda item. At a minimum, waste management goals and issues shall be discussed at the following meetings:

   i. Pre-bid meeting.
   ii. Pre-construction meeting.
   iii. Regular job site meetings.

Project Waste Management Implementation Administration

1. Manager:

   i. The Contractor shall designate an on-site representative responsible for instructing workers and overseeing, documenting, and updating the WMP.

2. Distribution:

   i. The Contractor shall distribute copies of the WMP to all sub-contractors and suppliers.

3. Instruction:

   i. The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling procedures to be used by all parties at the appropriate stages of the project.

   ii. For deconstruction projects the Contractor shall provide on-site direction to identify materials intended for salvage, outline procedures for removal, storage and handling, and confirm requirements for reusing salvaged materials within the project.

4. Separation Facilities:

   i. The Contractor shall establish and label a specific area to facilitate separation of materials for recycling and salvage. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
5. Application for Progress Payments:
   i. The Contractor shall submit with each application for progress payment an updated WMP with the “Part 2 – Project Update” section completed for the invoicing term. Failure to submit this information shall render the Application for Payment incomplete and shall delay progress payment.
   ii. Submit to the Consultant and/or Owner way-bills, invoices and other documentation confirming that all materials have been delivered to the required locations.
   iii. Any materials salvaged by the Contractor, subcontractors, employees or agents for their own re-use elsewhere, or any items gifted to a third party for re-use must be accounted for. In these situations where way-bills, invoices or other documentation are not available, the Contractor shall still declare the materials, submit a written declaration that such materials have been, or are intended to be salvaged. It is important that the overall quantities of all waste materials are inventoried within the WMP to verify the University's minimum 75% waste diversion goals.

6. Project Waste Summary:
   i. The Contractor shall submit with the final Application for Payment, a summary WMP for the project. The submission shall generally be a summation of the monthly WMP submissions which will provide an overall synopsis of the total project waste management performance. Failure to submit this information will render the application incomplete and will result in holdback of the final payment.

01 78 00 CLOSEOUT SUBMITTALS

01 78 23 OPERATIONS AND MAINTENANCE DATA (MANUALS)

1. Submit to Consultant at Substantial Performance of the work, for University use, in the consultant approved, complete and final version:
   i. Two (2) hard copies – organized in 3-ring binders.
   ii. Two (2) PDF electronic copies of full binder contents on CD, DVD, or flash drive.

2. Organize data as instruction manual for use by Owner’s personnel.

3. Organize information in 3 “D” ring binders:
   i. Commercial quality, with durable and cleanable plastic covers.
   ii. To fit 215mm x 280mm size paper.

4. When multiple binders are used, correlate data into related consistent groupings and identify contents of each binder on spine.

5. Cover to identify each binder with type or printed title “OPERATIONS AND MAINTENANCE MANUAL”, and list title of project and identify subject matter of contents.

6. Arrange content by systems, under section numbers and sequence of Table of Contents.
7. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

8. Drawings will be provided with reinforced punched binder tab:
   i. Bind in with text; fold larger drawings to size of text pages.

9. Contents of manual to include:
   i. Project team listing:
      a. Consultants: Contact names, roles, contact information, scope of services.
      b. Contractors: Contact names, contact information, scope of work.
      c. Testing and Inspection Agencies: Scopes of service, contact names and contact information.
   
   ii. Complete Products Listing Assembled in each section, provide a list of all products:
      a. Manufacturer.
      b. Model / Product Number
      c. Colour / Finish
      d. Supplier
      e. LEED Compliance

   iii. Certificates of Acceptance: Relevant certificates issued by authorities having jurisdiction, including Occupancy Certificate.

   iv. Final inspection reports by testing agencies, municipal, safety and other authorities.

   v. Training of University Operations and Maintenance staff.

   vi. Shop drawings.

   vii. Warranties, bonds and service and maintenance contracts original documents shall be provided and bound in a separate volume, as identified in this section.

01 78 36  WARRANTYES, BONDS, AND SERVICE/MAINTENANCE CONTRACTS

Attend to all warranties, and service / maintenance contracts in accordance with industry standards, with particular attention to the following:

1. Conduct joint eleventh month warranty review, measured from time of acceptance, by FMGT and Consultant.

2. Information in binders to be organized as follows:
   i. Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
   ii. List subcontractor, supplier, and manufacturer, with name, address and telephone number of responsible principal.
iii. Obtain warranties, bonds and service and maintenance contracts, executed in duplicate by subcontractors, suppliers, and manufacturers within ten (10) days after completion of applicable item of work.

iv. Verify that documents are in proper form, contain full information, and are notarized.

v. Co-execute submittals when required.

vi. Retain warranties, bonds and service and maintenance contracts until time specified for submittal.

3. Submittals
   i. Number of original documents required: one (1) each.
   ii. Provide one (1) 3 "D" ring binder titled, "Warranties, Bonds, and Service and Maintenance Contracts".
   iii. Include all original documents.
   iv. Insert copies of original warranties, bonds, and service and maintenance contracts in all Operating and Maintenance Manuals (4), within the related section of work.
   v. Electronic Copy: submit full binder contents, in the approved, complete and final version, on CD or DVD.

4. Warranty Tags
   i. Tag, at time of installation, each warrantied item. Provide durable, oil and water resistant tag approved by Consultant or UVic FMGT Departmental Representative, as directed.
   ii. Attach tags with copper wire and spray with waterproof silicone coating.
   iii. Leave date of acceptance until project is accepted for occupancy.
   iv. Indicate the following information on tag:
      a. Type of product/material.
      b. Model number.
      c. Serial number.
      d. Contract number.
      e. Warranty period.
      f. Inspector’s signature.
      g. Construction contractor.
01 91 00 COMMISSIONING

01 91 13 GENERAL COMMISSIONING REQUIREMENTS

General

1. Discuss with UVic Facilities Management (FMGT) Representative the project specific commissioning requirements for smaller projects.

2. For all new construction and large renovations, provide full building commissioning. Full building commissioning shall include, but not be limited to the following systems:
   i. Building Energy Systems.
      a. HVAC Systems and Controls.
      b. Electrical Systems.
      c. Lighting and Daylighting Systems and Controls.
   ii. Plumbing Systems including DHW systems and fixtures.
   iii. Building Envelope systems and components.

Administration

1. The Commissioning Manager shall be an independent member of the consultant team, with the sole responsibility to administer the commissioning process.