

SECTION 01 81 14 - CONSTRUCTION INDOOR AIR QUALITY

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the indoor air quality requirements necessary to achieve the Healthy Air requirements under the Living Building Challenge version 3.1.

1.2 RELATED SECTIONS

- A. The following sections are related:
 - 1. 01 33 00 Submittal Procedures.
 - 2. 01 81 13 Sustainable Design Requirements.
- B. Additional Living Building Challenge requirements are included in individual sections.

1.3 REFERENCES

- A. Additional information on the Living Building Challenge and Certification requirements can be found:
 - 1. The International Living Future Institute webpage at www.living-future.org/lbc
 - 2. The Living Building Challenge version 3.1 standard
 - 3. The Living Building Challenge Dialogue
 - 4. The Living Building Challenge Petal Handbooks: Place, Water, Energy, Health and Happiness, Materials, Equity, and Beauty

1.4 CONTRACTOR COORDINATION REQUIREMENTS

- A. Coordinate submittal and construction efforts.
- B. Designate a Living Building Challenge representative responsible for:
 - 1. Attending Living Building Challenge project meetings,
 - 2. Coordinating submittals and contractor related Living Building Challenge documentation,
 - 3. Site inspections to ensure construction related Living Building Challenge measures are implemented and documented.
- C. Subcontractor training and coordination, specifically for the Living Building Challenge.

1.5 SUBMITTALS

- A. All submittals are to be submitted in accordance with section 01 33 00 Submittal Procedures.
- B. The General Contractor is to submit a Construction IAQ Management Plan within twenty-one (21) days of notice to proceed.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 AIR QUALITY TESTING REQUIREMENTS

- A. Air quality testing is to be completed in accordance with the United States Environmental Protection Agency Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air, or International Equivalent.
- B. Indoor air quality testing is to be completed following construction completion, including installation of office systems furniture, and prior to installation of FFE and standard occupancy conditions.
 - 1. Air quality samples must be collected during normal occupancy conditions and collected for a minimum of four hours and within the breathing zone between 3-5 feet AFF.
 - 2. One sample must be collected for every 25,000 square feet or each contiguous floor area, whichever is lesser.
 - 3. Samples must be taken in areas with least ventilation and greatest presumed source strength.
 - 4. Samples must represent each distinct use area.
 - 5. HVAC systems should be in normal operating conditions, bringing in minimal outside air, during testing.
- C. Outdoor air quality testing is required for projects where three or more indoor air testing samples are required. Reports for outdoor air testing are to note weather and wind conditions.
 - 1. One sample must be collected within 4 feet of an outdoor air intake for the building.
- D. Air quality testing reports must include, at minimum:
 - 1. Date, time, and location of each sample
 - 2. Executive summary of findings
 - 3. Description of sampling methods and conditions
 - 4. Written confirmation that test conditions and systems conditions were met
 - 5. Detailed findings
 - 6. Environmental lab report
 - 7. Interpretation of report and findings
 - 8. Conclusions and recommendations

3.2 AIR QUALITY TESTING MAXIMUM ALLOWABLE CONCENTRATIONS

- A. Maximum allowed concentrations:
 - 1. Formaldehyde: 50 ppb (parts per billion)
 - 2. PM 2.5: 12 $\mu\text{g}/\text{m}^3$ (microgram per meter cubed)
 - 3. PM 10: 150 $\mu\text{g}/\text{m}^3$



4. Total Volatile Organic Compounds: 500 $\mu\text{g}/\text{m}^3$
5. 4-Phenylcyclohexane: 3 $\mu\text{g}/\text{m}^3$
6. Carbon Monoxide: 9 ppm (parts per million)
7. Ozone: 51 ppb
8. Carbon Dioxide: 750 ppm
9. Nitrogen Dioxide: 0.053 ppm over a 24-hour period