Building Operator Certification Level I

BOC 1001 – Energy Efficient Operation of Building HVAC Systems

In this two-day class, participants will learn about the Building Operator Certification training program and the requirements for demonstrating their knowledge and ability to apply the essentials of effective and energy efficient operations and maintenance. Participants will learn the fundamentals of building systems, including the envelope, heating, cooling, and air and ventilating systems, to be able to understand and relate how those systems interact with each other, the building, the occupants, and the environment.

BOC 1002 - Measuring and Benchmarking Energy Performance

Participants will learn how to perform quantifiable evaluations of their facilities' energy use in order to be able to target prospects for energy conservation. Participants will learn energy management planning techniques and the basic principles of energy accounting to identify ways to improve efficiency.

BOC 1003 – Efficient Lighting Fundamentals

Learn lighting fundamentals and principles of efficient lighting including: evaluation of lighting levels; fixture and control technologies; retrofit and redesign options; and required maintenance to reduce energy use associated with lighting while maintaining recommended lighting levels needed for productivity and safety.

BOC 1004 –HVAC Controls Fundamentals

Students will be introduced to the fundamentals of automatic control systems for building mechanical systems to target possible inefficiencies in their HVAC systems and to evaluate potential problems as part of an enhanced operation and maintenance program. Participants will be introduced to Building Automation Systems (BAS) and the graphic user interface as a cost effective tool to review real time building data, identify problems, and verify proper performance for air handling and central plant systems.

BOC 1005 – Indoor Environmental Quality

In this class participants will learn about the causes of indoor environmental quality (IEQ) problems and the relationships between cause, control, occupant sensitivity, and ventilation in order to develop a reliable method of diagnosis and remediation.

BOC 1006 – Common Opportunities for Low-Cost Operational Improvement

Participants will learn typical areas and problems with different system types and equipment and the relevant diagnostic tools and techniques to identify common opportunities that offer the greatest energy savings potential.

SUPPLEMENTAL COURSES (1 offered per course series)

BOC 1007 –Facility Electrical Systems

Participants are taught basic electrical theory, safety procedures, power distribution, and energy conservation to develop a practical understanding of electricity and its use in commercial facilities. Participants will learn basic troubleshooting in order to effectively work with licensed staff and/or contractors with ongoing electrical problems and maintenance support.

BOC 1008 – Operation & Maintenance Practices for Sustainable Buildings

In this class participants are taught O&M best practices for green or high performance buildings including exterior site issues, water efficiency, cleaning products, material and supply purchasing, energy, and indoor environmental quality to improve the performance of both existing buildings and newly-designed green buildings.

BOC 1009 – Building Scoping for Operational Improvement

Students learn hands-on information gathering and analysis and create a prioritized scope of work for finding opportunities for energy saving operational adjustments to plan a building tune-up project. Participants will be required to work through an e-learning module prior to attending the class.

BOC 1010 – Energy Efficient Ventilation Strategies and High Performance Heating and Cooling Equipment

This class introduces the theory, design, and operational practices for displacement ventilation strategies, underfloor air distribution systems, and naturally ventilated and mixed mode strategies in buildings to improve thermal comfort, reduce system energy use, and maintain an effective and high-performing ventilation system. Participants will learn the theory, design, and operational practices for new HVAC equipment technologies being installed in high performance buildings, so they can calculate the total cost of ownership, help building owners comply with energy codes, and meet building energy management goals.

BOC 1011 – Energy Efficient Ventilation Strategies and Energy Savings through Energy Recovery

Participants are taught the theory, design, and operational practices for displacement ventilation strategies, under-floor air distribution systems, and naturally ventilated and mixed mode strategies in buildings to improve thermal comfort, reduce system energy use, and maintain an effective and high-performing ventilation system. Participants will learn the theory, design and operational practices for energy recovery from air and water source systems to determine applicable methods for capturing heating and cooling energy before it is vented or wasted in their building.

BOC 1012 – High Performance Heating and Cooling Equipment and Energy Savings through Energy Recovery

Students will learn the theory, design, and operational practices for new HVAC equipment technologies being installed in high performance buildings and calculate total cost of ownership to help building owners comply with energy codes and meet building energy management goals. Participants will learn the theory, design and operational practices for energy recovery from air and water source systems to determine applicable methods for capturing heating and cooling energy before it is vented or wasted in their building.