**NOTE TO CRITERIA ARCHITECT & DCS PROJECT MANAGER:**

**This version is for a Major Capital Project authorized by the Commissioner to be a Design-Build Project.**

EDITING: To Show the Editing Notes in this MS Word document the show/hide symbol (¶) button must be must turned on in the MS Word Toolbar. To print this document show/hide symbol (¶) must be turned off in the MS Word Toolbar, this will enable the document to indicate the correct number of total pages. The below blue text are project specific information that must be completed by the Criteria Architect as applicable to the specific project. When complete change blue text to black text. The *bold and italicized text* is for example purposes only and must be modified and edited by the Criteria Architect to make it project specific. For text boxes, left click on Insert and then insert project specific information over the word Insert in the underlined space.

**TABLES:** To view the Table Grid in this MS Word document, click inside any table, then go to the **Table Tools > Layout** tab, **Table** group, and click **View Gridlines.**

HEADERS AND FOOTERS: The header and footer for each page of the Project Manual shall match the format, font (Arial), size (9 pt), font style (BOLD & CAPITALIZED) and line borders of the header and footer shown herein. The header of each page shall contain the Division 01 General Requirements, and the page number & number of pages as shown herein. The footer shall contain the project number in the right hand side as shown herein. Division 00 and 01 contain a revision date in the left side of the footer. This date is to remain as it is for DCS informational purposes only and should not be altered by the Criteria Architect.

SECTIONS, SUBSECTIONS, PARAGRAPHS: If a Section is not part of the project scope, delete the Section in the General Requirements, then check “NOT USED” in the Table of Contents. DO NOT delete the Section title from the Table of Contents.

If a Sub-Section is not applicable to the project, DO NOT delete the Sub-Section title from the General Requirements OR from the Table of Contents. Check “NOT USED” in the Table of Contents, and then state “NOT USED” beneath the Sub-Section Title in the General Requirements. Delete the contents of the Sub-Section.

Edit Paragraphs carefully to reflect specific project requirements, or delete them if they do not apply. DO NOT include Paragraphs or parts of Paragraphs in the project manual, which have no applicability to the specific project. KEEP IN NUMERICAL SEQUENCE.

DIVISION 00 SECTIONS contain the bidding documents as required by the Connecticut Department of Administrative Services (CT DAS) Procurement Services Unit and the Connecticut General Statutes. Any and all revisions to this section are the sole responsibility of the CT DAS Procurement Services Unit, and the Criteria Architect shall under no circumstances change these documents. The Criteria Architect is responsible to list these sections in the Project Manual Table of Contents.

GENERAL CONDITIONS: Please review the General Conditions carefully and coordinate the requirements of those Articles including the Definitions.

DIVISION 01 SECTIONS are the organizational key of the Project Manual. All revisions to this Division are the responsibility of the Criteria Architect. Division 01 must be closely coordinated with Division 00, Division 02 through 49, the Drawings, and Available Information.

LEED REQUIREMENTS: The “Division 01 General Requirements - Design -Build Capital Projects” include the Requirements for LEED & Commissioning. For D-B Capital Projects that DO NOT require LEED & Commissioning, the DCS PM and Criteria Architect must delete LEED & Commissioning sections designated in the Edit Notes, and then check “NOT USED” in the Table of Contents. DO NOT delete the Section title from the Table of Contents.

NOTES TO CRITERIA ARCHITECT, DCS PROJECT MANAGER, & USER AGENCY: The DCS PM, Criteria Architect, and User Agency must determine whether this Project must comply with the following requirements of CGS § 16a-38k:

1. Project is approved and funded on or after January 1, 2008;
2. New construction of a state facility that is projected to cost not less than five million dollars;
3. renovation of a state facility that is projected to cost not less than two million dollars, that is financed with state funds and is approved and funded on or after January 1, 2008,

**01 80 00 PERFORMANCE REQUIREMENTS**

1. **Summary:** Section 01 80 00 Performance Requirements contains the following Subsections:

|  |  |
| --- | --- |
| **01 81 13** | **Sustainable Design Requirements NOTE:** If the specific project **does not require** LEED Certification and Commissioning then state **“NOT USED”** in *this* Table of Contents and **delete the Section** from the General Requirements. |

#### **01 81 13 SUSTAINABLE DESIGN REQUIREMENTS**

##### **NOTE:** This Section 01 81 13 "Sustainable Design Requirements” provides requirements compliance with LEED Certification. Use this Section for a Project that **requires** LEED Certification and Commissioning. **Delete** if LEED Certification and Commissioning is **not required**.

##### Revise paragraphs carefully to reflect specific project requirements, or delete them if they do not apply.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Review the Evaluations and the applicable LEED rating system before editing this Section. Unless otherwise noted, references to LEED are to LEED-NC, Version 3.0.

Where practical, terminology used in this Section has been made identical to or at least consistent with terminology used in the LEED rating systems; if questions arise relating to terminology, review the applicable LEED reference guide and the standards referenced by the applicable LEED rating system for possible explanations.

If Project design team does not include a LEED-Accredited Professional, consider engaging a consultant; applies if at least one principal participant of Project team is a LEED-Accredited Professional. Note that all LEED credits are optional, so requirements for credits not sought should be deleted.

## A. Related Documents: All Volumes of the Design-Build Request for Proposals for this Project, including, but not limited to, the D-B Agreement General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

## B. Summary:

#### **1.** Section Includes:

#### **1.1** General requirements and procedures for compliance with certain **U.S. Green Building Council (USGBC) LEED prerequisites and credits needed for project to obtain LEED Silver certification using LEED-NC, Version 3.0 or latest version.**

##### **1.1.1** Other **LEED prerequisites and credits** needed to obtain certification depend on material 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 (1)** criterion to evaluate substitution requests and comparable product requests.

##### **1.1.2** Additional **LEED prerequisites and credits** needed to obtain the indicated certification depend on Architect's design and other aspects of project that are not part of the Work of the Contract.

**Note:** If retaining subparagraph below, attach a copy of the LEED checklist to the end of this Section as information for Design-Builder.

**1.1.3** A copy of the LEED Project checklist is attached at the end of this Section for information only.

### **C. Related Sections:** The following Sections contain requirements that relate to this Section:

**Note:** Retain subparagraph below for requirements Design-Builder might expect to find in this Section but are specified in other Sections.

#### **1.** Division 00 and the Divisions 02 through 33 sections for **LEED**requirements specific to the work of each of these sections. Requirements may or may not include reference to **LEED**.

## D. Definitions:

#### **1.** **Chain-of-Custody Certificates:** Certificates signed by manufacturers 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, "FSC Principles and Criteria for Forest Stewardship." Certificates shall include evidence that manufacturer is certified for chain of custody by an FSC-accredited certification body.

#### **2. LEED:** Leadership in Energy & Environmental Design (U.S. Green Building Council (USGBC).

**Note:** First paragraph below is based on "Requirements" and "Potential Technologies & Strategies" paragraphs in LEED-NC. LEED requirements say "made from plants" but LEED includes wool as an example.

#### **3.** **Rapidly Renewable Materials:** Materials made from plants that are typically harvested within a ***ten 10-year*** or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.

**Note:** Paragraph below applies to LEED-NC.

#### **4.** **Regional Materials:** Materials that have been extracted, harvested, or recovered, as well as manufactured, within **500** miles of project site. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.

**Note:** Paragraph below applies to LEED-NC.

**Note:** LEED-NC use the term "pre-consumer" rather than "post-industrial." Also note that when manufacturers and trade associations use the term "post-industrial" it often includes spills, scraps, and damaged and surplus materials that are fed back into the same manufacturing process and that these materials are not considered recycled content by the LEED rating systems.

#### **5.** **Recycled Content:** The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

##### **6. Post-consumer:** 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.

##### **7. Pre-consumer:** 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.

**Note:** Submittal requirements in this article assume that product data and cost information will be submitted to the Architect who will then either fill out the LEED online forms. Submittals include documentation needed to verify compliance with LEED requirements so that Architect can be assured when filling out the online forms that requirements have been met. Although USGBC's "LEED-NC: Reference Guide" does not specifically identify who can certify compliance, submittals could be deleted if requirements in this Section are revised to require Architect to fill out the online forms and to notify the Owner as they are completed.

## E. Submittals:

#### **1.** Submit under provisions of Division 01 **Section 01 33 00 "Submittal Procedures.”**

#### **2.** **General:** The Design-Builder shall submit additional **LEED** submittals required by other specification sections.

**Note:** Retain paragraph below if separate LEED submittals are required.

#### **3.** **LEED** submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated **LEED** requirements.

**Note:** Retain option in first paragraph below if 50 percent of wood-based materials must be certified for LEED-NC.

**4. Project Materials Cost Data:** The shall provide statement indicating total cost for building materials used for project, excluding mechanical, electrical, and plumbing components, and specialty items such as elevators and equipment.  **Include statement indicating total cost for wood-based materials used for Project.**

**Note:** First paragraph below requires the Design-Builder to make early submittals indicating how certain LEED requirements will be met. This action can provide reassurance that design-Builder understands the LEED requirements and can help to clear up misunderstandings before they become a bigger problem.

#### **5.** **LEED** **Action Plans:** Design-Builder shall provide preliminary submittals within **twenty-one (21)** Calendar Days of date established in the Notice to Proceed for the commencement of the work indicating how the following requirements will be met:

##### **5.1** Waste Management Plan complying with Division 01 **Section 01 74 19 "Construction Waste Management and Disposal."**

Note: Retain the following subparagraph if Design-builder determines how requirement for salvaged or refurbished materials will be met rather than specifying required salvaged and refurbished materials.

##### **5.2** **Salvaged and Refurbished Materials List:** Identify each material that will be salvaged or refurbished, including its source and cost.

Note: Retain the following subparagraph if Design-Builder determines how recycled content requirement will be met rather than specifying recycled content of various materials.

##### **5.3** **Recycled Content Materials List:** Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.

Note: Retain the following subparagraph if Design-Builder determines which items will be made from certified wood to achieve the 50 percent requirement. Delete if other specification sections designate items to be made from certified wood.

##### **5.4** **Certified Wood Products List:** Indicate each product containing certified wood, including its source and cost of certified wood products.

##### **5.5** Construction Indoor-air-quality Management Plan complying with Division 01 **Section 01 57 40 "Construction IAQ Management Plan."**

#### **6.** **LEED Progress Reports:** Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with **LEED** action plans for the following:

##### **6.1** Waste Reduction Progress Reports complying with Division 01 **Section 01 74 19 "Construction Waste Management and Disposal."**

Note: Retain the following subparagraph if Design-Bulder determines how requirement for salvaged or refurbished materials will be met rather than specifying required salvaged and refurbished materials.

##### **6.2** Salvaged and refurbished materials.

Note: Retain the following subparagraph if design-Builder determines how recycled content requirement will be met rather than specifying recycled content of various materials.

##### **6.3** Recycled content.

**Note:** Subparagraph below applies to LEED-NC.

##### **6.4** Regional materials.

Note: Retain the following subparagraph if Design-Builder determines which items will be made from certified wood to achieve the 50 percent requirement. Delete if other specification sections designate items to be made from certified wood.

##### **6.5** Certified wood products.

**Note:** Submittals in paragraph below may be necessary to verify compliance with indicated LEED prerequisites and credits. Additional submittals that may be required are specified in Divisions 01 through 33 Sections.

#### **7.** **LEED** **Documentation Submittals:**

##### **7.1** Product data and wiring diagrams for sensors and data collection system used to provide continuous metering of building energy-consumption performance over a period of time of not less than **one (1) year** of post-construction occupancy.

##### **7.2** **Waste Management Plan:** Comply with Division 01 **Section 01 74 19 "Construction Waste Management and Disposal."**

##### **7.3** **Salvaged and Refurbished Materials:** Receipts for salvaged and refurbished materials used for project, indicating sources and costs for salvaged and refurbished materials.

##### **7.4 Recycled Content:** Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. Include statement indicating costs for each product having recycled content.

##### **7.5** **Regional Materials:** Product data indicating location and distance from project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

##### **7.6 Certified Wood Products:** Product data and chain-of-custody certificates for products containing certified wood. Include statement indicating cost for each certified wood product.

##### **7.7** **Indoor Environmental Quality:**

###### 7.7.1 Construction indoor-air-quality management plan.

###### 7.7.2 Product data for temporary filtration media.

###### 7.7.3 Product data for filtration media used during occupancy.

###### 7.7.4 Construction Documentation: Six (6) photographs at three (3) different times during the construction period, along with a brief description of the Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) approach employed, documenting implementation of the indoor-air-quality management measures, such as protection of ducts and on-site stored or installed absorptive materials.

Note: Delete the following subparagraph if using Owner-engaged indoor-air-quality testing to obtain second indoor environmental quality credit/point.

##### **7.8 Indoor Environmental Quality:**

Note: Retain the following two (2) subparagraphs if using building air flush-out procedures to obtain this credit or point.

###### 7.8.1 Signed statement describing the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.

###### 7.8.2 Product data for filtration media used during flush-out and during occupancy.

Note: Retain the following subparagraph if using Design-Builder’s-engaged indoor-air-quality testing to obtain this credit or point.

###### 7.8.3 Report from testing and inspecting agency indicating results of indoor-air-quality testing and documentation showing compliance with indoor-air-quality testing procedures and requirements.

##### **7.9** **Adhesives and Sealants:** Product data for adhesives and sealants used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in g/L.

##### **7.10** **Paints and Coatings:** Product data for paints and coatings used inside the weatherproofing system indicating VOC content of each product used. Indicate VOC content in g/L.

##### **7.11** **Carpet Systems:** Product data for carpet and carpet cushion installed in the building interior indicating that the product complies with the CRI Green Label Plus testing program. Product data for carpet adhesives used in the building indicating VOC content in g/L.

##### **7.12 Composite Wood, Agrifiber or Wood Glues:** Product data for products containing composite wood or agrifiber products or wood glues indicating that they do not contain urea-formaldehyde resin.

**F. Quality Assurance:**

**Note:** Architect shall retain this section when requiring that the general Design-Builder to engage a LEED-Accredited Professional to coordinate LEED requirements may help avoid inadvertent errors that could jeopardize Project's LEED certification, since the availability of Design-Builder’s personnel with this accreditation may be limited.

**1.** **LEED Coordinator:** The Design-Builder shall engage an experienced LEED-Accredited Professional (AP) to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

## G. Salvaged And Refurbished Materials:

Note: Retain this article if Design-Builder determines how requirement for salvaged or refurbished materials will be met. Delete if technical specification sections indicate which materials are to be salvaged or refurbished.

Note: Retain first option in the following paragraph if retaining 10 percent; delete if retaining five (5) percent.

#### **1. Salvaged or Refurbished Materials:** Provide salvaged or refurbished materials for **[five (5)] [10]** percent of building materials (by cost). The following materials may be salvaged or refurbished materials:

##### **Note:** Architect must provide list of materials:

##### **1.1** **[Insert list of materials]**.

## H. Recycled Content Of Materials:

Note: Retain first option in the following paragraph if retaining 20 percent; delete if retaining 10 percent.

#### **1. Recycled Content Materials:** Provide building materials with recycled content such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum of **[10] [20]** percent of cost of materials used for project.

##### **1.1** Cost of post-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.

##### **1.2** Cost of post-consumer recycled content plus one-half of pre-consumer recycled content of an item shall be determined by dividing weight of post-consumer recycled content plus one-half of pre-consumer recycled content in the item by total weight of the item and multiplying by cost of the item.

##### **1.3** Do not include mechanical and electrical components in the calculation.

## I. Regional Materials:

Note: If retaining the following paragraph, select materials for project that can comply. Retain first option if retaining 20 percent; delete if retaining 10 percent.

#### **1. Regional Materials:** Provide **[10] [20]** percent of building materials (by cost) that are regional materials.

## J. Certified Wood:

**Note:** Retain this article if Design-Builder determines which items will be made from certified wood to achieve the 50 percent requirement. Delete if Specification Sections where wood products are specified designate items to be made from certified wood.

#### **1. Certified Wood Products:** Provide a minimum of **fifty percent** **(50%)**(by cost) of wood-based materials that are produced from wood obtained from forests certified by an Forest Stewardship Council (FSC)-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

##### **Note:** Revise paragraphs to reflect specific project requirements and goals.

##### **1.1** Wood-based materials include, but are not limited to, the following materials when made from wood, engineered wood products, or wood-based panel products:

**1.1.1 Rough carpentry.**

**1.1.2 Miscellaneous carpentry.**

**1.1.3 Heavy timber construction.**

**1.1.4 Wood decking.**

**1.1.5 Metal-plate-connected wood trusses.**

**1.1.6 Structural glued-laminated timber.**

**1.1.7 Finish carpentry.**

**1.1.8 Architectural woodwork.**

**1.1.9 Wood paneling.**

**1.1.10 Wood veneer wall covering.**

**1.1.11 Wood flooring.**

**1.1.12 Wood lockers.**

**1.1.13 Wood cabinets.**

**Note:** Adhesives and sealants are required in many Specification Sections where, without being specifically mentioned, they may be specified only by the requirement to install products according to manufacturer's written instructions. For this reason, it is probably best to retain first paragraph below.

## K. Low-Emitting Materials:

Note: Adhesives and sealants are required in many specification sections where, without being specifically mentioned, they may be specified only by the requirement to install products according to manufacturer's written instructions. For this reason, it is probably best to retain first paragraph below.

#### **1. Adhesives, Sealants, and Sealant Primers:** For field applications that are inside the weatherproofing system, use adhesives, sealants, and sealant primers that comply with the South Coast Air Quality Management District (SCAQMD) Rule #1168 effective July 1, 2005 and the rule amendment dated January 7, 2005.

##### **1.1** **Aerosol Adhesives:** Comply with the requirements of the Green Seal Standard for Commercial Adhesives GS-36 in effect on October 19, 2000.

Note: If retaining the following paragraph and subparagraphs, coordinate with sections where interior paints and coatings are specified to avoid conflicting requirements in those sections.

#### **2. Paints and Coatings:** For field applications that are inside the weatherproofing system, use paints and coatings that comply with the following limits for **Volatile Organic Compounds** (VOCs) content:

##### **2.1** **Architectural Paints, Coatings, and Primers Applied to Interior Walls and Ceilings:** Do not exceed the VOC content limits established in Green Seal Standard GS-11, Paints, First Edition dated May 20, 1993:

###### 2.1.1 Flats: 50 g/L.

###### 2.1.2 Non-flats: 150 g/L.

##### **2.2** **Anti-corrosive and Anti-rust Paints Applied to Ferrous Metal Substrates:** Do not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition dated January 7, 1997.

##### **2.3** **Clear Wood Finishes, Floor Coatings, Stains, Sealers, and Shellacs Applied to Interior Elements:** Do not exceed the VOC content limits established in the South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings in effect on January 1, 2004:

**2.3.1** **Clear Wood Finishes:** Varnish - not more than 350 g/L; Lacquer - not more than 550 g/L.

**2.3.2** **Floor Coatings:** VOC not more than 100 g/L.

**2.3.3** **Sealers:** Waterproofing sealers - not more than 250 g/L; Sanding sealers - not more than 275 g/L; All other sealers - not more than 200 g/L.

**2.3.4** **Shellacs, Clear:** VOC not more than 730 g/L.

**2.3.5** **Shellacs, Pigmented:** VOC not more than 550 g/L.

**2.3.6** **Stains:** VOC not more than 250 g/L.

Note: If retaining the following paragraph, coordinate with sections where composite wood products are specified to avoid conflicting requirements in those sections.

#### **3. Carpet Systems:**

##### **3.1** **Carpet:** Meet the requirements of the Carpet and Rug Institute’s (CRI) Green Label Plus Program.

##### **3.2** **Carpet Cushion:** Meet the requirements of Carpet and Rug Institute’s (CRI) Green Label Program.

##### **3.3** **Carpet Adhesive:** VOC content of not more than 50 g/L.

#### **4. Composite Wood and Agrifiber Products:** Do not use composite wood or agrifiber products or adhesives that contain added urea-formaldehyde resin.

## L. [Refrigerant] [And] [Clean-Agent Fire-Extinguishing-Agent] Removal:

Note: Delete this article if HVAC&R equipment and clean-agent fire-extinguishing agents are new. Retain if equipment is existing and being retained as part of renovation project.

#### **1. Fundamental Refrigerant Management:** Remove **Chlorofluorocarbons** (CFCs)-based refrigerants from existing HVAC&R equipment indicated to remain and replace with refrigerants that are not CFC based. Replace or adjust existing equipment to accommodate new refrigerant as described in the Division 23 sections.

#### **2. Enhanced Refrigerant Management:** Remove clean-agent fire-extinguishing agents that contain **Hydrochlorofluorocarbons** (HCFCs) or **Halogenoalkanes** (halons) and replace with agent that does not contain HCFCs or halons. Refer to the Division 21 sections additional requirements.

## M. Measurement And Verification:

Note: Retain one of two options, A or D, in the following paragraph.

#### **1. Measurement and Verification:** Implement measurement and verification plan consistent with [**Option B - Energy Conservation Measure Isolation**] [**Option D - Calibrated Simulation, Savings Estimation Method 2**] in the EVO's "International Performance Measurement and Verification Protocol (IPMVP) Volume III: Concepts and Options for Determining Energy Savings in New Construction," and as further defined by the following:

##### **1.1** [**Insert measurement and verification plan that has been submitted for credit**].

#### **2.** If not already in place, install metering equipment to measure energy usage. Monitor, record, and trend log measurements.

#### **3.** Evaluate energy performance and efficiency by comparing actual to predicted performance.

#### **4.** Measurement and verification period shall cover at least one year of post-construction occupancy.

## N. Construction Waste Management:

#### **1. Construction Waste Management:** Comply with Division 01 **Section 01 74 19 "Construction Waste Management and Disposal."**

## O. Construction Indoor-Air-Quality Management:

**Note:** Coordinate first subparagraph below with Division 01 Section 01 15 23 "Temporary Heating, Cooling, and Ventilating." Identify air handlers and associated return-air inlets authorized by Owner for use during construction period.

#### **1. Construction IAQ Management Plan During Construction:** Comply with **Sheet Metal and Air Conditioning Contractors' National Association’s** (SMACNA) "SMACNA IAQ Guideline for Occupied Buildings under Construction."

##### **1.1** If Owner authorizes use of permanent heating, cooling, and ventilating systems during construction period as specified in Division 01 **Section 01 50 00 "Temporary Facilities and Controls**", install filter media having a MERV 8 according to ASHRAE 52.2 at each return-air inlet for the air-handling system used during construction.

##### **1.2** Replace all air filters immediately prior to occupancy.

#### **2. Construction IAQ Management Plan Before Occupancy:**

Note: Retain one or more of the following three (3) subparagraphs. Retain option in paragraph above if retaining more than one subparagraph below. Project's mechanical engineer of record should verify that HVAC system design and equipment indicated are capable of delivering flush-out indicated. Provide HVAC system and equipment operating information necessary to achieve credit. If project HVAC systems and equipment cannot suit requirement, consider requiring temporary systems and equipment.

##### **2.1** After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total volume of 14000 cu ft of outdoor air per sq ft of floor area while maintaining an internal temperature of at least 60 degrees F and a relative humidity no higher than 60 percent.

**Note:** Indicate operating procedure for each HVAC system and piece of equipment and the operating duration required for flush-out.

###### 2.1.1 [Insert operating requirements]*.*

##### **2.2** If occupancy is desired prior to flush-out completion, the space may be occupied following delivery of a minimum of 3500 cu ft of outdoor air per sq ft of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm per sq ft of outside air or the design minimum outside air rate determined in Sections 4 through 7 of ASHRAE Standard 62.1-2004, whichever is greater. During each day of the flush-out period, ventilation shall begin a minimum of three (3) hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14000 cu ft/sq ft of outside air has been delivered to the space.

**Note:** Indicate operating procedure for each HVAC system and piece of equipment and the operating duration required for flush-out.

###### 2.2.1 [Insert operating requirements].

##### **3. Air-Quality Testing:**

**Note:** EPA standard referenced in first subparagraph below is available from NTIS by calling (800) 553-6847 with PB90200288 ordering number.

###### 3.1 Conduct baseline indoor-air-quality testing, after construction ends and prior to occupancy, using testing protocols consistent with the EPA's "Compendium of Methods for the Determination of Air Pollutants in Indoor Air and as additionally detailed in the USGBC's "LEED-NC Reference Guide."

###### 3.2 Demonstrate that the contaminant maximum concentrations listed below are not exceeded:

Note: It may be necessary to comply with VOC content requirements for adhesives and sealants, paints and coatings, carpet systems, and composite wood and agrifiber products to comply with the limits specified in the following five (5) subparagraphs.

**3.2.1** **Formaldehyde:** 50 ppb.

**3.2.2** **Particulates (PM10):** 50 micrograms/cu. m.

**3.2.3** **Total Volatile Organic Compounds (TVOC):** 500 micrograms/cu. m.

**3.2.4** **4-Phenylcyclohexene (4-PH):** 6.5 micrograms/cu. m.

**3.2.5** **Carbon Monoxide:** 9 ppm and no greater than 2 ppm above outdoor levels.

**Note:** First subparagraph below is part of LEED credit requirements but creates requirements that are contingent on field conditions that are unknown at time of bid and could influence bids. Also, requirements may result in claims for extra payment and time. Revise to suit office practice.

###### 3.3 For each sampling point where the maximum concentration limits are exceeded, conduct additional flush-out with outside air and retest 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 same locations as in the first test.

###### 3.4 Air-sample testing shall be conducted as follows:

**3.4.1** All measurements shall be conducted prior to occupancy but during normal occupied hours, and with building ventilation system starting at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.

**3.4.2** Building shall have all interior finishes installed including, but not limited to, millwork, doors, paint, carpet, and acoustic tiles. Non-fixed furnishings such as workstations and partitions are encouraged, but not required, to be in place for the testing.

**3.4.3** Number of sampling locations will vary depending on the size of building and number of ventilation systems. For each portion of building served by a separate ventilation system, the number of sampling points shall not be less than one per **25,000 sq ft**or for each contiguous floor area, whichever is larger, and shall include areas with the least ventilation and greatest presumed source strength.

**3.4.4** Air samples shall be collected between **three (3) and six (6) feet** from the floor to represent the breathing zone of occupants, and over a minimum four-hour period.

**End Section 01 81 13**

**Sustainable Design Requirements**

**END SECTION 01 80 00**

**PERFORMANCE REQUIREMENTS**