

SECTION 01 79 00
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Training of NYCHA personnel in operation and maintenance of the installed systems.
- B. Preparing demonstration and training DVD.

1.02 RELATED REQUIREMENTS

- A. Section 01 30 00 – Administration of Contracts and Project Procedures
- B. Section 01 78 00 - Closeout Submittals: Operation and maintenance manuals.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures; except:
 - 1. Make all submittals specified in this section.
 - 2. Submit one copy to the NYCHA Designated Representative(s).
 - 3. Submit in editable electronic format, where the determined format is approved by the NYCHA designated Representative(s).
- B. Training Plans: NYCHA will designate personnel to be trained as required.
 - 1. Submit to the NYCHA Designated Representative(s) for review as it pertains to the scope of work.
 - 2. Submit training plan no less than four weeks prior to start of training.
 - 3. Revise and resubmit until acceptable by the NYCHA Designated Representative(s).
 - 4. Provide an overall schedule showing all training sessions.
 - 5. Include at least the following for each training session (See section 1.06 B training module for further instruction)
 - a. Identification, date, time, and duration.
 - b. Description of products and/or systems to be covered.
 - c. Name of firm and person conducting training; include qualifications.
 - d. Methods to be used, such as live demonstrations, hands-on, etc.
 - e. Media to be used, such as slides, hand-outs, etc.
 - f. Training equipment required, to be provided by Contractor.
- C. Training Manuals: Provide a training manual for each attendee.
 - 1. Include where applicable, the: O&M manuals, approved submittals, sequence of operations, riser diagrams, etc.
 - 2. Include copies of all hand-outs, slides, overheads, video presentations, etc., that are not included in O&M manuals.
 - 3. Format of the training manual shall be hard copy and/or electronic, at NYCHA's discretion.
- D. Training Reports:
 - 1. Identification of each training session, date, time, and duration.
 - 2. Sign-in sheet showing names and job titles of attendees.
 - 3. List of attendee questions and written answers given, including copies of and references to supporting documentation required for clarification; include answers to questions that could not be answered in original training session.
 - 4. Include NYCHA's formal acceptance of the training session.
- E. Demonstration and Training DVDs: Submit two copies of each within seven days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of photographer.
 - c. Name of Contractor.
 - d. Date of video stamped.
 - e. Description of vantage point, indicating location of the module.

2. Supporting Documentation: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video. Include name of Project and date of video on each page.

1.04 QUALITY ASSURANCE

- A. Provide instruction by manufacturer or manufacturer's representative, as per NYCHA's approval. The individual must be experienced in operational and maintenance procedures and training for that equipment.
- B. Videographer Qualifications: A professional videographer who is experienced video graphing construction projects.

1.05 COORDINATION

- A. Coordinate instruction schedule with NYCHA's operations. Adjust schedule as required to minimize disrupting NYCHA's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of demonstration and training modules with content of approved emergency, operation, and maintenance manuals.

1.06 DEMONSTRATION AND TRAINING PROGRAM

- A. Program Structure: Develop a demonstration and instruction program that includes individual training modules for all installed equipment as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:
 1. Basis of System, Operational Requirements, and Criteria:
 - a. System and equipment.
 - b. Operating standards.
 - c. Regulatory requirements.
 - d. Equipment function.
 - e. Operating characteristics.
 - f. Limiting conditions.
 - g. Performance curves.
 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project Record Documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.

- e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 DEMONSTRATION - GENERAL

- A. Operations conducted during system start-up and Functional Testing do not qualify as NYCHA approved demonstration.. Contractor must provide a letter to the NYCHA Designated Representative(s) certifying that start-up and Functional Testing is complete and the system is ready for use and demonstration.
- B. Demonstration may be combined with NYCHA personnel training, at NYCHA's discretion.
- C. Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
 1. Perform demonstrations after Functional Testing have been done and approved.

3.02 TRAINING - GENERAL

- A. The Contractor will prepare the Training Plan based on the equipment installed.
- B. Conduct training on-site unless otherwise indicated.
- C. Do not start training until Functional Testing is complete, unless otherwise specified or approved by the NYCHA Designated Representative(s).
- D. The NYCHA Designated Representative(s) is responsible for determining that the training was satisfactorily completed and will indicate so by providing a written approval.

- E. Training schedule will be subject to availability of NYCHA's personnel to be trained.
- F. Product- and System-Specific Training shall include but not limited to:
 - 1. Review the applicable O&M manuals.
 - 2. For systems, provide an overview of system operation, design parameters and constraints, and operational strategies.
 - 3. Review of Project Specific Operations and Maintenance Data
 - 4. Where applicable, review instructions for proper operation in all modes, including start-up, shut-down, seasonal changeover and emergency procedures, and for maintenance, including preventative maintenance.
 - 5. Provide hands-on training and associated diagnostic equipment for all operational modes possible and preventive maintenance.
 - 6. Emphasize safe and proper operating requirements; discuss relevant health and safety issues and emergency procedures.
 - 7. Discuss common troubleshooting problems and solutions.
 - 8. Discuss any peculiarities of equipment installation or operation.
 - 9. Discuss warranties and guarantees, including procedures necessary to avoid voiding coverage.
 - 10. Review recommended tools and spare parts inventory suggestions of manufacturers.
 - 11. Review spare parts and tools required to be furnished by Contractor.
 - 12. Review spare parts suppliers and sources and procurement procedures.
- G. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a written and/or demonstration performance based test.
- H. Cleanup: Collect used and leftover educational materials and give to NYCHA Representative. Remove instructional equipment. Restore systems and equipment to condition existing before initial training.
- I. Be prepared to answer questions raised by training attendees; if unable to answer during training session, provide written response within three days.

END OF SECTION