

Training Syllabus – Overview

The following describes the objectives of the various sessions, lectures, and demonstrations that form a training program developed under Building Commissioning Process.

Sessions

There are two main sessions on the electrical systems and two main sessions on the mechanical systems that will provide training to the Service personnel. The first session will be conducted at the time of start-up and check out and the second session will be about two months later. Sessions will be a minimum of two days duration for the basics in each system and be conducted as specified bellow. The sessions will be conducted at the site.

A training agenda will be provided for each session. This will be submitted three weeks prior to the scheduled training session. All listed owner's representatives will sign this prior to proceeding with the training.

Lists of training topics that are appropriate for consideration are to be submitted for approval.

The Commissioning Authority will be notified of the scheduled training time and provided with a copy of the training material 15 days prior to each training session. The Commissioning Authority will review the material and share comments with the Owner and the design professionals. If any aspects do not meet the requirements of the specifications this will be communicated through the design professionals. The commissioning Authority will attend 25% or more of the training sessions.

A receipt acknowledgment completion of each item of instruction will be secured.

The training will be evaluated based upon the criteria in the evaluation form.

Electrical Systems

The training shall include:

1. General familiarization and operating procedures for the entire electrical installation.
2. Routine maintenance procedures for the equipment.
3. Specific operating and maintenance procedures provided by Factory-trained technicians for:
 - a) Emergency power supply system
 - b) Switchboards
 - c) Lighting control systems
 - d) Medium voltage switchgear
 - e) Fire Alarm system

Mechanical Systems

The training shall include:

1. General familiarization and operating procedures for the entire plumbing, pure water, fuel, HVAC, and fire protection systems installation.
2. Routine maintenance procedures for the equipment.
3. Specific operating and maintenance procedures provided by Factory-trained technicians for:
 - a) Hot water system consisting of boilers, pumps, controls, and hydronic specialties.
 - b) Chilled water systems consisting of chillers, cooling towers, pumps, controls, Variable speed drives, and Water treatment systems.
 - c) Automatic temperature control system consisting of all associated hardware, software and program logic arranged in systems.
 - d) Clean agent fire suppression systems including emergency procedures abort functions and safety requirements.
 - e) Laboratory hood exhaust air systems.

DDC Systems

1. There will be two formal training sessions on the DDC systems. Each of the sessions will be conducted by factory trained personnel for a minimum duration of as many as () 8-hour days for a total of () training hours. Materials and training will be provided for up to () operators per session.

Lectures: DDC systems operation basics.

2. There will be a separate training course for supervisory personnel. This training will be briefly covering the material of the operator training session but will be focused on the more advanced features of the system with emphasis on the energy conservation strategies and reporting capabilities of the system and how to implement them. Again, this training session will be conducted by factory trained personnel for a minimum duration of as many as () 8-hour days for a total of () training hours. Materials and training will be provided for up to () operators per session.

Lectures: DDC systems emphasis on advanced features of HVAC system, energy conservation, system troubleshooting, component troubleshooting, and reporting capabilities.

TRAINING AGENDA TOPICS

(Suggested General Topics to Be Included)

Suggested List of Subjects		Requested by D-I-R, Inc. (✓)	Desired Duration (h)
1.	Overview and description of the purposes of the system		
2.	System troubleshooting: description of diagnostic step-by-step procedures for determining the source of problems on the system level; review technical service manual in detail		
3.	Component maintenance: instruction of required procedures for weekly, monthly, and annual preventive checks and timely repairs to preserve system integrity		
4.	Component troubleshooting: description of diagnostic procedures for determining the source of problems on the component level		
5.	Review of control drawings and schematics (have copies for attendees)		
6.	Startup, loading, normal operation, unloading, shutdown, unoccupied operation, seasonal changeover, etc., as applicable		
7.	Integral controls (packaged): programming, troubleshooting, alarms, manual operation		
8.	Building automation system (BAS) controls: programming, troubleshooting, alarms, manual operation, interface with integral controls		
9.	Interactions with other systems, operation during power outage and fire		
10.	Relevant health and safety issues and concerns and special safety features		
11.	Energy-conserving operation and strategies		
12.	Any special issues to maintain warranty		
13.	Common troubleshooting issues and methods, control system warnings and error messages, including using the control system for diagnostics		
14.	Special requirements of tenants for this equipment's function		
15.	Service, maintenance, and preventive maintenance (sources, spare parts inventory, special tools, etc.)		
16.	Question and Answer Period		
Total hours requested			
Total hours required by specifications			