



**LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)
CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT
CREDIT 3.2 ENVIRONMENTAL QUALITY (EQ) – 2 LEED CERTIFICATION POINTS**

BEFORE OCCUPANCY

Intent: Reduce indoor air quality (IAQ) problems resulting from the construction / renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.

Requirements: Develop and implement an IAQ Management Plan for the pre-occupancy phase as follows:

➤ **OPTION 1 – FLUSH OUT**

After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14,000 cu. ft. of outdoor air per sq. ft. of floor area while maintaining an internal temperature of at least 60°F and relative humidity no higher than 60%. OR

If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3,500 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/sq. ft. of outside air or the design minimum outside air rate determined in EQ Prerequisite 1, whichever is greater. During each day of the flush out period, ventilation shall begin a minimum of 3 hours prior to occupancy and continue during occupancy. These conditions shall be maintained until a total of 14,000 cu. ft. / sq. ft. of outside air has been delivered to the space.

➤ **OPTION 2 – AIR QUALITY TESTING**

Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with the U.S. EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air.



**CERTIFIED ENVIRONMENTAL, INC.
LEED IAQ MANAGEMENT PLAN DEVELOPMENT AND AIR QUALITY TESTING**

IAQ MANAGEMENT PLANS AND AIR QUALITY TESTING

- Project focused IAQ Management Plans, addressing: (1) HVAC System Protection; (2) Contaminant Source Control; (3) Pathway Interruption; (4) Housekeeping; and (5) Scheduling.
- Air testing will be conducted as follows:
 - All measurements shall be conducted prior to occupancy, but during normal occupied hours, and with the 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.
 - The 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.
 - The number of sampling locations will vary depending upon the size of the building and number of ventilation systems. For each portion of the 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 include areas with the least ventilation and greatest presumed source strength.
 - Air samples shall be collected between 3 feet and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum of a 4-hour period.
- Demonstrate that the contaminant maximum concentrations listed below are not exceeded:
 - Formaldehyde – 50 parts per billion (ppb)
 - Particulates – 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
 - Total Volatile Organic Compounds (VOC) – 500 $\mu\text{g}/\text{m}^3$
 - 4-Phenylcyclohexene (4-PCH) – 6.5 $\mu\text{g}/\text{m}^3$
 - Carbon Monoxide (CO) – 9 parts per million (ppm) and no greater than 2 ppm above outdoor levels
- 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.

Certified Environmental, Inc., (CEI) located in Mansfield, Ohio, has conducted a wide variety of indoor air quality studies and investigations to assess indoor environments for acceptable air quality, indoor environmental contaminants, chemical exposure and indoor environmental allergens. Building flush-out often creates unnecessary project delays and the potential for increased utility costs depending when the flush-out occurs. Air quality testing offers a more precise assessment of the air quality in the building, quicker turn-around time and cost savings. Let CEI assist with your LEED EQ certification and IAQ monitoring. Please direct questions to CEI at (419) 884-2123 or visit our website at certifiedenvironmental.org.