
High Performance Building Professionals

Concept for Bridging HVAC Performance Gaps

Background

Recent research on commercial Heating, Ventilation, and Air Conditioning (HVAC) systems has identified significant energy efficiency performance gaps. California's Investor Owned Utilities (IOUs) are committed to a Sector Strategy to reduce HVAC energy consumption in compliance with the state's goals for carbon reduction and energy savings. Improved maintenance protocols plus enhanced workforce knowledge and skills are major elements in this Sector Strategy.

Proposed Outcomes

The California Community Colleges' Sector Navigator team for Energy Efficiency and Utilities proposes to assist the IOUs in bridging these performance gaps through a statewide program that upgrades workforce skills:

- A "High Performance Building Operations" training specification for building technicians that specifically addresses commercial HVAC performance gaps identified in through comprehensive literature review.
- Industry vetting and buy-in to the specification, shifting the emphasis for technicians from primarily component-level repairers to systems professionals - conducting performance monitoring, collecting and interpreting data, and acting as problem solvers at the system level.
- Model curriculum for High Performance Building Operations based on the above specification and leading edge research by US DOE and others in required knowledge, skills, and abilities.
- Collaboration with the Western HVAC Performance Alliance (WHPA) to integrate its findings into the model curriculum and to inform WHPA workforce standards activities.
- Delivery of pilot training course(s) using the model curriculum, providing opportunities for refining and adjusting based on industry evaluation.
- Adoption of the curriculum at appropriate training institutions statewide, including professional development for faculty and adaptation within existing certificate and degree programs.

An initial skills upgrade course for incumbent workers can be offered as early as Fall 2014, depending on IOU support.

Success Factors

Consistent with the IOU definition of Sector Strategies, the Sector Navigator team has structured an innovative approach that aligns training with energy efficiency goals. The approach also accelerates High Performance Building Operations training as an essential element for achieving the state's Zero Net Energy goals. Critical elements include:

- Nationally-recognized resources: The Laney College BEST Center (Building Efficiency for a Sustainable Tomorrow) will leverage its \$4M from the National Science Foundation that funds

development of curricula for two-year colleges throughout the U.S. to educate building control technicians, incorporating energy-efficient technologies and practices.

- Leading edge career pathways: The foundation for this concept is Laney's HVAC/R and Environmental Control Technologies certificate and degree programs which provide students leading edge education in the theoretical, technical, and problem-solving skills essential for employment in the industry.
- Employer focus: Carlos Santamaria brings a unique perspective to facilitating employer input into the model curriculum. He is Vice Chair of the Building Owners & Managers Association (BOMA US) International Energy & Environment Committee, a Board of Director and Chair of the BOMA California Energy Committee, and a Steering Committee Member with the Department of Energy (DOE) Commercial Real Estate Energy Alliance group.
- Occupational focus: This concept's emphasis is on developing a class of High Performance Building Operations Professionals – technicians that are proficient in installing, operating, and maintaining long-term energy efficiency at the system level.
- Statewide footprint: A statewide cadre of High Performance Building Operations Professionals can be developed as this program is scaled to include appropriate training institutions. California labor market data is currently being analyzed to identify where HVAC technicians are concentrated and where growth is projected as a rationale for scaling to specific geographies.
- Program facilitation: The Sector Navigator team manages the community college system's response to the IOUs' HVAC workforce needs.

Shared Vision

This document is intended to inspire a shared vision which can be translated into an action plan that the IOUs and California Community Colleges can jointly develop, fund, and implement.

Program Implementation

The attached 2014 Deliverables can be refined to coincide with the IOUs' desired methods and timeline for implementation.

Multiple funding sources can be leveraged, including the BEST Center and Sector Navigator budgets. Additional funding from the IOUs is anticipated as a means for covering the costs of developing an employer stakeholder advisory and for instructional costs associated with incumbent worker training.

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