SECTION 01 91 13 - COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. OPR and BOD documentation are included by reference for information only.

1.2 SUMMARY

A. Section includes general requirements that apply to implementation of commissioning without regard to specific systems, assemblies, or components.

1.3 DEFINITIONS

A. BOD: Basis of Design: A document that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

B. Commissioning Agent (CxA): Owner compensated independent agent, not otherwise associated with the Commissioning team members or the Contractor. The CxA directs and coordinates the day-to-day commissioning activities.

C. Cx: Commissioning.

D. Commissioning Plan: Overall plan that provides the structure, schedule and coordination planning for the commissioning process.

E. Functional Performance Test: Test of the function and operation of equipment and systems. Functional testing is the dynamic and interactive testing of systems under full operation. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state. The commissioning agent develops the functional test procedures in a sequential written form, coordinates, oversees and documents the actual testing, which is performed by the installing contractor or vendor. Functional tests are performed after prefunctional checklists and start-up are complete. Functional Performance Testing is not traditional air or water test and balancing.

F. Prefunctional Checklist: A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the CxA to the Contractor. Prefunctional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation. Some prefunctional checklist items entail simple testing of the function of a component, a piece of equipment or system. Prefunctional checklists augment and are combined with the manufacturer's start-up checklist. The commissioning process requires that the procedures be documented in writing, and that CxA witness much of the prefunctional work and all of the larger or more critical pieces of equipment.

G. OPR: Owner's Project Requirements: A document that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.

H. Startup: Initial starting or activating of dynamic equipment, including executing prefunctional checklists.

I. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.

1.4 COMMISSIONING TEAM

A. Members Appointed by Contractor(s): Individuals, each having the authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated action. The commissioning team shall consist of, but not be limited to, representatives of Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.

B. Members Appointed by Owner: Include CxA, Representatives of the facility user and operation and maintenance personnel, and Architect and engineering design professionals.

1.5 SUBMITTALS

A. Documents: For all systems to be commissioned, the following shall be distributed to the CxA prior to equipment purchase and concurrently with Architect and Engineer of Record. CxA's review of submittal does not alter the scope or responsibility of the Architect or the Engineer of Record.

1. Manufacture's cut sheets.
2. Performance data including but not limited to the following:
    a. Fan curves.
    b. Pump curves.
3. Installation and startup manual.
4. Operation, troubleshooting, and maintenance manuals.
5. Shop drawings.

B. Documents: For all systems to be commissioned, the following shall be distributed to the CxA prior to the drafting of Prefunctional Checklists and Functional Test Procedures.

1. Sequence of operations including but not limited to the following:
    a. An overview narrative of the system describing its purpose, components and function.
    b. All interactions and interlocks with other systems.
    c. Detailed delineation of control between any packaged controls and the building automation system.
    d. Written sequences of control for packaged controlled equipment.
    e. Start-up sequences.
    f. Warm-up mode sequences.
    g. Normal operating mode sequences.
    h. Unoccupied mode sequences.
    i. Shutdown sequences.
    j. Temperature and pressure control: setbacks, setups, and resets.
    k. Effects of power or equipment failure with all standby component functions.
    l. All alarms and emergency shut downs.
    m. Seasonal operational differences and recommendations.
    n. Initial and recommended values for all adjustable settings, set-points and parameters that are typically set or adjusted by operating staff; and any other control settings or fixed values, and delays, that shall be useful during testing and operating the equipment.
    o. Schedules.
2. Factory test reports.
3. Start-up and checkout materials that are shipped inside the equipment and the field checkout sheet forms to be used by the factory or field technicians.
4. Pipe flushing procedures.
5. Test and balance plan.
6. Test and balance reports.
7. Training Plan: Provide plan for and presentation materials related to training of building personnel on the commissioned systems.
8. Warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified.
9. Updated as-built versions of the control drawings and sequences of operation.

C. Provide the CxA with requested additional documentation in order to complete the commissioning process.

1.6 OWNER'S RESPONSIBILITIES

A. Provide the OPR documentation to the CxA and Contractor for information and use.

B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities.

C. Provide the BOD documentation prepared by Architect and approved by Owner, to the CxA and Contractor for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

1.7 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall assign representatives with expertise and authority to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the following:

1. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
2. Cooperate with the CxA for resolution of issues recorded in the Issues Log.
3. Attend commissioning team meetings held on a monthly or as needed basis.
4. Integrate and coordinate commissioning process activities with construction schedule.
5. Review and accept construction checklists provided by the CxA.
6. Complete paper construction checklists as Work is completed and provide to the Commissioning Authority on a weekly basis or as requested.
7. Review and accept commissioning process test procedures provided by the Commissioning Authority.
8. Complete current Architect, Engineer of Record, and Issues Log punch list items before functional testing.
9. Complete commissioning process test procedures.

1.8 CxA'S RESPONSIBILITIES

A. Organize and lead the commissioning team.

B. Provide an ongoing commissioning plan.

C. Convene commissioning team meetings.

D. Provide Project-specific construction checklists and commissioning process test procedures.

E. Verify the execution of commissioning process activities using random sampling. The sampling rate may vary from 1 to 100 percent. Verification will include, but is not limited to, equipment submittals, construction checklists, training, operating and maintenance data, tests, and test reports to verify compliance with the OPR. When a random sample does not meet the requirement, the CxA will report the failure in the Issues Log.

F. Witness systems, assemblies, equipment, and component startup.

G. Compile test data, inspection reports, and certificates; include them in the systems manual and commissioning process report.

H. The CxA will be responsible for overseeing and approving the content and adequacy of the training of Owner personnel for commissioned equipment.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform startup and initial checkout and required Prefunctional and Functional performance testing shall be provided by the Division 22, 23, and 26 Sub-Contractors for the equipment and control systems being tested.

PART 3 - EXECUTION

3.1 PREFUNCTIONAL CHECKOUT

A. Execution of Prefunctional Checklists and Startup.

1. Seven days prior to startup, the Contractor through the Subs and vendors shall schedule startup and checkout with the CxA. The performance of the Prefunctional checklists, startup and checkout are executed by the Contractor's Sub or vendor. When executing Prefunctional checklists, signatures may be required of other Subs for verification of completion of their work.
2. The CxA will observe, at minimum, the procedures for each piece of primary equipment, unless there are multiple units, in which case a sampling strategy may be used.
3. For lower-level components of equipment, such as, VAV boxes, sensors, controllers, the CxA will observe a sampling of the Prefunctional and start-up procedures.
4. The Contractor shall execute startup and provide the CxA with a signed and dated copy of the completed start-up and Prefunctional tests and checklists.
5. Only individuals that have direct knowledge and witnessed that a line item task on the Prefunctional checklist was actually performed shall initial or check that item off. It is not acceptable for witnessing supervisors to fill out these forms.

B. Deficiencies, Non-Conformance and Approval in Checklists and Startup

1. Contractor shall clearly list any outstanding items of the initial start-up and Prefunctional procedures that were not completed successfully, at the bottom of the procedures form or on an attached sheet. The procedures form and any outstanding deficiencies are provided to the CxA within two days of test completion.
2. Contractor shall correct all areas that are deficient or incomplete in the checklists and tests in a timely manner, and shall notify the CxA as soon as outstanding items have been corrected and resubmit an updated start-up report and a Statement of Correction on the original non-compliance report.

3.2 CONTROLS CHECKOUT

A. Contractor shall notify CxA of controls check-out procedures 7 days prior to work being preformed. At completion of controls checkout, Contractor shall provide CxA with any checklists and/or summary reports.

3.3 TAB

A. TAB shall be preformed after controls check-out has been approved by the CxA.

B. Contractor shall notify CxA of TAB 7 days prior to the work being performed. At the completion of TAB Contractor shall provide CxA with the Tab report.

3.4 FUNCTIONAL PERFORMANCE TESTING

A. Contractor shall schedule and execute the functional tests. Functional testing is conducted after TAB has been completed and approved by CxA.

3.5 TRAINING OF PERSONNEL

A. Contractor shall schedule and conduct training of Owner designated personnel.

B. Contractor shall record training sessions on video and provide in format acceptable to CxA.

3.6 DEFERRED TESTING

A. Contractor shall provide prefunctional checkout, controls checkout, TAB, functional performance testing and training of personnel for any tests deferred due to reasons of building structure, required occupancy conditions or other deficiency determined by the CxA. These tests shall be conducted in the same manner as non-deferred activities.

END OF SECTION 01 91 13

SECTION 220800 – PLUMBING SYSTEMS COMMISSIONING (LEED)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes Division 22 responsibilities in the commissioning process.

1.3 COMMISSIONING AGENCY

A. The commissioning agency (CxA) has been contracted directly with the owner for this project. The CxA has overall responsibility for planning and coordinating the commissioning process. Commissioning involves all parties to the design and construction process, including the mechanical Division 22 contractor, and all specialty sub-contractors within Division 22.

1.4 CONTRACTOR RESPONSIBILITY

A. The mechanical Division 22 contractor's responsibilities are defined in Section 019113 of the specifications. These responsibilities apply to all specialty sub-contractors and major equipment suppliers within Division 22. Each contractor and supplier shall review Section 019113.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 COMMISSIONED SYSTEMS

A. A list of systems to be commissioned on this job shall include but not be limited to the following.

1. Domestic Hot Water
2. Systems commissioned under 230800 and 260800

END OF SECTION 220800

SECTION 230800 – HVAC SYSTEMS COMMISSIONING (LEED)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes Division 23 responsibilities in the commissioning process.

1.3 COMMISSIONING AGENCY

A. The commissioning agency (CxA) has been contracted directly with the owner for this project. The CxA has overall responsibility for planning and coordinating the commissioning process. Commissioning involves all parties to the design and construction process, including the mechanical Division 23 contractor, and all specialty sub-contractors within Division 23.

1.4 CONTRACTOR RESPONSIBILITY

A. The mechanical Division 23 contractor's responsibilities are defined in Section 019113 of the specifications. These responsibilities apply to all specialty sub-contractors and major equipment suppliers within Division 23. Each contractor and supplier shall review Section 019113.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 COMMISSIONED SYSTEMS

A. A list of systems to be commissioned on this job shall include but not be limited to the following.

1. Heating, Ventilating and Air Conditioning Systems (HVAC)
2. HVAC Controls Systems
3. Systems commissioned under 260800 and 220800

END OF SECTION 230800

SECTION 260800 – ELECTRICAL SYSTEMS COMMISSIONING (LEED)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes Division 26 responsibilities in the commissioning process.

1.3 COMMISSIONING AGENCY

A. The commissioning agency (CxA) has been contracted directly with the owner for this project. The CxA has overall responsibility for planning and coordinating the commissioning process. Commissioning involves all parties to the design and construction process, including the mechanical Division 26 contractor, and all specialty sub-contractors within Division 26.

1.4 CONTRACTOR RESPONSIBILITY

A. The mechanical Division 26 contractor's responsibilities are defined in Section 019113 of the specifications. These responsibilities apply to all specialty sub-contractors and major equipment suppliers within Division 26. Each contractor and supplier shall review Section 019113.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 COMMISSIONED SYSTEMS

A. A list of systems to be commissioned on this job shall include but not be limited to the following.

1. Lighting / Lighting Control
2. Systems commissioned under 230800 and 220800

END OF SECTION 260800

SECTION 01 73 20 INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN

1. GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general requirements and procedures for achieving acceptable indoor air quality for the interior areas of this Project during construction, and preventing contamination of ductwork, HVAC equipment, and other building materials to avoid IAQ problems for workers and for occupants in the future after occupancy. Work includes requirements on the use of permanent building mechanical systems prior to Owner's acceptance.

B. Comply with requirements for LEED IEQc3 Indoor Air Quality Management, During Construction and as specified in Section 01 35 20 LEED Requirements and in this Section.

C. Contractor shall prepare and submit an Indoor Air Quality (IAQ) Management Plan.

1.3 SUBMITTALS

A. IAQ Construction Management Plan: Submit the plan within 30 days of the date established for commencement of the Work. Update and resubmit plan as required during construction process to reflect Project conditions.

B. Meeting Minutes: Submit minutes from the Contractor meetings related to the execution and verification of the IAQ Construction Management Plan.

C. Date stamped record photographs: Provide at a minimum of 3 stages of construction to document adherence with the IAQ requirements. A minimum of 45 photographs, 15 photographs taken at the three different stages of construction when IAQ Construction Management Plan procedures are active. Provide 3 photographs of each of the five SMACNA IAQ requirements at each stage of construction. Provide identification of the 5 SMACNA requirements for each photo to document consistent adherence to requirements of LEED IEQc3 Construction Indoor Air Quality Management, During Construction.

D. Product Data: Submit cut sheets of filtration media proposed for use.

E. LEED Submittal: LEED Templates / Forms for Credit IEQc3 Construction Indoor Air Quality Management, During Construction completed on line, signed / initialed by the Contractor, with copy of Construction IAQ Plan and a statement that requirements for the credit have been met.

1.4 QUALITY ASSURANCE

A. Contractor's Construction IAQ Management Plan shall meet or exceed the 5 recommended design approaches of SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction 2nd Edition 2007, ANSI/SMACNA 008-2008, (Chapter 3), and shall embody the principals and practices set forth in this Section.

B. IAQ Management Conference: Conduct conference at Project site to comply with the requirements in Division 1 Section "Project Management and Coordination."

1. Review methods and procedures related to IAQ management during construction.
2. Review IAQ management requirements with each trade.

C. Comply with the requirements of LEED IEQC 3 Construction Indoor Air Quality Management, During Construction and Contractor's Construction IAQ Management Plan during construction.

1.5 IAQ CONSTRUCTION MANAGEMENT PLAN

A. Contractor IAQ Construction Management Plan shall include procedures to prevent indoor air quality problems resulting from the construction process in order to help sustain the comfort and well being of construction workers and future building occupants.

B. Contractor's detailed plan shall be based on the particular characteristics of the Project.

2. PRODUCTS (Not Used)

3. EXECUTION

3.1 HVAC PROTECTION (SMACNA Approach number 1)

A. Store HVAC equipment including but not limited to items such as ducting, registers, air handler components, fans, and motors in a clean, dry location, protected from dust and other contaminants, and covered with plastic until installed

B. Seal all HVAC inlets and outlets.

C. Use of the HVAC system shall be avoided during construction, until drywall construction and activities that produce dust or particulate pollution have been completed. Temporary ventilation may be installed to remove contaminants. All HVAC components including but is not limited to outside air inlets, grills, diffusers, supply ducts, return ducts, ceiling plenums, VAV (variable air volume) plenum intakes, and window ventilator or air conditioning units shall be sealed during construction.

D. Seal HVAC components during installation. Ducts runs that require several days to install, sections shall be sealed off as they are completed. Seals shall be removed prior to continuing the duct run. Other components of the HVAC system shall be subject to the same requirements to protect from contamination.

E. Provide frequent inspection and maintenance, of HVAC component protection. Replace as necessary. If inspections by the Architect, Engineer, Owner, or Commissioning Agent reveal that the ductwork has been contaminated due to inadequate protection, the ductwork shall be cleaned professionally prior to activation the HVAC system or occupancy, using procedures established in ACR 2005 published by the National Air Duct Cleaners Association. HVAC components have been damaged or contaminated shall be cleaned or replaced as necessary.

F. Use temporary filtration media. If HCAC system is to be used while construction work is being done, temporary media filtration media shall be installed on all air intakes. Such filtration shall have a minimum filtration efficiency (Minimum Efficiency Reporting Value-MERV per ASHRAE 52.2) of 8. For air intakes into other parts of the building that are very sensitive, such as computer rooms, filtration media with a MERV rating of 13 or higher is required. New filtration with a MERV 13 shall be installed prior to occupancy.

G. Inspect filters weekly replace as needed for proper filtration and air flow.

H. Avoid contamination of air entry into enclosed parts of the building. When outdoor construction activities generate dust, combustion emissions, or other contaminates, operable windows and outside air supplies to enclosed portions of the building will be closed or sealed.

I. Do not use fan, mechanical, or electrical rooms to store construction or waste materials. Keep these rooms clean and neat.

J. Ceiling tiles shall not be installed until after drywall and painting is complete to avoid contamination of ceiling tiles that will form the return air plenum.

3.2 SOURCE CONTROL (SMACNA Approach number 2)

A. The use of moisture-damaged materials shall not be allowed. Any porous materials that have become wet shall be dried thoroughly within 48 hours and before installation. Any materials damaged, showing visible mold, or that are wet for over 48 hours shall be removed from the site appropriately.

B. Contractor to ensure that the construction process will not result in moisture intrusion. In the event of rain or groundwater intrusions notify the Owner's representative.

C. Avoid tracking pollutants into the work areas.

1. At the start of framing and mechanical system installation access to the building shall be controlled to minimize the tracking of contaminants.
2. Material deliveries and construction waste removal shall be routed by the most direct route to and from the building exterior.
3. Provide rough track off grates or matting at the entryway to remove moisture and contaminants from pedestrian traffic.
4. Prevent the ingress of rodents and pests.
5. Food and drinks other than water shall not be allowed in the building.
6. Trash containers will be primarily located outside of the building. Any interior trash containers will be emptied twice a week at a minimum.
7. Use procedures to ensure that there is no smoking in the building, storage areas of absorptive materials, or within 25 ft of air intakes or building openings.

D. Limit construction traffic and monitor idling vehicles and equipment in the vicinity of air intakes when the HVAC systems are activated. Restrict vehicles to a loading area, well removed from air intakes. Prevent emissions from being drawn into the building.

E. Use electric or natural gas alternatives to for gasoline and diesel equipment when possible.

F. All personnel lifts used inside the building will be electrically operated to prevent emissions inside the building.

G. Cycle vehicles and equipment off when not being used.

H. Avoid the use of materials and products with high VOC and particulate levels. Inside the building use products and installation methods with low VOCs such as paints and coatings, adhesives and sealants, and cleaners.

I. The project's specifications/LEED guidelines call for the use of low-VOC materials. Daily inspections will be made by the Contractor's project manager and/or superintendent to ensure the products being used in the field are the specified and approved products.

J. Keep containers of wet products closed when not in use. Cover and seal materials which can release odor or dust.

K. Containers of fuel, volatile liquids, and materials with high VOC content shall be tightly sealed and stored outside of the building.

L. Protect absorbent materials from moisture during delivery to and storage at the job site. Store materials in a dry and clean environment.

3.3 PATHWAY INTERUPTION (SMACNA Approach number 3)

A. Use dust curtains or temporary enclosures to prevent dust from migrating to other areas when applicable. During construction, isolate areas of work to prevent contamination of clean or occupied areas.

B. Keep pollutant sources as far away as possible from absorptive materials, ductwork, and areas occupied by workers.

C. Isolate work areas and or create pressure differentials to prevent the migration of contaminants.

D. Use portable fan systems to exhaust contaminated air directly to the outside of the building, and discharge the air to prevent recirculation.

3.4 HOUSE KEEPING (SMACNA Approach number 4)

A. Keep HVAV components, not limited to coils, air filters, dampers, fans, and ductwork, clean during installation, and clean them as required prior to performing the testing, adjusting and balancing of the systems.

B. Construction shall minimize the production and accumulation of dust and other contaminants. Use integral dust collection systems on drywall sanders, cut saws, and routers. Confine dust- generation activities to areas where cleaning can be carried out easily and where contaminants will not be tracked or contaminate other areas.

C. Wetting agents or sweeping compounds shall be used to keep dust from becoming airborne.

D. Wet cloths, damp mops, and vacuum cleaners with high efficiency particulate (HEPA) filters shall be used to clean. Cleaning frequency shall be increased when dust accumulation is noted.

E. All spills and excess applications of solvent-containing products shall be cleaned using approved methods immediately. Water spills shall be cleaned-up promptly.

F. Avoid accumulation of water inside the building and promptly remove any water that may occur. Protect porous materials such as insulation, ceiling tiles and drywall from water or moisture.

G. Construction areas shall be kept dry. Promptly repair any leaks or penetrations that allow water to enter the building. Use dehumidification as necessary for prompt drying of wet surfaces and materials.

H. Clean rough track off grates or matting at the entryway as necessary, at a minimum weekly to reduce dirt and particulates from entering the building, when building is enclosed.

I. Cleaning Agents: Use Cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable use products that comply with the California Code of Regulations maximum allowable VOC levels.

3.5 SEQUENCING AND SCHEDULING (SMACNA Approach number 5)

A. Schedule the installation of porous materials after enclosure of the building. Porous materials shall not be installed until the building envelope is fully weather tight.

B. Install porous or absorbent materials such as ceiling tiles, after odorous activities including drywall installation, painting, and floor finishing is completed.

C. Do not allow contaminants from an area under construction to enter the HVAC systems or to migrate to completed areas of construction.

D. Install MERV 13 filters prior to the FF&E move-in and occupancy.

E. Install furnishing after interior finishes have applied and fully cured.

F. Provide adequate ventilation during curing period. To aid in curing of interior finishes and other products used during construction and to remove pollutants after drywall installation is complete provide adequate ventilation with 100% outside air, and proper filtration for any HVAC components activated. During humid periods or when high moisture materials are present, supplementary dehumidification may be required.

G. All sanding of the concrete floors, floor preparation, and the poured-in-place terrazzo will be scheduled before the HVAC system startup.

H. All drywall sanding and painting will be scheduled before the HVAC system startup.

I. Install MERV 13 filters prior to the FF&E move-in and occupancy.

J. Move-in of all FF&E will occur after all construction activities have been substantially completed and the HVAC has been tested and balanced.

3.6 MONITORING AND IMPLEMENTATION OF IAQ PLAN

A. Contractor to designate an on-site responsible staff member for instructing personnel and overseeing the Construction IAQ Management Plan.

B. Implementation and distribution of the Construction IAQ Management Plan as approved by LEED Manager.

C. Provide weekly Contractor site co-ordination meetings with subcontractors. Review appropriate components of the IAQ Construction Management Plan as a regular action item. Document the implementation of the Plan in the meeting minutes, and update the IAQ Construction Management Plan as required.

D. Subcontractors and their employees shall be provided instruction and Training in the Indoor Air Quality (IAQ) Management Plan.

E. Recording format: Use SMACNA IAQ Guidelines Appendix C (Planning Checklist) and Appendix D (Inspection Checklist) as a guide.

F. Project-specific posters and signage will be posted in the jobsite office trailer, at all building entrances, and at several locations inside the building. The signage will clearly identify LEED guidelines for subcontractors.

END OF SECTION 01 73 20

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Qualifier: Erik Lloyd Myers
State of Florida: AR 93574

Sign & Seal: Erik Lloyd Myers
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OWNER:

Miami Lakes Branch Library
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Miami Lakes, FL 33014

TITLE: Specifications

REVISION

DATE
04-03-2023

PROJECT NUMBER
19119

SHEET NUMBER
LD1.0

1 OF 4

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:
1. Recycling nonhazardous construction waste.
2. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:
1. Section 042000 "Unit Masonry" for disposal requirements for masonry waste.
2. Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.2 DEFINITIONS

A. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

B. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.

C. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

1.3 INFORMATIONAL SUBMITTALS

A. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

B. LEED Submittal: Submit documentation to USGBC, signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met. Respond to questions and requests from USGBC regarding construction waste management and disposal until the USGBC has made its determination on the Project's LEED certification application. Document correspondence with USGBC as informational submittals.

1.4 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements.

1. Firm employees a LEED-Accredited Professional, certified by the USGBC, as waste management coordinator.
2. Waste management coordinator may also serve as LEED coordinator.

1.5 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling at a minimum of 75 percent by weight of total nonhazardous solid waste generated by the Work. Facilitate recycling and salvage of materials.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

   a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.3 RECYCLING DEMOLITION WASTE

A. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

E. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

3.4 RECYCLING CONSTRUCTION WASTE A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small manageable pieces.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

D. Paint: Seal containers and store by type.

3.5 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

END OF SECTION 01 74 19

SECTION 01 81 09
TESTING FOR INDOOR AIR QUALITY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions, other Division 1 Specification Sections, and specifications of materials mentioned in this section, apply to this Section.

1.2 SUMMARY

A. General: This section provides requirements for Baseline Indoor Air Quality (IAQ) Testing for maximum indoor pollutant concentrations for acceptance of the facility.

1.3 RELATED SECTIONS

A. All work shall comply with Division 1 Section 01 81 13.
B. Coordinate with Commissioning activities specified in EPA Section 01 91 00
C. All work shall comply with Division 23 05 93 "Testing, Adjusting and Balancing for HVAC."

1.4 SUBMITTALS

A. Baseline IAQ Testing: Submit a report for each test site specified for IAQ baseline testing as prescribed herein below and in Division 23, in the section on "Testing, Adjusting, and Balancing." Report on air concentrations of targeted pollutants identified in Subsection 3.1 of this section.

1.5 SEQUENCING AND SCHEDULING

A. Identify, program, and schedule all IAQ testing well in advance of construction in a manner to prevent delays to the performance of the work of this Contract in order to perform and complete all testing after the completion of construction activities and prior to occupancy.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 BASELINE IAQ TESTING

A. HVAC System Verification: To assure compliance with recognized standards for indoor air quality including ASHRAE Standard 62.1-2010, the Contractor's independent testing and balancing agency shall verify the performance of each HVAC system prior to Indoor Air Quality testing, including space temperature and space humidity uniformity, outside air quantity, filter installation, drain pan operation, and any obvious contamination sources.

B. Indoor Air Quality Testing: Upon verification of HVAC system operation, the Contractor shall hire an independent contractor, subject to approval by the Contracting Officer's Representative, with a minimum of 5 years of experience in performing the types of testing specified herein, to test levels of indoor air contaminants for compliance with specified requirements.

1. Conduct baseline IAQ testing using testing protocols consistent with the methods listed below for all occupied spaces. Use current versions of ASTM standard methods, EPA compendium methods or ISO methods, as indicated for each type of contaminant being tested.
   a. Formaldehyde: Maximum concentration allowed is 27ppb (16.3ppb for Healthcare projects). Use Standards ASTM D5197, US EPA Methods TO-11 or EPA Compendium Method or ISO 16000-3
   b. Particulates: Sample PM10 for all buildings. If project is in an EPA nonattainment area then sample for PM2.5. Maximum concentration allowed for PM10 is 50 micrograms/m3 (20 micrograms/m3 for Healthcare projects). For PM2.5 is 15 micrograms/m3. Use standards EPA Compendium Method IP-10 or ISO 7708
   c. Ozone: Sample ozone when building is in an EPA nonattainment area. Maximum concentration allowed is 0.075ppm (Healthcare projects included). Use standards ASTM D1540-02 or ISO 13964
   d. Total Volatile Organic Compounds (TVOCs): Maximum concentration allowed is 500 micrograms/m3 (200 micrograms/m3 for Healthcare projects). Use standards EPA TO-1, TO-15, TO-17, EPA Compendium Method IP-1 or ISO 16000.6
   e. Target Chemicals listed on CDPH Standard Method v1.1, Table 4-1 except formaldehyde: Maximum Concentration allowed may be found on CDPH Standard Method v1.1-2010, Allowable Concentrations, Table 4-1. (Healthcare projects included). Use standards ASTMD5197, EPA TO-1, TO-15, TO-17 or ISO 16000-3 or 16000-6
   f. Carbon Monoxide (CO): Maximum Concentration allowed is 9ppm with no more than 2ppm above outdoor levels (Healthcare projects included). Use standard EPA Compendium Method IP-3 or ISO 4224.
2. A test plan shall be submitted for the approval of the Contracting Officer's Representative. The plan shall specify procedures, times, instrumentation, and sampling methods that will be employed.
3. Test at least one location per ventilation system for each occupied space type. There must be a minimum of one test per floor. The locations selected for testing must represent the worst-case zones where the highest concentrations of contaminants of concern are likely to occur. For offices, retail, schools, hospitality, and multifamily residential projects, test areas no larger than 5,000 square feet. For warehouses or large open spaces in other building types (e.g., ballrooms in hospitality, gymnasiums in schools), a limit of 50,000 square feet may be used. If there are identical spaces in construction, finishes, configuration, square footage and HVAC systems, testing may be performed one in seven. If the sampled space fails the test, all seven spaces must be tested.
4. Perform IAQ testing following the completion of all interior construction activities and prior to occupancy. The building shall have all interior finishes installed including, but not limited to, millwork, doors, paint, carpet, and acoustic tiles, as well as, furniture and furnishing. Ensure that all owner-provided furniture has been installed in residential projects. Complete all punch-list items that would generate VOCs or other contaminants. Complete Testing and Balancing of the HVAC system.
5. Perform IAQ testing within the breathing zone, between 3'–0" and 6'– 0" above the finished floor and over a minimum 4-hour period.
6. Consider thoroughly cleaning the building, including the ductwork, before testing. Use low-emitting cleaning products to prevent high short-term VOC levels that may affect test results. Use vacuum cleaners with HEPA filtration to capture particulates, perform flush-out procedure using outside air.
7. Remove and or seal any stored construction paint, sealers, cleaning chemicals from test area while sampling that could alter results.
8. Collect air samples during normal occupied hours (prior to occupancy) with the building ventilation system starting at the daily normal start times and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.
9. Sample and record outside air levels of formaldehyde, particulates (PM10 and PM2.5 where applicable), Ozone (where applicable), TVOC contaminants, Target chemicals listed in CDPH Standard Method v1.1, Table 4-1, except formaldehyde and Carbon Monoxide at one outside air locations (as determined by Owner) simultaneously with indoor tests to establish basis of comparison for these contaminant levels by averaging the outdoor readings for each contaminant.

C. Test Reports: Prepare test reports showing the results and location of each test, a summary of the HVAC operating conditions, and a listing of any discrepancies and recommendations for corrective actions, if required.
1. Include certification of test equipment calibration with each test report.

D. For each sampling point where the maximum concentration limits are exceeded, the Contractor is responsible for conducting additional flush-out with outside air and retesting the specific parameter(s) exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. When retesting non-complying building areas, take samples from the same locations as in the first test. Retesting shall be performed at no additional expense to the Government.

E. In the event that any non-compliant test results occur, Contractor must provide a written report to the Owner describing the source(s) of the noncompliant condition(s) and the corrective action(s) implemented.

3.2 INDEPENDENT MATERIALS TESTING:

A. Materials That Must Be Tested: All materials listed below that are proposed for use on this project shall be tested for permanent, in-place indoor air quality performance in accordance with requirements of these specifications. Results shall be furnished to the Contracting Officer's Representative. Materials meeting the criteria for independent testing are as follows:
1. Field-applied paint systems on appropriate substrate. Paint primers and intermediate coats (if used) should be applied with a typical drying time allowed between coats (not to exceed 7 days).
2. Carpet including manufacturer's recommended adhesive. The carpet will be applied to the appropriate flooring per manufacturer's instructions so that the testing is of the "carpet assembly."
3. Ceiling tile
4. Any fireproofing material that may be exposed to indoor air, directly or in a plenum, applied to appropriate substrate

A. Materials for Testing: Only test representative samples of actual products selected for use on this project. Tests of products generically and/or technically similar but produced by a manufacturer other than that of the product selected for use on this project are invalid.

B. Materials Testing and Evaluation Protocol: California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers," July 2004. available online: http://www.dhs.ca.gov/ps/deodc/ehlb/iaq/VOCS/

C. Performance Thresholds: All compounds detected that have chronic reference exposure levels listed in the California DHS Standard Practice document shall be analyzed and compared to the allowable concentration levels.

D. Materials Test Reports: Submit test reports to the Contracting Officer's Representative. The report shall include raw emission levels, as well as the calculated resulting concentrations and the assumptions (loading, volume of space, ventilation rates) used to determine those resulting concentrations.

E. Product/Material Evaluation: All products/materials shown by testing to comply with emissions limits and other criteria specified in this section will be approved for use on this project subject to compliance with all other specified requirements of the Project Manual. Products/materials shown to exceed specified emission limits shall be discussed, test results interpreted, and a determination made as to alternative product uses or selections.

END OF SECTION 01 81 09

SECTION 01 81 13
SUSTAINABLE DESIGN REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes general requirements and procedures for compliance with certain prerequisites and credits needed for Project to obtain "LEED Version 4 for Building Design and Construction" (LEED v4 BD+C) Certified certification based on USGBC's LEED v4 BD+C.
1. Specific requirements for LEED are also included in other Sections.
2. Some LEED prerequisites and credits needed to obtain LEED certification depend on product selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests and comparable product requests.
3. A copy of the LEED Project checklist is attached at the end of this Section for information only.
   a. Some LEED prerequisites and credits needed to obtain the indicated LEED certification depend on aspects of Project that are not part of the Work of the Contract.

4. Definitions included in the "LEED Version 4 for Building Design and Construction" (LEED v4 BD+C) Reference Guide and online amendments apply to this Section.

B. Related Requirements:

1. Section 01 33 00, "Submittal Procedures."
2. Section 01 50 00, "Temporary Facilities and Controls" for temporary heating and cooling requirements.
3. Section 01 73 20, "Indoor Air Quality Management."
4. Section 01 74 19, "Construction Waste Management and Disposal."
5. Section 01 78 23, "Operation and Maintenance Data."
6. Section 01 81 09, "Testing for Indoor Air Quality"
7. Section 01 91 13, "General Commissioning Requirements."
8. Divisions 02 through 49 Sections for LEED requirements specific to the work of each of these Sections. Requirements may or may not include reference to LEED.

1.03 DEFINITIONS

A. Bio-Based Materials: Materials that meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials shall be tested using ASTM D 6866 and be legally harvested, as defined by the exporting and receiving country.

B. CDPH Standard Method v1.1: California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, v. 1.1–2010, for the emissions testing and requirements of products and materials.

C. Chain-of-Custody (COC): A procedure that tracks a product form the point of harvest or extraction to its end use, including all successive stage of processing, transformation, manufacturing, a distribution.

D. Chain-of-Custody Certificates: Certificates signed by manufacturers and fabricators certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001.

E. Composite Wood and Agrifiber: Products made of wood particles and/or plant material pressed and bonded with adhesive or resin such as particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates, and door cores.

F. Corporate Sustainability Report: A third-party verified report that outlines the environmental impacts of extraction operations and activities associated with the manufacturer's product and the product's supply chain.

G. Environmental Product Declaration (EPD): An independently verified report based on life-cycle assessment studies that have been conducted according to a set of common rules for each product category and peer-reviewed.
1. Product-Specific Declaration: A product with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that has at least a cradle to gate scope.
2. Industry-Wide (Generic) EPD: Provide products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.
3. Product-Specific Type III EPD: A product with a third-party certification, including external verification, in which the manufacturer is explicated recognized by the program operator. EPD must conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope.

H. Extended Producer Responsibility (EPR): Measures undertaken by the maker of a product to accept its own and sometimes other manufacturers' products as postconsumer waste at the end of the products' useful life.

I. Health Product Declaration Open Standard (HPD): A standard format for reporting product content and associated health information for building products and materials.

J. Indoor Air Quality (IAQ) Management Plan: Plan developed by the Contractor to provide a healthy indoor environment for workers and building occupants during construction. Plan must meet or exceed the recommendations of the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "IAQ Guidelines for Occupied Buildings Under Construction."

K. Leadership Extraction Practices: Products that meet at least one of the responsible extraction criteria, which include: extended producer responsibility; bio-based materials; FSC wood products; materials reuse; recycled content; and other USGBC approved programs.

L. Material Cost: The dollar value of materials being provided to the site, after Contractor mark-ups, including transportation costs, taxes, fees, and shop labor, but excluding field equipment and field labor costs.

M. Materials Reuse: Reuse includes salvaged, refurbished, or reused products.

N. Multi-Attribute Optimization: Third party certified products that demonstrate impact reduction below industry average in at least three of the following six categories: global warming potential; stratospheric ozone depletion; acidification; eutrophication; tropospheric ozone creation; nonrenewable resource depletion.

O. Recycled Content: Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost.
1. "Postconsumer" material is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of the product, which can no longer be used for its intended purpose.
2. "Preconsumer" material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials, such as rework, regrind, or scrap, generated in a process and capable of being reclaimed within the same process that generated it.

P. Regional Materials: Materials that are extracted, harvested, recovered, and manufactured within a radius of 100 miles from the Project site.

Q. Volatile Organic Compounds (VOC) Emissions Test: Refer to CDPH Standard Method v1.1 definition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Work of this project includes completed building and application for LEED certification. Work is not complete until Owner has accepted USGBC's final review of LEED certification.

B. Provide materials and procedures necessary to obtain LEED prerequisites and credits required in this Section. Other Sections may specify requirements that contribute to LEED prerequisites and credits. Refer to other sections for additional materials and procedures necessary to obtain LEED prerequisites and credits.

C. Respond to questions and requests for additional information from Architect and the USGBC regarding LEED credits until the USGBC has made its determination on the project's LEED certification application.

D. LEED Online Submittals: Upload LEED documentation submittal data directly to USGBC project "LEED Online" website. Complete online forms at least monthly and as necessary to document LEED credits for submittals required in this Section.

E. LEED Conference: Schedule and conduct a conference at a time convenient to Owner and Architect within 21 days prior to commencement of the work. Advise Architect, and Owner's Commissioning Authority of scheduled meeting dates.
1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: LEED goals for the project, Contractor's action plans, and discussion of targeted LEED Prerequisites and Credits.
3. Minutes: Record and distribute minutes to attendees and other entities with responsibilities for obtaining LEED Credits.

1.05 ACTION SUBMITTALS

A. General: Submit additional LEED submittals required by other Specification Sections.
1. Submit each LEED submittal simultaneously with applicable product submittal.

B. LEED Documentation Submittals:
1. General, Sustainable Materials Attributes Form: Project submittals must be accompanied by a completed Sustainable Materials Attributes Form. Submittal packages must also include highlighted documentation supporting the sustainability claims made on the Sustainable Materials Attributes Form.
   a. Provide location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material.
2. EAp3, Building-Level Energy Metering: Product data for meters, sensors, and data collection system used to provide continuous metering of building energy-consumption performance.
3. MRp2/MRc5, Construction and Demolition Waste Management: Comply with submittal requirements of Section 01 74 19 "Construction Waste Management and Disposal."
4. MRc2, Building Product Disclosure and Optimization: Environmental Product Declarations complying with LEED v4.1 requirements.
5. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 1, Raw Material Source and Extraction Reporting.
a. Corporate sustainability reports for products that comply with LEED v4.1 requirements for raw material and source extraction reporting.
6. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 2, Leadership Extraction Practices following LEED v4.1 requirements.
a. Extended Producer Responsibility: Product data and certification letter from product manufacturers, indicating participation in an extended producer responsibility program and statement of costs.
b. Bio-Based Materials: Product data and certification for bio-based materials, indicating that they comply with requirements. Include statement of costs.
c. Certified Wood: Product data and chain-of-custody certificates for products containing certified wood. Include statement indicating cost for each certified wood product.
d. Materials Reuse: Receipts for salvaged and refurbished materials used for Project, indicating sources and costs.
e. Recycled Content: Product data and certification letter from product manufacturers, indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content. Include statement of costs.
7. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 1, Material Ingredient Reporting.
a. Material ingredient reports for products that comply with LEED v4.1 requirement for material ingredient reporting, including but not limited to the following:
1) Manufacturer Inventory.
2) Health Product Declaration.
3) Cradle to Cradle certifications.
4) Declare product labels.
5) ANSI/BIFMA e3 Furniture Sustainability Standard.
6) Cradle to Cradle Certified bronze or higher.
7) Facts – NSF/ANSI 336
8) Global Green TAG PHD
9) Living Product Challenge.

8. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 2, Material Ingredient Optimization.
a. Documentation for products that comply with LEED v4.1 requirement for material ingredient optimization, including but not limited to the following:
1) GreenScreen Benchmarks.
2) Cradle to Cradle certifications.
3) REACH optimizations.
4) Declare
5) 3rd Party verified HPD

9. EQp2/EQc3/EQc4, Indoor Air Quality: Comply with submittal requirements of Section 01 73 20, "Indoor Air Quality Management." and Section 01 81 09, "Testing for Indoor Air Quality"
10. EQc2, Low-Emitting Materials: Product data, indicating VOC content and emissions testing documents showing compliance with requirements for low-emitting materials, for the following materials:
a. Paints and coatings.
b. Adhesives and sealants.
c. Flooring.
d. Products containing composite wood or agrifiber products or wood glues.
e. Ceilings, walls, thermal, and acoustic insulation.
f. Furniture

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For LEED coordinator.

B. Project Materials Cost Data: Provide statement indicating total cost and shop labor for materials used for Project. Costs exclude site labor, overhead, and profit. Include breakout of costs for the following categories of items:
1. Wood construction materials.
2. Passive plumbing materials.
3. Passive mechanical (HVAC) materials.
4. Passive electrical materials.
5. Earthwork and exterior improvements, hard costs.

C. LEED Action Plan Components: Provide preliminary submittals within seven (7) days of date established for the Notice to Proceed indicating how the following requirements will be met:
1. MRp2/MRc5, Waste management plan, complying with Section 01 74 19 "Construction Waste Management and Disposal."
2. EQp2/EQ3/EQ4, Indoor air quality plan, complying with Section 01 73 20, "Indoor Air Quality Management." and Section 01 81 09, "Testing for Indoor Air Quality"

D. LEED Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED action plans for the following:
1. MRp2/MRc5, Waste reduction progress reports complying with Section 01 74 19 "Construction Waste Management and Disposal."
2. MRc2, Building product disclosure and optimization – environmental product declarations.
3. MRc3, Building product disclosure and optimization – sourcing of raw materials.
a. General: Manufacturing locations.
b. Option 1: Corporate sustainability reports.
c. Option 2:
1) Extended producer responsibility.
2) Bio-based materials.
3) Certified wood products.
4) Materials reuse.
5) Recycled content.
4. MRc4, Building product disclosure and optimization – material ingredients.
5. EQc2, Low emitting materials.
a. Low Emitting Materials Tracking Sheet monitoring the project's progress towards targeted LEED Indoor Environmental Quality Credits. Tracking Sheet to be presented at construction meetings.
6. EQc3, Indoor air quality, during construction, complying with Section 01 73 20, "Indoor Air Quality Management."
7. EQc4, Indoor air quality assessment, complying with Section 01 81 09, "Testing for Indoor Air Quality."

1.07 QUALITY ASSURANCE

A. LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Provide products and procedures necessary to obtain LEED credits required in this Section. Although other Sections may specify some requirements that contribute to LEED credits, the Contractor shall determine additional materials and procedures necessary to obtain LEED credits indicated. Contractor to determine a combination of credit options best suited for achieving credits required.
1. Exclusions: Special equipment, such as elevators, escalators, process equipment, and fire suppression systems, is excluded from the credit calculations. Also excluded are products purchased for temporary use on the project, like formwork for concrete.

2.02 BUILDING PRODUCT DISCLOSURE AND OPTIMIZATION

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD): Option 1. Provide at least 20 permanently installed products (sourced from at least 5 different manufacturers) which meet one of the disclosure criteria:

1. Critically reviewed LCA with cradle to gate scope: Valued as one whole product.
2. Product-Specific Declaration internally reviewed: Valued as one whole product.
3. Industry-Wide (Generic) EPD: Valued as one whole product.
4. Product-Specific Type III EPD externally reviewed: Valued as 1.5 products.

B. MRc2, Building Product Disclosure and Optimization, Multi-Attribute Optimization: Option 2. Use products that have an embodied carbon optimization report or action plan separate from the LCA or EPD. Provide reports for 15% by cost, of the total value of permanently installed products complying with the following:

1. Embodied Carbon/ LCA Action Plan: Valued as 1/2 product or 50% cost.
2. Reductions in Embodied Carbon: less than 10% reduction in GWP relative to baseline: Valued as 1 product or 100% cost.
3. Reductions in Embodied Carbon: less than 10%+ reduction in GWP relative to baseline: Valued as 1.5 product or 150% cost.
4. Reductions in Embodied Carbon: 20%+ reduction in GWP and 5%+ reduction in two additional impact categories, relative to baseline: Valued as 2 products or 200% cost.

Impact categories:
- global warming potential (greenhouse gases), in CO2e;
- depletion of the stratospheric ozone layer, in kg CFC-11e;
- acidification of land and water sources, in moles H+ or kg SO2e;
- eutrophication, in kg nitrogen equivalent or kg phosphate equivalent;
- formation of tropospheric ozone, in kg NOx, kg O3 eq, or kg ethene; and
- depletion of nonrenewable energy resources, in MJ using CML / depletion of fossil fuels in TRACI

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 1, Leadership Extraction Practices. Provide products that meet at least one of the responsible extraction criteria below for at least 15%, by cost, of the total value of permanently installed building products in the project:
1. Extended producer responsibility program (50% by cost)
2. Bio-based materials (50% or 100%).
3. Certified Wood (100% by cost): Wood-based materials include, but are not limited to, the following materials when made from wood, engineered wood products, or wood-based panel products:
a. Rough carpentry.
b. Miscellaneous carpentry.
c. Heavy timber construction.
d. Wood decking.
e. Metal-plate-connected wood trusses.
f. Structural glued-laminated timber.
g. Finish carpentry.
h. Architectural woodwork.
i. Wood paneling.
j. Wood veneer wall covering.
k. Wood Doors.
l. Wood flooring.
m. Wood lockers.
n. Wood cabinets.
o. Furniture.
4. Recycled content (100% by cost)
a. Exceptions: Do not include furniture, fire protection, operational plumbing, operational mechanical, and operational electrical components, and specialty items, such as elevators and equipment, in the calculation.

D. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials: Option 2, Leadership Extraction Practices. Provide products that meet at least one of the responsible extraction criteria below for at least 30%, by cost, of the total value of permanently installed building products in the project:
1. Extended producer responsibility program (50% by cost
2. Bio-based materials (50% or 100%).
3. Certified Wood (100% by cost): Wood-based materials include, but are not limited to, the following materials when made from wood, engineered wood products, or wood-based panel products:
a. Rough carpentry.
b. Miscellaneous carpentry.
c. Heavy timber construction.
d. Wood decking.
e. Metal-plate-connected wood trusses.
f. Structural glued-laminated timber.
g. Finish carpentry.
h. Architectural woodwork.
i. Wood paneling.
j. Wood veneer wall covering.
k. Wood Doors.
l. Wood flooring.
m. Wood lockers.
n. Wood cabinets.
o. Furniture.
4. Recycled content (100% by cost)
a. Exceptions: Do not include furniture, fire protection, operational plumbing, operational mechanical, and operational electrical components, and specialty items, such as elevators and equipment, in the calculation.

E. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 1, Material Ingredient Reporting.
1. Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm), which meet one of the following disclosure criteria:
a. Manufacturer Inventory.
b. Health Product Declarations (HPDs).
c. Cradle to Cradle (C2C) certifications.
d. Declare product labels.
e. ANSI/BIFMA e3 Furniture Sustainability Standard.
f. Cradle to Cradle Certified bronze or higher.
g. Facts – NSF/ANSI 336
h. Global Green TAG PHD
i. Living Product Challenge.

Any compliant reports above with third-party verification that includes the verification of content inventory are worth 1.5 products for credit achievement calculations.

F. MRc4, Building Product Disclosure and Optimization, Material Ingredients: Option 2, Material Ingredient Optimization.
1. Use permanently installed products from at least three different manufacturers that document their material ingredient optimization using the paths below. Choose either 10 compliant products, or select products that constitute at least 10%, by cost, of the total value of permanently installed products in the project:

a. Material Ingredient Screening and Optimization Action Plan (value at 50% by cost or ½ product):
- Screening at 1,000 ppm + Option 1 + product specific detailed action plan mitigating or reducing known hazards using the principles of green chemistry.

b. Advanced Inventory & Assessment (value at 100% by cost or 1 product):
- 3rd Party verified HPD at 100ppm with no GreenScreen LT-1 hazards or GHS Category 1 hazards.
- 3rd Party verified HPD at 100ppm and ≥ 75% by weight of product is assessed using GreenScreen Benchmark.
- Declare
- Cradle to Cradle.

c. Material Ingredient Optimization (value at 150% by cost or 1.5 products)
- The end use product has demonstrated a product inventory and assessment of ingredients using any of the following programs:
i. 3rd Party verified HPD at 100ppm and ≥ 95% by weight of product is assessed using GreenScreen Benchmark No Benchmark 1 hazards (BM-1) are present. The remaining 5% has been inventoried and screened using GreenScreen List Translator and no GreenScreen LT-1 hazards are present.
ii. Cradle to Cradle v3 certified product Silver or higher

2.03 LOW-EMITTING MATERIALS

A. EQc2, Low-Emitting Materials, General Emissions Requirements: Products must demonstrate they have been tested and determined compliant in accordance with California Department of Public Health, (CDHP), Standard Method v1.2-2017, using the applicable exposure scenario. Manufacturer's documentation demonstrating compliance must state the range of total VOCs (tVOC) after 14 days measured as specified in the CDPH Standard Method v1.2 as follows:
1. 0.5mg/m3 or less,
2. between 0.5 and 5.0 mg/m3 or,
3. 0.50 mg/m3 or more.

B. EQc2, Low-Emitting Materials, Adhesives and Sealants: For field applications, that are inside the weatherproofing system –adhesives and sealants that comply with the limits for VOC content when calculated according to South Coast Air Quality Management District (SCAQMD) Rule #1168, requirements in effect on October 6, 2017:
1. Exception: The provisions of SCAQMD Rule 1168 do not apply to adhesives and sealants subject to state or federal consumer product VOC regulations.

C. EQc2, Low-Emitting Materials, Adhesives and Sealants: For field applications that are inside the weatherproofing system, 75 percent by volume or surface area of adhesives and sealants shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

D. EQc2, Low-Emitting Materials, Paints and Coatings: For field applications, that are inside the weatherproofing system – use paints and coatings that comply with the limits for VOC content when calculated according to the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective February 5, 2016.

E. EQc2, Low-Emitting Materials, Paints and Coatings: For field applications that are inside the weatherproofing system, 75 percent by volume or surface area of paints and coatings shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

F. EQc2, Low-Emitting Materials, Flooring: Flooring shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

G. EQc2, Low-Emitting Materials, Composite Wood: Composite wood, agrifiber products, and adhesives shall be made using ultra-low-emitting formaldehyde (ULEF) resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.

H. EQc2, Low-Emitting Materials, Ceilings, Walls, Thermal, and Acoustic Insulation: Ceilings, walls, and thermal insulation shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

I. EQc2, Low-Emitting Materials, Furniture: At least 90 percent of furniture, measured by cost, shall be tested in accordance with ANSI/BIFMA Standard Method M7.1-2011; comply with ANSI/BIFMA e3-2011 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2, using either the concentration modeling approach or the emissions factor approach; and model the test results using the open plan, private office, or seating scenario in ANSI/BIFMA M7.1, as appropriate.

J. Additional Low-Emitting Requirements:
1. If the applicable regulation requires subtraction of exempt compounds, any content of intentionally added exempt compounds larger than 1% weight by mass (total exempt compounds) must be disclosed.
2. If a product cannot reasonably be tested as specified above, testing of VOC content must comply with ASTM D2369-10; ISO 11890, part 1; ASTM D6886-03; or ISO 11890-2.
3. Methylene chloride and perchloroethylene may not be intentionally added in paints, coatings, adhesives, or sealants.

2.04 INDOOR WATER USE REDUCTION

A. WEp2, Indoor Water Use Reduction, Appliances: Provide ENERGY STAR or performance equivalent appliances.

B. WEp2/WEc2, Indoor Water Use Reduction, Plumbing Fixtures: Do not exceed water flow requirements indicated in Division 22 - PLUMBING.

PART 3 - EXECUTION

3.01 NONSMOKING BUILDING

A. EQp2, Environmental Tobacco Smoke Control: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes.
1. Refer to Section 01 73 20, "Indoor Air Quality Management."

3.02 CONSTRUCTION WASTE MANAGEMENT

A. MRp2 MRc5, Construction and Demolition Waste Management: Comply with Section 01 74 19 "Construction Waste Management and Disposal."

3.03 CONSTRUCTION INDOOR-AIR-QUALITY MANAGEMENT

A. EQc3/EQc4, Construction Indoor Air Quality Management Plan: Comply with Section 01 73 20, "Indoor Air Quality Management." and Section 01 81 09, "Testing Indoor Air Quality"

END OF SECTION 01 81 13

ELM ARCH
8950 SW 74TH Court
Suite 1204
Miami, FL 33156
786-391-2646

Qualifier: Erik Lloyd Myers
State of Florida: AR 93574

Sign & Seal: Erik Lloyd Myers
State of Florida: AR 93574

OWNER:

Miami Lakes Branch Library
6699 Windmill Gate Road
Miami Lakes, FL 33014

TITLE: Specifications

REVISION

DATE
04-03-2023

PROJECT NUMBER
19119

SHEET NUMBER
LD1.1

LEED INSERTS: INSERT EACH COMPONENT INTO APPROPRIATE SPECIFICATION SECTIONS. DO NOT CREATE STANDALONE SECTION.

01 00 00 GENERAL REQUIREMENTS

01 10 00 SUMMARY

PROJECT INFORMATION

A. This Project has been registered with the U. S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED®) Green Building Rating System Program. More information about the requirements and details of the program can be found at the web site: www.usgbc.org

B. In conjunction with this registration, the Owner has established environmental goals for this Project. upon completion this project is to achieve Certified Certification status under LEEDv4 BD+C: New Construction Rating System.

01 14 00 WORK RESTRICTIONS

A. Non-Smoking Building: Smoking is prohibited within the building and within 25 feet of all entrances, operable windows, and outdoor air intakes during construction.

01 31 19 PROJECT MEETINGS

A. Pre-Construction Kick Off Meeting

B. Agenda: Discuss items of significance that could affect progress including the following:

a. LEED Requirements

01 42 19 REFERENCE STANDARDS

A. U.S. Green Building Council (USGBC) www.usgbc.org

01 43 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. LEED Submittals: Comply with requirements specified in Division 1 Section "Sustainable Design Requirements".

B. Number of Copies: Submit electronic copy of LEED submittals to project's LEED consultant, The Spinnaker Group, unless otherwise indicated.

01 50 00 TEMPORARY FACILITIES AND CONTROLS

EQUIPMENT

A. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

B. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Locate facilities to limit site disturbance as specified in Division 1 Section "Summary."

01 57 13 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Implement an erosion and sedimentation control plan for all construction activities associated with the project that complies with the erosion and sedimentation requirements of the 2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent, whichever is more stringent.

B. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. Whether the Project follows the CGP or a local equivalent, all projects must meet the requirements outlined in the CGP, Section 2:

C. Section 2.1, Erosion and Sedimentation Control
D. Section 2.2, Stabilization
E. Section 2.3, Pollution Prevention

F. Inspect repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

G. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

01 74 23 CLEANING

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property that might damage finished surfaces.

B. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable use products that comply with the California Code of Regulations maximum allowable VOC levels.

02 00 00 EXISITION CONDITIONS

02 41 00 DEMOLTION

A. CWM

03 00 00 CONCRETE

03 20 00 CONCRETE REINFORCING

SUBMITTALS

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):
B. Option 1: Environmental Product Declaration
  a. Submit industry-wide (generic) EPDs or product specific Type III EPDs.
  b. Critically reviewed LCA with cradle to gate scope
  c. Product-Specific Declarations internally reviewed

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

D. General: For credit achievement calculation, submit location of products sourced (extracted, manufactured, and purchased) indicating number of miles from the project site.

E. Responsible Sourcing of Raw Materials

  a. Extended Producer Responsibility
  b. Material Reuse
  c. Recycled Content: Submit percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

F. MRc4, Building Product Disclosure and Optimization, Material Ingredients

G. Option 1, Material Ingredient Reporting:

  a. Submit Health Product Declarations (HPD) or Cradle to Cradle (C2C) certifications, Declare certification, Global Green Tag TAG PHD, and Living Product Challenge.

H. Option 2, Material Ingredient Optimization:

  a. Submit Material Ingredient Screening & Optimization Action Plan screening 1,000 ppm + Option 1+ product inventory and product specific detailed action mitigating or reducing known hazards using the principles of green chemistry.
  b. Submit 3rd Party verified HPD (at 100ppm with no Green ScreenLT-1 hazards or GHS Category 1 hazards or at 100 ppm and ≥ 75% by weight of a product is assessed using Green Screen Benchmark).
  c. Submit Declare certifications, Cradle to Cradle (C2C) certifications

PRODUCTS

A. PERFORMANCE REQUIREMENTS

B. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

  a. Critically reviewed LCA with cradle to gate scope
  b. Product-Specific Declarations internally reviewed
  c. Provide product with industry-wide (generic) EPDs or product specific Type III EPDs.

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

  a. Provide products from manufacturers with Extended Producer Responsibility, Materials reuse, and recycled content.

D. MRc4, Building Product Disclosure and Optimization, Material Ingredients

  a. Option 1, Material Ingredient Reporting: Provide product with Health Product Declarations (HPD), Cradle to Cradle (C2C), Declare certifications, Facts – NSF/ANSI 336, Global Green Tag PHD, Living Product Challenge.
  b. Option 2, Material Ingredient Optimization: Provide products with material ingredient screenings and optimization action plan, 3rd party verified HPDs, Declare certification, Cradle to Cradle (C2C) certifications, or Green Screen v1.2 Benchmark (products assessed with GreenScreen List Translator or GreenScreen Assessment).

03 30 00 CAST-IN-PLACE CONCRETE / 03 38 00 POST-TENSIONED CONCRETE /

03 40 00 PRECAST CONCRETE / 03 50 00 CAST DECKS AND UNDERLAYMENT /

03 60 00 GROUTING

SUBMITTALS

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

B. Option 1: Environmental Product Declaration
  a. Submit industry-wide (generic) EPDs or product specific Type III EPDs.
  b. Critically reviewed LCA with cradle to gate scope
  c. Product-Specific Declarations internally reviewed

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

D. General: For credit achievement calculation, submit location of products sourced (extracted, manufactured, and purchased) indicating number of miles from the project site.

E. Responsible Sourcing of Raw Materials

  a. Extended Producer Responsibility
  b. Material Reuse
  c. Recycled Content: Submit percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

C. MRc4, Building Product Disclosure and Optimization, Material Ingredients

3. Option 1, Material Ingredient Reporting:

  a. Submit Health Product Declarations (HPD) or Cradle to Cradle (C2C) certifications, Declare certification, Global Green Tag TAG PHD, and Living Product Challenge.

1. Option 2, Material Ingredient Optimization:

  a. Submit Material Ingredient Screening & Optimization Action Plan screening 1,000 ppm + Option 1+ product inventory and product specific detailed action mitigating or reducing known hazards using the principles of green chemistry.
  b. Submit 3rd Party verified HPD (at 100ppm with no Green ScreenLT-1 hazards or GHS Category 1 hazards or at 100 ppm and ≥ 75% by weight of a product is assessed using Green Screen Benchmark).
  c. Submit Declare certifications, Cradle to Cradle (C2C) certifications

PRODUCTS

A. PERFORMANCE REQUIREMENTS

B. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

  a. Critically reviewed LCA with cradle to gate scope
  b. Product-Specific Declarations internally reviewed
  c. Provide product with industry-wide (generic) EPDs or product specific Type III EPDs.

2. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials
  a. Provide products from manufacturers with Extended Producer Responsibility, Materials reuse, and recycled content.

4. MRc4, Building Product Disclosure and Optimization, Material Ingredients

  a. Option 1, Material Ingredient Reporting: Provide product with Health Product Declarations (HPD), Cradle to Cradle (C2C), Declare certifications, Facts – NSF/ANSI 336, Global Green Tag PHD, Living Product Challenge.
  b. Option 2, Material Ingredient Optimization: Provide products with material ingredient screenings and optimization action plan, 3rd party verified HPDs, Declare certification, Cradle to Cradle (C2C) certifications, or Green Screen v1.2 Benchmark (products assessed with GreenScreen List Translator or GreenScreen Assessment).

CONCRETE MIXTURES, GENERAL

A. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce total amount of portland cement, which would otherwise be used.

03 35 43 CONCRETE FLOOR FINISHING

SUBMITTALS

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

B. Option 1: Environmental Product Declaration
  a. Submit industry-wide (generic) EPDs or product specific Type III EPDs.
  b. Critically reviewed LCA with cradle to gate scope
C. Product-Specific Declarations internally reviewed

D. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

E. General: For credit achievement calculation, submit location of products sourced (extracted, manufactured, and purchased) indicating number of miles from the project site.

F. Responsible Sourcing of Raw Materials

  a. Extended Producer Responsibility
  b. Material Reuse
  c. Recycled Content: Submit percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

G. MRc4, Building Product Disclosure and Optimization, Material Ingredients

H. Option 1, Material Ingredient Reporting:

  a. Submit Health Product Declarations (HPD) or Cradle to Cradle (C2C) certifications (v2 Basic or v3 Bronze level).

I. Option 2, Material Ingredient Optimization:

  a. Option 1, Material Ingredient Reporting:

  b. Submit Health Product Declarations (HPD) or Cradle to Cradle (C2C) certifications, Declare certification, Global Green Tag TAG PHD, and Living Product Challenge.

J. Option 2, Material Ingredient Optimization:

  a. Submit Material Ingredient Screening & Optimization Action Plan screening 1,000 ppm + Option 1+ product inventory and product specific detailed action mitigating or reducing known hazards using the principles of green chemistry.
  b. Submit 3rd Party verified HPD (at 100ppm with no Green ScreenLT-1 hazards or GHS Category 1 hazards or at 100 ppm and ≥ 75% by weight of a product is assessed using Green Screen Benchmark).
  c. Submit Declare certifications, Cradle to Cradle (C2C) certifications

K. EQc2, Low-Emitting Materials, General Emissions Evaluation: Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2-2017.

L. For adhesives, submit test results, including TVOC emissions and VOC content, or GreenGuard Gold certifications along with VOC content and volume used or surface area applied.
M. For wet-applied products, submit volume used or surface area applied.

PRODUCTS

A. PERFORMANCE REQUIREMENTS
B. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

  a. Provide product with industry-wide (generic) EPDs or product specific Type III EPDs.

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

  a. Option 1: Provide products from manufacturers with Corporate Sustainability Reports (CSR) or Products sourced from manufacturers with self-declared reports

  b. Option 2, Leadership Extraction Practices:

    1. Provide products with recycled content.

D. MRc4, Building Product Disclosure and Optimization, Material Ingredients

  a. Option 1, Material Ingredient Reporting: Provide product with Health Product Declarations (HPD), Cradle to Cradle (C2C), Declare certifications, Facts – NSF/ANSI 336, Global Green Tag PHD, Living Product Challenge.
  b. Option 2, Material Ingredient Optimization: Provide products with material ingredient screenings and optimization action plan, 3rd party verified HPDs, Declare certification, Cradle to Cradle (C2C) certifications, or Green Screen v1.2 Benchmark (products assessed with GreenScreen List Translator or GreenScreen Assessment).

E. EQc2, Low-Emitting Materials, General Emissions Evaluation: Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2-2017.

INSTALLATION ACCESSORIES

A. Adhesives:

B. Provide adhesives in compliance with the requirements of California Department of Public Health's (CDPH) "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers".

C. Provide adhesives with VOC content not more than the following when calculated according to 40 CFR 59, Subpart D (EPA method 24).

  a. Floor Coating: 100 g/L
  b. Sealer: 200 g/L

D. Methylene chloride and perchloroethylene may not be intentionally added in paints, coatings, adhesives, or sealants.

04 00 00 MASONRY

04 22 00 CONCRETE UNIT MASONRY

SUBMITTALS

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

B. Option 1: Environmental Product Declaration
  a. Submit industry-wide (generic) EPDs or product specific Type III EPDs.
  b. Critically reviewed LCA with cradle to gate scope
  c. Product-Specific Declarations internally reviewed

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

1. General: For credit achievement calculation, submit location of products sourced (extracted, manufactured, and purchased) indicating number of miles from the project site.

2. Responsible Sourcing of Raw Materials
  a. Extended Producer Responsibility
  b. Material Reuse
  c. Recycled Content: Submit percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

D. MRc4, Building Product Disclosure and Optimization, Material Ingredients

1. Option 1, Material Ingredient Reporting:

  a. Submit Health Product Declarations (HPD) or Cradle to Cradle (C2C) certifications, Declare certification, Global Green Tag TAG PHD, and Living Product Challenge.

2. Option 2, Material Ingredient Optimization:

  a. Submit Material Ingredient Screening & Optimization Action Plan screening 1,000 ppm + Option 1+ product inventory and product specific detailed action mitigating or reducing known hazards using the principles of green chemistry.
  b. Submit 3rd Party verified HPD (at 100ppm with no Green ScreenLT-1 hazards or GHS Category 1 hazards or at 100 ppm and ≥ 75% by weight of a product is assessed using Green Screen Benchmark).
  c. Submit Declare certifications, Cradle to Cradle (C2C) certifications

PRODUCTS

A. PERFORMANCE REQUIREMENTS

B. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

  a. Critically reviewed LCA with cradle to gate scope
  b. Product-Specific Declarations internally reviewed
  c. Provide product with industry-wide (generic) EPDs or product specific Type III EPDs.

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

  a. Provide products from manufacturers with Extended Producer Responsibility, Materials reuse, and recycled content.

D. MRc4, Building Product Disclosure and Optimization, Material Ingredients

  a. Option 1, Material Ingredient Reporting: Provide product with Health Product Declarations (HPD), Cradle to Cradle (C2C), Declare certifications, Facts – NSF/ANSI 336, Global Green Tag PHD, Living Product Challenge.
  b. Option 2, Material Ingredient Optimization: Provide products with material ingredient screenings and optimization action plan, 3rd party verified HPDs, Declare certification, Cradle to Cradle (C2C) certifications, or Green Screen v1.2 Benchmark (products assessed with GreenScreen List Translator or GreenScreen Assessment).

CONCRETE MIXTURES, GENERAL

A. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce total amount of portland cement, which would otherwise be used.

05 00 00 METALS

05 10 00 STRUCTURAL STEEL FRAMING / 05 20 00 METAL JOISTS /

05 30 00 METAL DECKING / 05 40 00 COLD-FORMED METAL FRAMING /

05 50 00 METAL FABRICATIONS / 05 70 00 DECORATIVE METAL

SUBMITTALS

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

B. Option 1: Environmental Product Declaration
  a. Submit industry-wide (generic) EPDs or product specific Type III EPDs.
  b. Critically reviewed LCA with cradle to gate scope
  c. Product-Specific Declarations internally reviewed

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

D. General: For credit achievement calculation, submit location of products sourced (extracted, manufactured, and purchased) indicating number of miles from the project site.

E. Responsible Sourcing of Raw Materials

  a. Extended Producer Responsibility
  b. Material Reuse
  c. Recycled Content: Submit percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.

F. MRc4, Building Product Disclosure and Optimization, Material Ingredients

G. Option 1, Material Ingredient Reporting:

  a. Submit Health Product Declarations (HPD) or Cradle to Cradle (C2C) certifications, Declare certification, Global Green Tag TAG PHD, and Living Product Challenge.

H. Option 2, Material Ingredient Optimization:

  a. Submit Material Ingredient Screening & Optimization Action Plan screening 1,000 ppm + Option 1+ product inventory and product specific detailed action mitigating or reducing known hazards using the principles of green chemistry.
  b. Submit 3rd Party verified HPD (at 100ppm with no Green ScreenLT-1 hazards or GHS Category 1 hazards or at 100 ppm and ≥ 75% by weight of a product is assessed using Green Screen Benchmark).
  c. Submit Declare certifications, Cradle to Cradle (C2C) certifications.

PRODUCTS

A. PERFORMANCE REQUIREMENTS

B. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

  a. Critically reviewed LCA with cradle to gate scope
  b. Product-Specific Declarations internally reviewed
  c. Provide product with industry-wide (generic) EPDs or product specific Type III EPDs.

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

  a. Provide products from manufacturers with Extended Producer Responsibility, Materials reuse, and recycled content.

D. MRc4, Building Product Disclosure and Optimization, Material Ingredients

  a. Option 1, Material Ingredient Reporting: Provide product with Health Product Declarations (HPD), Cradle to Cradle (C2C), Declare certifications, Facts – NSF/ANSI 336, Global Green Tag PHD, Living Product Challenge.
  b. Option 2, Material Ingredient Optimization: Provide products with material ingredient screenings and optimization action plan, 3rd party verified HPDs, Declare certification, Cradle to Cradle (C2C) certifications, or Green Screen v1.2 Benchmark (products assessed with GreenScreen List Translator or GreenScreen Assessment).

06 00 00 WOOD, PLASTICS, AND COMPOSITES

06 10 00 ROUGH CARPENTRY / 06 20 00 FINISH CARPENTRY / 06 22 00 MILLWORK /

06 40 00 ARCHITECTURAL WOODWORK / 06 42 00 WOOD PANELING /

06 48 00 WOOD FRAMES / 06 60 00 PLASTIC FABRICATIONS / 12 30 00 CASEWORK

SUBMITTALS

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

B. Option 1: Environmental Product Declaration
  a. Submit industry-wide (generic) EPDs or product specific Type III EPDs.
  b. Critically reviewed LCA with cradle to gate scope
  c. Product-Specific Declarations internally reviewed

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

D. General: For credit achievement calculation, submit location of products sourced (extracted, manufactured, and purchased) indicating number of miles from the project site.

E. Responsible Sourcing of Raw Materials

  a. Extended Producer Responsibility
  b. Bio-Based Materials other than wood
  c. Material Reuse
  d. Recycled Content: Submit percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each product having recycled content.
  e. Forest Stewardship Council (FSC) Certification: Submit Chain-of-Custody (CoC) certificates certifying wood product complies with FSC requirements.

    1. Include evidence that manufacturer is certified for chain-of-custody by an FSC-accredited certification body.
    2. Include statement indicating costs for each wood product.

F. MRc4, Building Product Disclosure and Optimization, Material Ingredients

G. Option 1, Material Ingredient Reporting:

  a. Submit Health Product Declarations (HPD) or Cradle to Cradle (C2C) certifications, Declare certification, Global Green Tag TAG PHD, and Living Product Challenge.

H. Option 2, Material Ingredient Optimization:

  a. Submit Material Ingredient Screening & Optimization Action Plan screening 1,000 ppm + Option 1+ product inventory and product specific detailed action mitigating or reducing known hazards using the principles of green chemistry.
  b. Submit 3rd Party verified HPD (at 100ppm with no Green ScreenLT-1 hazards or GHS Category 1 hazards or at 100 ppm and ≥ 75% by weight of a product is assessed using Green Screen Benchmark).
  c. Submit Declare certifications, Cradle to Cradle (C2C) certifications

I. EQc2, Low-Emitting Materials, General Emissions Evaluation: Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2-2017.

J. For adhesives, submit test results, including TVOC emissions and VOC content, or GreenGuard Gold certifications along with VOC content and volume used or surface area applied.
K. For wet-applied products, submit volume used or surface area applied or surface area applied.

L. EQc2, Low-Emitting Materials, Composite Wood Evaluation: Building products must be tested and determined compliant in accordance with the California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) or EPA Toxic Substances Control act, Formaldehyde Emission Standards for Composite Wood Products (TSCA, Title VI) (EPATSCA Title VI).

M. For wood product, submit documentation indicating ultra-low emitting formaldehyde (ULEF), or no added formaldehyde (NAF) along with cost or surface area installed.

QUALITY ASSURANCE

A. Manufacturer's Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

B. FSC Standard: Wood products obtained from sustainably managed forests as certified by the Forest Stewardship Council (FSC) "Principles and Criteria"

PRODUCTS

A. PERFORMANCE REQUIREMENTS
B. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

  a. Critically reviewed LCA with cradle to gate scope
  b. Product-Specific Declarations internally reviewed
  c. Provide product with industry-wide (generic) EPDs or product specific Type III EPDs.

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

  a. Provide products from manufacturers with Extended Producer Responsibility, Materials reuse, and recycled content.

D. MRc4, Building Product Disclosure and Optimization, Material Ingredients

  a. Option 1, Material Ingredient Reporting: Provide product with Health Product Declarations (HPD), Cradle to Cradle (C2C), Declare certifications, Facts – NSF/ANSI 336, Global Green Tag PHD, Living Product Challenge.
  b. Option 2, Material Ingredient Optimization: Provide products with material ingredient screenings and optimization action plan, 3rd party verified HPDs, Declare certification, Cradle to Cradle (C2C) certifications, or Green Screen v1.2 Benchmark (products assessed with GreenScreen List Translator or GreenScreen Assessment).

E. EQc2, Low-Emitting Materials, General Emissions Evaluation for adhesives and sealants: Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2-2017.

F. EQc2, Low-Emitting Materials, Composite Wood Evaluation: Building products must be tested and determined compliant in accordance with the California Air Resources Board, Airborne Toxic Control Measure (ATCM) formaldehyde or EPA Toxic Substances Control act, Formaldehyde Emission Standards for Composite Wood Products (TSCA, Title VI) (EPATSCA Title VI) formaldehyde requirements.
G.

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Qualifier: Erik Lloyd Myers
State of Florida: AR 93574

Sign & Seal: Erik Lloyd Myers
State of Florida: AR 93574

OWNER:

Miami Lakes Branch Library
6699 Windmill Gate Road
Miami Lakes, FL 33014

TITLE: Specifications

REVISION

DATE
04-03-2023

PROJECT NUMBER
19119

SHEET NUMBER
LD1.2

3 OF 4

INSTALLATION ACCESSORIES

A. Adhesives:

B. Provide adhesives in compliance with the requirements of California Department of Public Health's (CDPH) "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers".
C. Provide adhesives with VOC content not more than 50 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).
D. Provide wood substrate specific adhesives with VOC content not more than 30 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).
E. Provide contact adhesives with VOC content not more than 80 g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).
F. Provide contact adhesives with ultra-low emitting formaldehyde (ULEF) resins or no added urea-formaldehyde (NAUF) resins.
G. Provide laminate adhesives with ultra-low emitting formaldehyde (ULEF) resins or no added urea-formaldehyde (NAUF) resins.
H. Methylene chloride and perchloroethylene may not be intentionally added in paints, coatings, adhesives, or sealants.

07 00 00 THERMAL AND MOISTURE PROTECTION

07 10 00 WATERPROOFING

07 21 00 THERMAL INSULATION

SUBMITTALS

A. MRc2, Building Product Disclosure and Optimization, Environmental Product Declarations (EPD):

B. Option 1: Environmental Product Declaration
   a. Submit industry-wide (generic) EPDs or product specific Type III EPDs.
   b. Critically reviewed LCA with cradle to gate scope
   c. Product-Specific Declarations internally reviewed

C. MRc3, Building Product Disclosure and Optimization, Sourcing of Raw Materials

D. General: For credit achievement calculation, submit location of products sourced (extracted, manufactured, and purchased) indicating number of miles from the project site.

E. Responsible Sourcing of Raw Materials

   a. Extended Producer Responsibility
   b. Material Reuse

Recycled Content: Submit percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating costs for each prod

PLAN INSERTS_LEED_GENERAL
In order to satisfy the requirements of LEED contractor (both prime and sub) responsibilities for commissioning must be included in the project documents. In addition to a specification book, The Spinnaker Group recommends the following note be added to the General Notes portion of the **architectural, mechanical, electrical, and plumbing** drawing sets:
"This project is pursuing LEEDv4 BD+C: New Construction and Major Renovations Certification. All contractors with scope contributing towards the LEED requirements shall be responsible for documenting and executing all activities as directed by Section 018113 Sustainable Design Requirements of the specification book for further information"

PLAN INSERTS_LEED_CX GENERAL
In order to satisfy the requirements of LEED Energy & Atmosphere Prerequisite 1: Fundamental Commissioning and Verification, contractor (both prime and sub) responsibilities for commissioning must be included in the project documents. In addition to a specification book, The Spinnaker Group recommends the following note be added to the General Notes portion of the **architectural, mechanical, electrical, and plumbing** drawing sets:
'An independent commissioning agent has been retained to ensure that this project is completed according to owner requirements. Commissioned systems shall include HVAC, lighting / lighting control, and domestic hot water. All contractors with scope for these systems shall be responsible for carrying out testing activities as directed by commissioning agent. See the Project Commissioning Plan for further information. All contractors with scope contributing towards the Commissioning requirements shall be responsible for documenting and executing all activities as directed by Section 019113 Commissioning Fundamental Requirements of the specification book for further information"

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