Greenhouse Condensing Boilers   EMCS: TRAINING   Section 25 01 12
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Fredericton, NB
Project No. R.106443.001   April, 2020

Part 1   **General**

1.1   **SUMMARY**

.1   Section Includes:

    .1   Requirements and procedures for training program, instructors and training materials, for building Energy Monitoring and Control System (EMCS) Work.

1.2   **RELATED SECTIONS**

.1   Section 25 05 01 - EMCS: General Requirements.

1.3   **SUBMITTALS**

.1   Submittals in accordance with:

    .1   Division 01 – General Requirements.

    .2   Section 21 05 01 - Common Work Results – Mechanical.

.2   Submit training plan complete with hour-by-hour schedule including brief overview of content of each segment to Owner's Representative 30 days prior to the anticipated date of beginning of training:

    .1   List name of trainer, and type of visual and audio aids to be used.

    .2   Show co-ordinated interface with other EMCS mechanical and electrical training programs.

.3   Submit training plan within one week following completion of controls testing and demonstration.

1.4   **QUALITY ASSURANCE**

.1   Provide competent trainers thoroughly familiar with aspects of EMCS installed in facility.

.2   Owner's Representative reserves the right to approve instructors.

1.5   **INSTRUCTIONS**

.1   Provide instruction to designated personnel in adjustment, operation, maintenance and pertinent safety requirements of EMCS installed.

.2   Training is to be project specific.

1.6   **TRAINING**

.1   Contractor shall instruct Owner's designated representatives on proper system use and maintenance, including set point changes, trending and simple program changes.

.2   Instructions shall be provided. One – 8 hour day total at Owner's request.

1.7   **TRAINING MATERIALS**

.1   Provide equipment, visual and audio aids, and materials for classroom training.

.2 Supply manual for each trainee, describing in detail data included in each training program.

    .1 Review contents of manual in detail to explain aspects of operation and maintenance.

1.8 MONITORING OF TRAINING

.1 Owner's Representative to monitor training program and may modify schedule and content.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TRAINING

.1 Provide a minimum of one onsite training class 8 hours in length during the construction period for personnel designated by the Owner's Representative.

.2 Train the designated staff of Owner's Representative and Owner to enable them to:

    .1 Day-to-day Operators:

        .1 Proficiently operate the system.

        .2 Understand control system architecture and configuration.

        .3 Understand DDC system components.

        .4 Understand system operation including DDC system control and optimizing routines (algorithms).

        .5 Operate the workstation and peripherals.

        .6 Log on and off the system.

        .7 Access graphics, point/object reports, and logs.

        .8 Adjust and change system setpoints, time schedules, and holiday schedules.

        .9 Recognize malfunctions of the system by observation of the printed copy and graphical visual signals.

        .10 Understand system drawings included in the Operation and Maintenance Manual.

        .11 Understand the job layout and location of control components.

        .12 Access data from DDC controllers.

        .13 Operate portable operator's terminals.

    .2 Advance Operators:

        .1 Make and change graphics on the workstation.

        .2 Create, delete, and modify alarms, including annunciation and routing of these.

        .3 Create, delete, and modify point/object trend logs, and graph or print these.

  .4 Create, delete, and modify reports.

  .5 Add, remove, and modify system's physical points/objects.

  .6 Create, modify, and delete programming.

  .7 Add panels when required.

  .8 Add operator interface stations.

  .9 Create, delete, and modify system displays – both graphical and otherwise.

  .10 Perform DDC system field checkout procedures.

  .11 Perform DDC controller unit operation and maintenance procedures.

  .12 Perform workstation and peripheral operation and maintenance procedures.

  .13 Perform DDC system diagnostic procedures.

  .14 Configure hardware including PC boards, switches, communication, and I/O points/objects.

  .15 Maintain, calibrate, troubleshoot, diagnose, and repair hardware.

  .16 Adjust, calibrate, and replace system components.

 .3 System Managers/Administrators:

  .1 Maintain software and prepare backups.

  .2 Interface with job-specific, third-party operator software.

  .3 Add new users and understand password security procedures.

 .4 Provide course outline and materials as per:

  .1 Division 01 – General Requirements.

  .2 Section 01 79 00 – Demonstration and Training.

  .3 The trainer (s) shall provide one copy of training material per student.

 .5 The trainer (s) shall be factory-trained instructors experienced in presenting this material.

 .6 All Operation and Maintenance Manuals must be made available prior to training. Manuals will be a training tool, used during training sessions.

 .7 List the name of the person conducting each session and the visual and audio aids employed.

 .8 Owner's Representative may monitor the training program and reserves the right to modify the schedule, content, as well as replace instructors deemed unqualified.

END OF SECTION