

Using Veris CO₂ Sensors in LEED Certification

Introduction

LEED certification credits include a number of indoor environmental criteria. To satisfy the requirements for these credits and earn the corresponding LEED points, a building owner or BAS designer must show that their interior climate control system is capable of continuously monitoring air quality levels, proving the overall efficiency of the BAS design.

Every LEED program has indoor environmental quality (IEQ) credits (see table below). To earn these points, the building owner must demonstrate that the ventilation system is capable of monitoring the air quality and adjusting as needed to preserve interior comfort and healthy conditions while avoiding excessive energy use.

It is the responsibility of the building owner to design an energy-efficient, comprehensive ventilation system that continuously monitors and adjusts interior air quality to maintain comfort levels. LEED points are awarded based on the effectiveness and efficiency of this design. Veris Industries can help by providing high quality BAS peripherals that are easily integrated into control systems, allowing accurate, real-time measurement of air quality parameters.

Traditional ventilation systems draw outside air into a building at a rate measured in cubic feet per minute (CFM). The appropriate ventilation rate for a commercial building is determined by calculating the number of CFM per person. This outside air must then be heated or cooled for interior comfort, adding to the overall energy consumed by the ventilation system.

Demand Control Ventilation (DCV), described by ASHRAE Standard 62, is a more efficient process that looks at CO₂ levels to determine whether interior air quality is adequate for human occupancy. A typical comfortable CO₂ level in a commercial space is approximately 600 ppm, but this level will rise throughout the day due to human activity. Levels exceeding about 1000 ppm are considered unhealthy.

Veris Industries provides a variety of CO₂ sensors that can be incorporated into any DCV design. When integrated with a control system, these sensors continuously monitor interior CO₂ levels and generate the necessary alerts if levels get too high. Outdoor air is only introduced when needed to lower the CO₂ levels. When CO₂ is within normal parameters, the air intake vents are closed. Interior air is circulated, eliminating the need to adjust the temperature and humidity of outdoor air to maintain comfortable and healthy conditions. According to data collected by ASHRAE, a good DCV design can reduce ventilation, heating, and cooling loads by 10% to 30%¹. Demand control ventilation, facilitated by Veris CO₂ sensors, will help to maximize the energy efficiency of the BAS design.

Veris sensors are available in wall, duct, and outdoor mounted housings with analog and digital outputs available for installation and application flexibility. Let Veris help you with your LEED needs.

| Program | Criteria | Requirement | Products Available |
|--------------------|--------------------------|---|---|
| Existing Buildings | IEQ 1.2 Case 2 (1 point) | "Have a CO ₂ sensor or sampling location for each densely occupied space and compare it with outdoor ambient CO ₂ concentrations." | <ul style="list-style-type: none"> • Duct mount: CDL, CDE • Wall mount: CWL, CWE, CWV |
| New Construction | IEQ 1 (1 point) | "Install permanent monitoring systems to ensure that ventilation systems maintain design minimum requirements. Configure all monitoring equipment to generate an alarm when airflow values or carbon dioxide (CO ₂) levels vary by 10% or more from the design values via either a building automation system alarm to the building operator or a visual or audible alert to the building occupants." | <ul style="list-style-type: none"> • Duct mount: CDL, CDE • Wall mount: CWL, CWE, CWV |

1. Roth, Kurt W., PhD., "Demand Control Ventilation," *ASHRAE Journal* July (2003): 91-92.