

CASE STUDY – O'BRIEN360, LEED® v4.1 O+M



The Alnor EBT731 Balometer Capture Hood is a multipurpose electronic air balancing instrument primarily used for efficiently taking direct air volume readings at diffusers and grilles. The EBT features a detachable micromanometer which can be used with optional probes for increased flexibility in multiple measurement applications.

HOW DID SBC HELP?

Kitsap Community Resources contacted [O'Brien360](#) to help complete the LEED certification process for their newly constructed Child Development Center in Bremerton, WA.

O'Brien360 borrowed the Alnor EBT731 Balometer Capture Hood to collect air flow measurements during an ASHRAE Level 1 Energy Audit, a required step for LEED v4.1 O+M certification.

Kitsap Community Resources (KCR), a nonprofit offering programs to assist Kitsap County families in need of food, housing, and nutrition services, needed help navigating the U.S. Green Building Council LEED (Leadership in Energy and Environmental Design) certification process to meet state requirements for their newly constructed Child Development Center in Bremerton, WA.

KCR contacted [O'Brien360](#), a sustainable development and green building consulting firm, to assist with the LEED certification process for the 4,400 square-foot Child Development Center which features two preschool classrooms, offices for the Director and support staff, and a staff workroom. O'Brien360 specializes in sustainability certification and optimizing performance and was excited to help the Child Development Center meet the State's LEED requirement by guiding KCR through the LEED v4.1 Operations + Maintenance (O+M) certification process.

This all-electric Child Development Center features heat pumps, LED lighting, and an Energy Recovery Ventilator (ERV), but the systems were not commissioned, and no documentation was originally provided to KCR at the end of new construction. Throughout the LEED v4.1 O+M certification pursuit in 2020, O'Brien360's onsite testing with the Alnor Balometer revealed that ventilation flow rates did not match expected values, and in some cases original design values did not meet minimum ASHRAE 62.1-2010 outside air minimum flows. O'Brien360 also helped KCR with data collection, water and energy performance tracking, waste audit support, verification, technical assistance with system upgrades, and the documentation process required to meet the LEED v 4.1 O+M requirements.

	Pre- LEED Flow Rate CFM	ASHRAE Minimum CFM	Head Start Minimum CFM	Final CFM
Classrooms (West / East):	281 / 220	400 / 400	688 / 688	711 / 699
Staff Lounge:	45	100	N/A	108

CORRECTIVE MEASURES IMPLEMENTED

As a result of the findings by the O'Brien360 team, the following improvements were made to support the facility's indoor environmental quality:

- KCR identified an opportunity to meet Head Start Guidelines for ventilation, which are optional and required more equipment upgrades, but further mitigate infectious airborne disease potential.
- O'Brien360, KCR, and their mechanical service provider, AMS, conducted further analysis and AMS installed two additional ERVs, rebalanced the existing supplies, then completed testing and balancing on all systems.
- Hawk Environmental provided onsite measurements of CO2 and Total Volatile Organic Compounds (TVOCs) to further validate the improved air quality within the building.
- O'Brien360 completed the Current Facilities Requirements (CFR) and Operations & Maintenance Plan as required by LEED v 4.1, but more importantly than a LEED checkbox, this resource provided project details the maintenance team had been craving.

LESSONS LEARNED & SCALING UP

- Verification of details is very important, both during the design phase and after installation, to ensure systems are operating as desired.
- Performance tracking increases the project team's awareness of conditions and opportunities for improvement.
- Prioritizing healthy indoor environments is critical, not just during a pandemic, but to offer a space conducive to thriving.

The Child Development Center earned 1 LEED point for Light Pollution Reduction for having full cut-off fixtures (down-lights) to protect the night sky.

The project earned 29 out of 35 points for energy performance, and their EUI of ~18 kBtu/sf/yr is exceptional for a preschool.

"O'BRIEN360 HELPED US EXCEED OUR GOAL OF LEED SILVER CERTIFICATION BY HELPING US ACHIEVE LEED GOLD CERTIFICATION. THE PROJECT STRENGTHENED OUR COMMITMENT TO PROVIDE A SAFE, HEALTHY, AND SUSTAINABLE ENVIRONMENT FOR OUR COMMUNITY."

- Kitsap Community Resources

Smart Buildings Center hosts a lending "library" of diagnostic tools available to building owners and managers, as well as energy service professionals in Washington State and Oregon, for short term data collection on energy using equipment and systems in commercial and institutional buildings.

*Available tools include loggers, logger sensors, power and light meters, air flow tools and more. Browse **the tool inventory online** or view **our Tool List (PDF)**.*

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