



## Building Operator Certification, Level I Northwest Technical College Training Schedule

Building Operator Certification (BOC®) training includes nearly 80 hours of classroom and project work in building systems operation and maintenance. Each course in the series is completed in a one-day training session, except *BOC 103 – HVAC Systems and Controls*, a two-day course. To become certified, participants must pass an exam at the end of each day of training and complete assigned projects. Unless otherwise noted, training begins at 8 a.m. and ends by 4 p.m. The cost of the training is \$1,200.

**Northwest Technical College**  
**905 Grant Avenue SE**  
**Bemidji, MN 56601-4907**  
[www.ntcmn.edu](http://www.ntcmn.edu)

Date	Course
Thursday, January 28 <sup>th</sup> , 2010	BOC 101 – Building Systems Overview
Thursday, February 18 <sup>th</sup> , 2010	BOC 102 – Energy Conservation Techniques
Thursday, March 4 <sup>th</sup> , 2010	BOC 107 – Facility Electrical Systems
Weds-Thurs, March 17 <sup>th</sup> -18 <sup>th</sup> , 2010	BOC 103 – HVAC Systems and Controls
Thursday, April 1 <sup>st</sup> , 2010	BOC 104 – Efficient Lighting Fundamentals
Thursday, April 15 <sup>th</sup> , 2010	BOC 106 – Indoor Air Quality
Thursday, April 29 <sup>th</sup> , 2010	BOC 105 – O&M Practices for Sustainable Buildings

Online registration is available on our website at [www.boccentral.org](http://www.boccentral.org)!

For questions about the BOC program in the Minnesota contact:

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BOC is an [IFMA Approved Provider Program](#) for the [Facility Management Professional \(FMP\)](#) and [Certified Facility Manager \(CFM\)](#) designations. BOC offers FMP candidates with course offerings to assist in earning the FMP designation. BOC courses also provide CFM/FMP Maintenance Points for recertification.





## BOC LEVEL I COURSE DESCRIPTIONS

### **BOC 101 - BUILDING SYSTEMS OVERVIEW (1 DAY)**

Provides an overview of preventive maintenance, energy efficiency principles, and fundamentals of building systems, equipment, and operations. Reviews heating, cooling, ventilation and control systems, water, lighting, and indoor air quality. Covers system interaction and relationship to overall building performance. Provides a foundation for later courses.

**PROJECT:** Facility and Equipment Floor Plan

### **BOC 102 - ENERGY CONSERVATION TECHNIQUES (1 DAY)**

Helps operators gain a better understanding of how energy is used in commercial buildings and how to identify and prioritize conservation opportunities. Includes basic principles of energy accounting, evaluation of fuel options, operation and maintenance strategies to improve efficiency, and energy management planning technique.

**PROJECT:** Energy Use Profile for Facility

### **BOC 103 - HVAC SYSTEMS AND CONTROLS (2 DAYS)**

Focuses on operation and maintenance of equipment and components typically found in commercial buildings, including central heating, cooling, air and ventilating systems in buildings. Provides an introduction to automatic control systems and equipment, particularly for central air systems. Emphasis is placed on group problem solving and exercises with respect to preventive maintenance.

**PROJECT:** Heating System Operational Review

### **BOC 104 - EFFICIENT LIGHTING FUNDAMENTALS (1 DAY)**

Covers lighting fundamentals and types of lighting for economical and energy-efficient lighting systems. Participants learn the principles of efficient lighting including evaluation of lighting levels, quality and maintenance. Other topics include lighting fixture and control technologies, common upgrades, retrofit and redesign options, and lighting management strategies as they apply to space use and function.

**PROJECT:** Lighting Survey for Facility

### **BOC 105 – OPERATION AND MAINTENANCE PRACTICES FOR SUSTAINABLE BUILDINGS (1 DAY)**

Focuses on a set of best practices for operations and maintenance that create and sustain green or high performance buildings. National green building rating systems such as LEED® and tools through ENERGY STAR® for evaluating the sustainability of the existing buildings are discussed. Students will learn to identify and apply O&M practices for improving the performance of existing buildings and newly designed green buildings.

### **BOC 106 - INDOOR AIR QUALITY (1 DAY)**

Introduces the basic causes of indoor air quality problems and begins to develop a method of diagnosis and solution. Students will gain an understanding of the dynamic components of indoor air quality in relation to source control, occupant sensitivity and ventilation. Emphasis will be placed on communications with building occupants for reliable investigations without aggravating existing issues.

### **BOC 107 - FACILITY ELECTRICAL SYSTEMS (1 DAY)**

Develops an understanding of how electricity is distributed in a facility and common electrical distribution problems. This course will emphasize the fundamentals of electricity and its application to the workplace.

**PROJECT:** Electrical Distribution Sketch for Facility

